Journal of Contemporary Issues in Business and Government Vol. 27, No. 06, 2021
https://cibg.org.au/

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Symmetric and Asymmetric Effects of Institutional Quality on Sectoral Foreign Direct Investment in China

[1]Bakhshaliv Elmin, [2] Hameed Khan, Wang Bing [3],Faisal Mehmood [4*],Henna[5], [6]Hidayat Ullah

[1]School of International Political Affairs, Jilin University, Jilin, China
[2]Department of Economics, Kohat University of Science & Technology, Kohat, Pakistan
[3,4]College of Public Administration, Huazhong University of Science & Technology, Wuhan, China
[5]Institute of Business Studies, Kohat University of Science & Technology, Kohat, Pakistan
[6]Abbotabad University of Science & Technology, Abbotablad
Emails: [1] ebro_91@mail.ru;[2]hameed.qec@gmail.com;3wbyf@hust.edu.cn,
4fmehmood_kmu@yahoo.com**(Corresponding author)**;[5]hennagulawat@gmail.com,
[6]masmaleo@yahoo.com

Abstract
Institutional quality (IQ)has gained much attention in institutional economics literature – it appears as the fundamental pillar for economic development. Literature on foreign direct investment (FDI) response to IQ has examined the symmetric association of this connection, while there is a probability of the existence of asymmetries.This study adds to the FDI literature by investigating the symmetric and asymmetric effects of IQ on sectoral FDI in China.Using the ARDL and NARDL techniques on quarterly data, we find that IQ has both thesymmetric and asymmetric effects on FDI. This offers useful policy input for stakeholder – importantly, to carefully contemplate the policy refinement based on symmetric dynamics unless asymmetric directions are not examined.
Keywords: Institutional Quality; Foreign direct investment;asymmetric ARDL; China
JEL code:F21; C22; O17

1. Introduction

The integration of China into the world economy is the most miraculous phenomenon since it maintains high and sustainable economic growth for the last several decades. The opening-up reforms made China the 4thlargest destination for FDI with total FDI stock of 1491 billion USD in the year 2017(UNCTAD, 2018). However, the reforms are in confrontation with Confucian doctrines whereby culture, trust, and norms are more valuable than the formal legal framework. Similarly, the quality of formal Chinese governance is also a heated debate topic in foreign media

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

and academic research. The Chinese listed firms suffered an aggregate loss of USD 30 billion in firm value due to corruption (D. S. Kim, Li, & Tarzia, 2018). This is curious because FDI involves much irreversible fixed investment, and foreign investors are quite concerned with the institutional quality (IQ) of host countries. The literature on FDI response to IQ has examined the symmetric association (linear) of this connection, while there is a probability of the existence of asymmetries(nonlinear). This study adds to the FDI literature by investigating the asymmetric effect of IQ on FDI in China, which is one of the fast-growingeconomies.

Various aspects of IQ such as, property right protection, corruption, the rule of law, government stabilityare considered to be significant determinants of business sector development, capital market development, macroeconomic stability, and research anddevelopment (R&D)(Acemoglu, Johnson, & Robinson, 2005; Durnev, Morck, & Yeung, 2004; La Porta, Lopez-de-Silanes, & Shleifer, 1999). At the contrary, weakIQbrings forth the corruption as a substitute for tax fee(Wei, 2000). Consequently, it deters the inflow of FDI through two channels.Firstly, thepoor institutions appear like the tax, which is viewed as the cost to FDI. Secondly, the poor institutional quality, in turn,raises business uncertainty, which may also deter foreign investors from entering the host economies. It isbelieved that poor law & order, and the bureaucratic delays are keybarriers which deter the FDI inflow in thehost economy(Gastanaga, Nugent, & Pashamova, 1998). Keeping in view the impacts of good and bad institutional quality as determinant and deterrent of inward FDI, a group of studies foundno connection (Fan, Morck, Xu, & Yeung, 2009; Wheeler & Mody, 1992). One strand of studies show that better institutional quality attracts FDI (Acemoglu et al., 2005; Rodrik, Subramanian, & Trebbi, 2004). Similarly, the other strands of studies show that FDI has high sunk costs. The costs avert the enterprises to enter foreign markets unless these markets have low levels of uncertainty and risk(Asiedu, 2002; Du, Lu, & Tao, 2008; Globerman & Shapiro, 2002).

There is no doubt that formal institutional elements shape the enterprises' orientations and their location choice. However, formal institutions like legal, political, and economic, are not sufficient for explaining the institutional environment of countries. The institutional environment is consist of formal and informal institutions. Formal institutions are related to the formal rules of the game (court systems, constitutional law, statute law, common law, and regulations). The informal institutions are consist of informal norms of behavior, which are as important as the formalrules of the game.Therefore, informal institutional elements like values systems, norms, and cultures; are also crucial for shaping the business environment and behaviors of enterprises (North, 1990). Formal and informal institutions, together' define the 'rules of the game' for investors. Institutional asymmetries and misalignment arise due to the differences in formal and informal institutions. Over time, informal institutions become unsupportive while the formal institutions are reformed to be supportive of investments.Well-developed institutions reduce business risks and uncertainties, thereby maintain an environment with perfect information. Imperfect information tends to disturb the market mechanism, and non-linearities may arise.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

The previous studies mainly focus on the individualaspectsof institutionalquality(Du et al., 2008; Fan et al., 2009). Wheeler & Mody (1992) used a composite index comprising of 12 indicators plus a corruption measure. However, the index contains"government support for private business activity'', ''attitude of opposition groups towards FDI," and ''overall living environment for expatriates,'' that is why there may be no correlation between corruptionand these indicators or there may be measurement problem. According to the composite index, the ratio of noise-to-signal may not be high.Institutions related variables are correlated with each other and may not portray an accurate picture in a single regression (Buchanan, Le, & Rishi, 2012; Globerman & Shapiro, 2003). Similarly, some dataset contains time-invariant indicators, so the indices are prepared to make it feasible. For the construction of the composite index and to determine the weight to the indicator regarding various dimensions of institutional quality, we use the technique of Principal Component Analysis (PCA).

On the other hand, most of the previous studies based on developed and cross countries analysis which may not portray a clearer picture of the cause and effect.Analysis in cross-countries framework involves heterogeneity and cross-sectional dependence. Similarly, the contemporaneous correlation across countries does not imply causation. Therefore, the problem of endogeneity may arise (You & Solomon, 2015). Each country is different concerning economic size, culture, infrastructure, and politics. Therefore, the relationship in cross-country analysis may produce misleading results.

Moreover, aggregate FDI may portray a blurred picture; therefore, the sectoral distribution of foreign enterprises are essential for policy concerns. The previous literature focused on the aggregated FDI in relation with institutional quality (Bénassy-Quéré, Coupet, & Mayer, 2007; Uddin, Chowdhury, Zafar, Shafique, & Liu, 2019) and ignore the sectoral distribution.Yu & Walsh(2010) analyzed the sectoral distribution with institutional quality in the cross-countries framework. The institutional framework of countries are different and create heterogeneity and cross-sectional dependence problems.

Most of the previous studies lack the asymmetries associated with the relationship between FDI and institutional quality.Therefore, wecontribute the literature in manifolds. First, we analyze the FDI-institutions relationship in macro-level with focusing only China. Second, we analyze the relationship in quarterly data perspectives. Third, we contribute the literature by investigating non-linearities in the FDI-institutions relationship. Fourth, for policy implication, we target the sectoral distribution of FDI. Fifth, we incorporate multi-dimensional aspects of institutions in a single index by applying PCA. Sixth, we apply the ARDL and VECM approaches for analytical purposes, which produce better results compared to other time-series techniques.

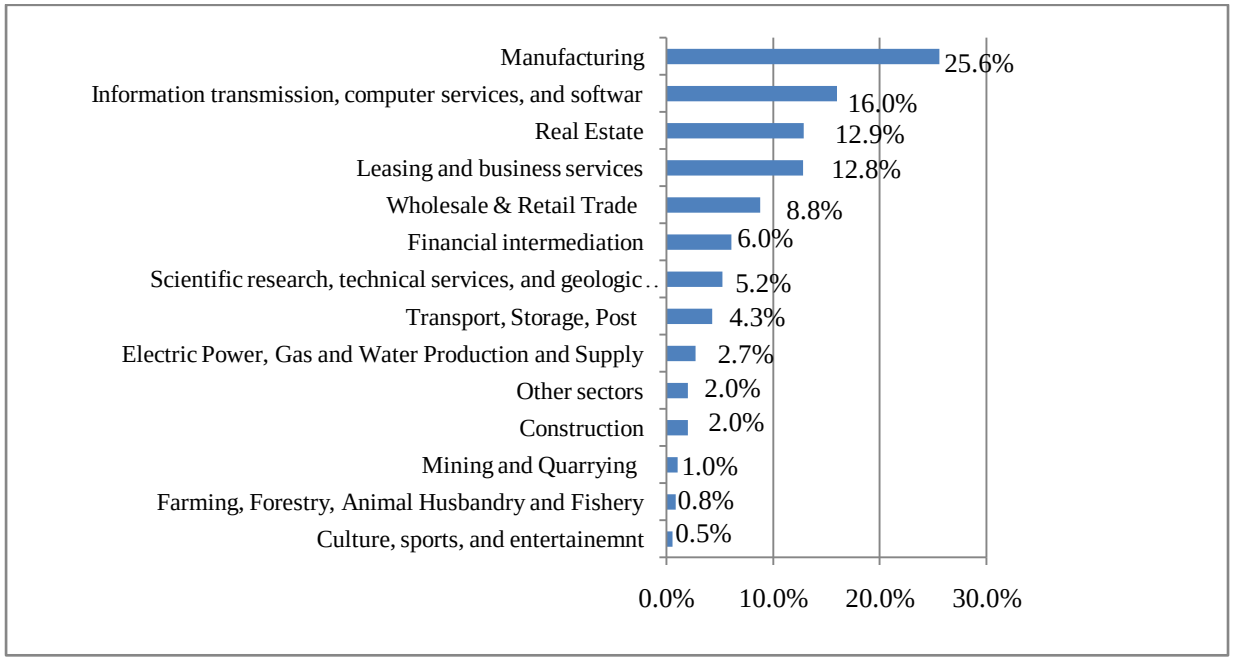
Rest of the work is arranged as follows. Section two describes the overview of FDI and IQ in China. Section three discuss related literature, while the fourth section shows the relevant methodology and data. Results and discussion are reported in section five. Finally, section sixconcludes the study.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

2. An overview ofFDI and IQin China

Due to the open-door policy for foreign investors in the early 1990s, there is a massive inflow of FDI in China. The economy of China quite rapidly boosts up due to the spillover effect of FDI. The annual GDP growth rate increased from 3.9% in 1990 to the highest level of 14.23% in 2007 and the per capita GDP rise from 730.77 USD up to the level of 7329 USD in the year 2017.[1]The FDI inflowin China expanded from 3.49 billion USD to 126 billion USD from 1990 till 2016. in the year 2016, the tertiary sector (services) portion in total FDI is 66%, secondary sector (manufacturing) portion is 32% and the primary sector (agriculture, fishing & mining) counted for only 2%.[2] (see Fig.1). Based on FDI stock, China ranked the 4thlargest recipient country to attract FDI inflow after the USA, Hong Kong, and the UK in the year 2017(UNCTAD, 2018). During 2012, the largest share of foreign investment in China is from Hong Kong (70%), while in the shares of FDI in China by North America, Europe, and Latin America are 2%, 3% and 9% respectively[3].

Figure 1. Share of industries in total FDI during 2017 in percent.



Source: China Statistical Yearbook 2018 (*authors' calculations*)

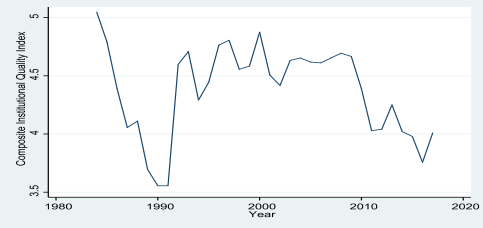
Despite the fact of theconsiderable corruption level in China, its economic indicators areflourishing for the past several years. The general perception of Chinese IQ is not good. The post-Mao reforms bring forth an enormous revolution in the Chinese economy. After the transformation period, the economy converted to a market economy where private businessesstarted their operations.Fig.2 shows the status of the average IQ index of China out of

[1] WDI Database
[2] www.stats.gov.cn
[3] www.unctad.org

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

the maximum IQ indices of 12. The descriptive statistics of the six index's components (corruption, quality of bureaucracy, government stability, democratic accountability,investment profile, and law & order) are shown in Table 1. The standard deviation of the selected six indicators reveals that the standard deviation for the quality of bureaucracy is the lowest, which make it most stable among the other institutional indices. Similarly, government stability in China is least according to the value of its standard deviation. As a whole, China's IQ compared with other nations is low, i.e., 118th position out of 148 in the year 2017 (see AppendixTable A1). China is a vast and diverse country based on ethnicity, language and culture. The bureaucratic apparatus and local administration are the two integral for its governance for thousands of years. The legal and constitutional systems are homogeneous all over China. However, the institutional quality is different in Chinese provinces. The institutional quality in coastal provinces is higher than the inland provinces because coastal provinces have more privileges and preferential treatments. Similarly, openness also differentiates them from inland provinces. The differences may also arise due to political, regional, historical, and other reasons.

Figure 2.Trends in institutional quality in China.



Source: ICRG Database- *authors' calculation*

Table 1.IQ Indices from 1984 till 2017

	IQ Index	*Std. Dev.*	*Min*	*Max*
Bureaucracy Quality	2.0	0.2	1.9	2.7
Corruption	2.6	1.1	1.0	4.5
Democratic Accountability	2.0	1.1	1.0	4.0
Government Stability	8.8	2.2	4.0	12.0
Investment Profile	6.7	0.9	5.0	8.6
Law and Order	4.0	0.8	2.9	5.0
Composite IQ Index	4.4	0.4	3.6	5.0

Source: ICRG Database, Author's calculations

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

3. Related literature

Social, political, economic elements of countries constitute an institutional framework (North, 1990). The elements are interacting with business activities to determine the profitability of a firm. Institutional aspect is the crucial determinant of firms profitability by reducing the transaction and transformation costs (Khanna & Rivkin, 2001; North, 1990). Similarly, institutional elements form the basis for production and exchange (Sobel, 2002). Therefore, in addition to traditional factors, foreign enterprises choose those countries as their investment destinations, where they find well-developed political, social, and economic institutions (J. Dunning, 2013).

Moreover, institutions play a vital role in understanding the internalization pattern (Arregle, Miller, Hitt, & Beamish, 2016). Similarly, perceived distance is an essential aspect of investment's decisions. Ghemawat (2001) argue that cultural, administrative, geographical, and economic distance among countries is more important for reducing business costs and ease of doing business. The poor institutional quality increases the perceived distance between the host and home countries and hence increase the transaction costs. Therefore, institutional integrity matter more than absolute restrictions. Dunning (2013) stressed that the institutional aspect of FDI should be included besides the traditional determinants of OLI theory.

Foreign firms do not undertake investments in the host economies with an uncertain and risky institutional environment. Emerging economies have less developed institutions (Palepu & Khanna, 2005). Therefore, the less developed institutional environment in emerging countries may create threats in the form of business risks and uncertainties. The risks may lead to an increase in transaction costs, which deter MNCs to enter into the host economies (Rottig, 2016). Bailey (2018) identified that the effect of institutional elements is more in emerging economies than the developed countries. He added that tax policies, culture, corruption, the rule of law, political stability, and democratic institutions are crucial elements for the decision process of foreign firms. A plethora of literature identified that well-developed institutions reduce the business risk and uncertainty in order to provide a feasible environment for investment (Bevan, Estrin, & Meyer, 2004; Sethi, Guisinger, Phelan, & Berg, 2003). Therefore, foreign must be cautious about investment decision by considering the institutional quality in host countries (Kostova & Zaheer, 1999).

There are various dimensions of institutional quality, i.e., government size, property rights, democracy, etc. Host economies with the larger government with respect to economic growth and size can influence FDI by providing facilities that are helpful to execute the day-to-day business operations. One of the important aspects of the larger governments is that they regulate public policies to be more effective. The effective of economic policies may be seen in terms of the provision of desirable social services (Garcia-Sanchez et al., 2013; Newton, 1982). Effective governance infrastructure of host countries in the institutional, political, legal, and regulatory framework can influence the home and host countries MNCs' investment decisions (Globerman & Shapiro, 2003). Similarly, large government size with effective governance of host economies can influence the FDI inflow by controlling corruption (Buchanan et al., 2012), building infrastructure (Yuan, Chen, & Wang, 2010), ensuring higher economic growth (Pajunen, 2008),

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

and providing public goods (Holmes, Miller, Hitt, & Salmador, 2013). Yuan et al. (2010) argue that host economies maintain higher economic growth through an increase in investments, taxations, consumptions, and transfer payments; hence, the host economies attract MNCs. The effect of government size on FDI in emerging and developing economies are more than developed economies.

Property rights are important aspects of host economies to attract foreign investments. Besides the traditional factors highlighted in OLI theory, the regulatory environment and property rights are essential elements for MNCs to produce abroad (J. H. Dunning, 1980). He added that efficient institutions ensure property rights and enable a strong regulatory environment, which in turn reduce the transaction costs of MNCs. Previous literature also emphasized on the importance of regulatory environment and property rights protections for the multinational corporations for the host country choice (Asiedu & Lien, 2011; Bailey, 2018; Globerman & Shapiro, 2003; Pajunen, 2008). Asiedu and Lien (2011) argue that democracy and regulatory framework affect the foreign capital inflow in host countries. The democratic institutions can reduce the risk, transaction cost, and ensure property rights, which in turn increase competition, efficiency and profitability of foreign firms by reducing uncertainty (Bailey, 2018; Li & Resnick, 2003). Therefore, a stable institutional environment combine with the effective rule can increase efficiency and productivity of investments (Choi, Lee, & Shoham, 2016). Adding further, Rammal and Zurbruegg (2006) are of the view that deterioration in the enforcement of investment regulations may decrease FDI inflow into the host economies. Similarly, the institutional factors that attract foreign investors towards host economies include general justice, an effective rule of law, a sound judicial system, and supportive labor regulations (Pajunen, 2008).

Moreover, the democratic government ensures a stable and transparent environment to attract FDI, while autocratic governments endowed with less efficient institutions do not attract many investments (Holmes et al., 2013). Therefore, political stability and political regime types play an important role in the MNC's decisions to invest abroad (Pajunen, 2008). The emerging-market literature show that political stability is a vital factor for institutional quality, which is an important element for FDI inflow into the host economies (Ahlquist, 2006; Asiedu, 2006; Globerman & Shapiro, 2002; Holmes et al., 2013).

The findings of previous research are conflicting regarding the regime type. Democratic governments favor FDI because foreign firms have opportunities to influence the system through lobbying, elections, and interest groups. However, the autocratic regime has the characteristics that power is confined to some people; therefore, the system is seen to be risky and unpredictable. Ahlquist (2006) is of the view that democratic political institutions are more stable and can attract foreign capital. However, due to frequent changes of government officials, democracy may be viewed as unstable; while autocracy characterizes with the stability of economic policies (Asiedu & Lien, 2011). Similarly, veto power is in many hands in a democratic regime, which creates an obstacle into favorable policy changes (Henisz, 2000). Additionally, the lower-income democratic countries face issues of terrorism (Chenoweth, 2013), which increase the cost of doing business and create instability, deter MNCs to enter in these countries (MengYun et al., 2018). In contrast, a plethora of studies supports the view that the autocratic regime attracts more

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

foreign investment than the democratic regime (Asiedu & Lien, 2011; Busse, 2004; Gani & Al-Abri, 2013).The stability and predictability of business environment in autocratic regime is also confirmed by the Economic Intelligence Unit. Countries with autocratic regimes offer tax incentives to foreign investors, repress protests, and suppress labor demands (Fong & Haggard, 2006; Garten, 1997). Li and Resnick (2003) are of the view that autocratic governments encourage MNCs by creating monopolistic competition.

Liberalization and economic policies also affect FDI inflows. The location choice of portfolio investors also depends on host countries economic policies and the past behavior of their governments (Ahlquist, 2006). Similarly, financial development, fiscal, and monetary policies have a profound effect on FDI inflows (Holmes et al., 2013). Financial and trade liberalization affect the location choice of MNCs. Using data from 112 countries from 1985 to 2009, Okada (2013) came to know that individually institutional quality and financial openness have no impact on capital inflow. However, the interaction between intuitions and financial openness have significant impacts on MNCs. Financial openness leads to more developed countries in experiencing net capital outflows, while the less developed countries tend to experience net capital inflows (Reinhardt, Ricci, & Tressel, 2013). On the same lines, Aizenman and Noy (2006) find a strong feedback effect between FDI and trade. Similarly, Büthe and Milner (2008); Kim et al. (2013); Medvedev (2012) are of the view that there is a positive relationship between trade liberalization and foreign direct investment.

Civil and political rights are important elements for human development, which in turn affect the decision choice, efficiency, and productivity of foreign firms (Dutta & Osei-Yeboah, 2013). The institutional framework of countries gives human and civil rights to individuals, and enables them to develop and play its role in the foreign capital inflows. Therefore, civil and political rights are seen to have a significant and positive effect on the international capital inflow into the host economies. Adam and Filippaios (2007) differentiated between political and civil liberty and proposed that foreign capital tend to flow in countries with low civil but with high political liberties. Moreover, the authors find that hump-shaped negative relationship exists between FDI and civil liberties, and below the threshold level, repression of civil liberties is associated with more FDI inflow. The relationship between liberties and FDI is also confirmed by previous literature (Blanton & Blanton, 2007; Busse, 2004; Harms & Ursprung, 2002).

4. Data and methodology

4.1 Data

To assess the symmetric and asymmetric effects of institutional quality on the sectoral distribution of foreign direct investment, we utilize quarterly data. Subject to the availability of data regarding sectoral distribution of FDI, our sample restricted to the period from 1997 to 2017. Following Wei et al.(1999) for the selection of control variables. Any additional controls do not significantly change the magnitude of the coefficients, thus it suggest that we do not have problem of omitted variable bias.We explain the institutional quality index, including its areas and components.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

4.1.1. Construction of institutional quality index

The data about IQ is obtained from the International Country Risk Guide (ICRG) database. The dataset contains 12 indicators from which bureaucratic quality, democratic accountability, the rule of law, investment profile, corruption, and government stability are commonly used in related literature. These indicators are closely related. The Principal Component Analysis (PCA) is a powerful tool to reduce dimensionality and index construction. PCA captures most of the features of individuals dimensionsrelated to institutional quality (Buchanan et al., 2012; Globerman & Shapiro, 2003). Therefore, followingthe previous literature, these indicators are transformed into a composite index using principal component analysis (PCA).

4.1.2. National Bureau of Statistics China data

The study obtained quarterly data for aggregated and disaggregated FDI (primary, secondary, tertiary FDI) from the National Bureau of Statistics of China(2018).Previous literature shows that besides the institutional quality, other factorsaccount for mobilizing the FDI. Trade openness is considered to be an essential determinant of FDIin China.Zhao & Zhu (2000)used trade as a proxy variable for local openness. Similarly, domestic investment plays a vital role in attracting foreign direct investment through the forward (*market access*) and backward (*supplies access*) linkages. The domestic investment may help foreign investors through the supply of necessary materials, logistic support, and technical workforce.Moreover, foreign firms invest in those countries that have huge *market size*. The only variable that passes the robustness test isGDP per capita used as a proxy for market size(Chakrabarti, 2001). Therefore, the GDPPC is the per capita GDP used as a proxy for market size in this study. We add length of road network (normalized by population density) as proxy for infrastructure. Moreover, we include a time dummy to capture the effect of a structural break in our data. The details of the datasets and variables used in this study are given in Table2.

Table 2. Description and source of variables.

Variable	Notation	Data source
Aggregate FDI (Current USD 10000)	FDI	National Bureau of Statistics of China (2018)
Primary industry FDI (Current USD 10000)	PRI	
Secondary industry FDI (Current USD 10000)	SEC	
Tertiary industry FDI (Current USD 10000)	TER	
Trade openness (exports + imports)/GDP	TO	
Highways	INFR	
Gross fixed capital formation (% of GDP)	DI	
Per capita GDP (current USD)	GDPPC	
IQ index	IQ	PRS Group (2017)

Note: aggregated and disaggregated level of FDI used in this study are in log form

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

4.2 Analytical framework

Backed up with the theoretical and empirical literature the functional form of the IQ and FDI relationship can be expressed as under;

$$FDI = f(IQ, \text{TO}, \text{DI}, \text{GDPPC}, \text{INFR}), \quad (1)$$

where FDI is the function of IQ (institutional quality), TO (trade openness), DI (domestic investment), GDPPC (per capita GDP), and INFR (infrastructure). The objective of our study is to examine the symmetric and asymmetric impact of IQ on FDI of China. We first measure the symmetric relationship because asymmetric estimation (NARDL) is an extension to the conventional ARDL approach.

4.2.1 Symmetric analysis

To know the relationship between the underlying variables, we use ARDL (the autoregressive distributive lag) technique of cointegration. The technique is developed by Pesaran et al. (2001). There are several advantages to use the ARDL approach. First, ARDL is applicable even in case some of the regressors are endogenous (Odhiambo, 2009). Second, the method is applicable irrespective of the order of integration of variables, i.e., I(0), 1(1), 1(1,0). If the variables are I(2) or above, then the F-statistics is not invalid (Ouattara, 2006). Third, the method is effective even in the case of small samples (Ghatak & Siddiki, 2001). In case of small samples, the method is better than Johansen and Juselius (Johansen, 2006), Engle & Granger (Engle & Granger, 2006), and Phillips and Hansen (Phillips & Hansen, 1990). Another advantage of using ARDL is that it overcomes the problems resulting from series with unit roots, and the unrestricted error correction model (UECM) seems to take satisfactory lags that captures the data generating process in a general-to-specific framework of specification (Laurenceson James; Chai C.H. Joseph, 2003).

Before the estimation of the empirical results, it is imperative to determine the order of integration. In this regard, we use Augmented Dicky Fuller (ADF) test. We also apply the Phillips- Perron (PP) test in order to get robust results. Moreover, we also apply the Zivot-Andrews breakpoint unit root test in order to avoid misleading and biased results. We follow Ayala and Triguero (2017) and apply Baum's modified methodology for unit root testing against the alternative of trend stationarity with a shift in time trend, shift in mean, and a shift in both slope and intercept.

The next step is to apply the ARDL bound testing model of cointegration. The bound test F-statistics are obtained that will show us whether cointegration exists or not. If the F-statistic value is higher than the upper bound, then there is cointegration. Similarly, the values of the F-statistic below the lower bound value indicate no cointegration. While the F-statistic value between the upper and lower bound indicate inconclusive region.

Moreover, the derivation of the error-correction term is easy by simple linear transformation (Hall, Banerjee, Dolado, & Galbraith, 2006).We can formulate the unrestricted error correction model (ECM) as the following;

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

$$\Delta FDI_t = \alpha + \sum_{i=1}^{n1} \psi_i \Delta FDI_{t-i} + \sum_{i=1}^{n2} \rho_i \Delta IQ_{t-i} + \sum_{i=1}^{n3} \phi_i \Delta TO_{t-i} + \sum_{i=1}^{n3} \delta_i \Delta DI_{t-i} + \sum_{i=1}^{n4} \rho_i \Delta GDPPC_{t-i}$$
$$+ \sum_{i=1}^{n5} \rho_i \Delta INFR_{t-i} + \lambda_1 FDI_{t-1} + \lambda_2 IQ_{t-1} + \lambda_3 TO_{t-1} + \lambda_4 DI_{t-1} + \lambda_{5\,fdi} GDPPC_{t-1} + \mu_{1t} \quad (2)$$

In equation (1), the term FDI representing total FDI, primary sector FDI, secondary sector FDI, and tertiary sector FDI, respectively. Similarly, the dependent variable in equation (2) is represented by IQ.While TO, DI, and GDPPC are used as control variables. The subscript *t* is the time dimension. ARDL technique will be applied to the model for identifying the long-run and short-run dynamics.

The null hypothesis of all $\lambda_s = 0$, is tested against the alternative hypothesis of $\lambda_s \neq 0$. The joint significance of the lagged levels is tested using F-test that has non-standard asymptotic distribution.Pesaran et al. (2001) provided upper and lower bound critical values. However, the values are applicable for large samples. In the case of small samples, the decision based on the Pesaran et al. (2001) critical values can mislead the estimation results (Herzer, 2010). Therefore, we rely on the critical values provided by Narayan (2005), which apply to small sample sizes ranging from 30 to 80 observations. If the computed F-statistic falls above the upper value bound, the null is rejected, indicating cointegration. If the computed F-statistic falls below the lower bound, the null hypothesis of no cointegration is accepted. In contrast, if the computed F-statistic falls within the bounds, the inference would be inconclusive.

After, the confirmation of for this purpose the ARDL model can be defined as;

$$\Delta FDI_t = \alpha_{0\,fdi} + \sum_{i=1}^{p} \psi_{ifdi} \Delta FDI_{t-i} + \sum_{i=1}^{p} \phi_{ifdi} \Delta IQ_{t-i} + \sum_{i=1}^{p} \rho_{ifdi} \Delta TO_{t-i} + \sum_{i=1}^{p} \delta_{ifdi} \Delta DI_{t-i} + \sum_{i=1}^{p} \varpi_{ifdi} \Delta GDPPC_{t-i}$$
$$+ \sum_{i=1}^{p} \pi_{ifdi} \Delta INFR_{t-i} + \Omega ECT_{t-1} + \mu_{2t} \quad (3)$$

To reach in long-run equilibrium for the variables IQ and FDI; ECT (error correction term) is the speed of adjustment.

4.2.2 Asymmetric analysis

The main assumption of our analysis is that IQ affectsFDI symmetrical. However, empirical analysis is necessary to identify whether IQ affects the FDI symmetrical or asymmetrical manner. For this purpose, we decompose the IQ intoa positive and negative effect. These two new variables are constructed using the concept of the partial sum as follows:

$$POS_t = \sum_{j=1}^{t} \Delta IQ_j^+$$
$$= \sum_{j=1}^{t} \max(\Delta IQ_j, 0), \quad (4)$$

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

$$NEG_t = \sum_{j=1}^{t} \Delta IQ_j^- = \sum_{j=1}^{t} \min(\Delta IQ_j, 0), \quad (5)$$

where POS_t and NEG_t are the partial sum process of positive and negative changes in IQ.We replace IQ with the two new variables. Thus Eq. (2) can be written as follows;

$$\Delta FDI_t = \alpha + \sum_{i=1}^{n1} \psi_i \Delta FDI_{t-i} + \sum_{i=1}^{n2} b_i \Delta TO_{t-i} + \sum_{i=1}^{n3} c_i \Delta DI_{t-i} + \sum_{i=1}^{n4} d_i \Delta GDPPC_{t-i} + \sum_{i=1}^{n5} d_i \Delta INFR_{t-i}$$
$$+ \sum_{i=1}^{n6} f_i \Delta POS_{t-i} + \sum_{i=1}^{n7} g_i \Delta NEG_{t-i} + \lambda_1 FDI_{t-1} + \lambda_2 TO_{t-1} + \lambda_3 DI_{t-1} + \lambda_{4\,fdi} GDPPC_{t-1} + \lambda_{5\,fdi} INFR_{t-1}$$
$$+ \lambda_6 POS_{t-1} + \lambda_7 NEG_{t-1} + \mu_{3t} \quad (6)$$

$$\Delta FDI_t = \alpha_{fdi} + \sum_{i=1}^{n1} \psi_{i\,fdi} \Delta FDI_{t-i} + \sum_{i=1}^{n2} b_{i\,fdi} \Delta TO_{t-i} + \sum_{i=1}^{n3} c_{i\,fdi} \Delta DI_{t-i} + \sum_{i=1}^{n4} d_{i\,fdi} \Delta GDPPC_{t-i}$$
$$+ \sum_{i=1}^{n5} \pi_{i\,fdi} \Delta INFR_{t-i} + \sum_{i=1}^{n6} f_{i\,fdi} \Delta POS_{t-i} + \sum_{i=1}^{n7} g_{i\,fdi} \Delta NEG_{t-i} + \Omega ECT_{t-1} + \mu_{4t} \quad (7)$$

Eq. (6)& Eq. (7)use the same estimation methodology which the Eq. (2) & Eq. (3) use (Shin, Yu, & Greenwood-Nimmo, 2011).Eq. (2) is the linear form of ARDL. Shin, Yu, &Greenwood-Nimmo (2011) argue that the incorporation of NEG and POS brings nonlinearities in the relationship; therefore, Eq. (6) is nonlinear form of ARDL. By comparing λ_5 to that of $\lambda_6$from Eq. (6), we can check the long-run asymmetries. Similarly, by comparing of f_i's to the estimates of g_i'swe can check the short-run asymmetries. If the estimated coefficients are different in sign and size, then the effects are said to be asymmetric.However, IQ changes have symmetric effects if the estimates are the same.

5. Results

The variables should be of I(0), I(I) and (0,I) to apply the ARDL technique. The validity of F-statistic is doubtful if the variables are higher-order integrated, i.e., I(2) (Ouattara, 2006). The ADF test for unit-root isapplied to identify the order of integration.

Table3shows the unit root results. We apply Augmented Dicky-Fuller (ADF) test, andfor robustness check, we also apply the Phillips- Perron(PP) test of a unit root. Theresultsof both the tests show that the variables are I(0) or I(1). It also satisfies an important condition to perform ARDL since none of the series is found to be I(2)(Kouakou, 2011).

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Table 3. Unit root and stationary test results.

Variable	ADF Test		Phillips- Perron		ZA Test					
	I(0)	I(1)	I(0)	I(1)	Zd	Break	Zt	Break	Zdt	Break
FDI	-1.59	-3.80**	-1.61	-3.93**	-2.18	2007Q1	-3.29	2010Q4	-3.52	2007Q1
PRI	-2.77	-2.47	-1.97	-3.60**	-3.98	2008Q3	-3.05	2011Q4	-4.28	2009Q1
SEC	-1.66	-3.28*	-1.12	-4.04**	-3.20	2003Q1	-4.65**	2010Q3	-4.42	2010Q1
TER	-2.48	-4.57**	-1.76	-3.81**	-3.90	2006Q1	-3.20	2014Q2	-3.17	2012Q1
TO	-2.15	-3.39*	-1.15	-3.06	-4.06	2001Q1	-4.56**	2005Q1	-4.66	2002Q1
DI	-1.55	-3.86**	-0.438	-3.30*	-3.24	2014Q1	-4.51*	2012Q1	-4.78	2008Q1
GDPPC	-2.22	-3.45*	-2.19	-4.58**	-3.93	1999Q3	-4.12	2000Q2	-4.12	2000Q2
INFR	-2.16	-3.57*	-1.26	-3.71**	-3.92	2005Q1	-4.52*	2014Q1	-3.17	2012Q1
NEG	-2.96	-3.43*	-1.98	-3.76**	-5.20**	2010Q1	-4.05	2008Q1	-4.93*	2010Q1
POS	-3.08	-3.70**	-2.55	-3.96**	-6.02***	2012Q1	-3.41	2002Q3	-6.9***	2012Q1
IQ	-1.96	-4.43**	-1.45	-3.86**	-4.10	2010Q1	-4.25	2008Q1	-4.53*	2010Q1

Note. * p<0.10, ** p<0.05, *** p<0.01. ADF and PP tests include intercept and trend. Breaks indicate the years with minimum Dicky–Fuller statistics. The ZA test shows one structural break in trend (Zt), intercept (Zd), and both intercept and trend (Zdt).

Table 4 displayed the estimation results of linear ARDL and nonlinear ARDL for aggregated FDI and disaggregated FDI in relationship with the institutional quality. Computed F-statistics are higher than the upper-bound values of Narayan(2005), which reveal that our variables are cointegrated. We use the Akaike Information Criterion (AIC) for the selection of lags. Neumayer & Spess (2005) suggested that endogeneity can be minimized by lagging the explanatory variables.

Table 4. Linear and non-linear ARDL results.

Variables	Agg. FDI		Primary sector		Manufacturing sector		Services sector	
	ARDL Max. lag=2	NARDLMax. lag=3	ARDLMax. lag=2	NARDLMax. lag=2	ARDLMax. lag=3	NARDLMax. lag=3	ARDLMax. lag=2	NARDLMax. lag=4
Long-run								
TO	0.003	0.01	0.001	0.001***	0.001*	0.001	0.015	0.001
	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.01)
DI	0.006**	0.01**	0.04*	0.02***	0.056***	0.03***	0.019*	0.02*
	(0.02)	(0.00)	(0.02)	(0.002)	(0.00)	(0.00)	(0.01)	(0.01)
GDPPC	0.01***	0.01	0.001	0.001	0.001**	0.001**	0.000*	0.001
	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.001)	(0.00)	(0.01)
INFR	0.12*	0.10*	0.050	0.03	0.20**	0.16*	0.22*	0.14*
	(0.06)	(0.05)	(0.03)	(0.02)	(0.09)	(0.09)	(0.12)	(0.08)
IQ	0.033**		0.036**		0.180***		0.064*	
	(0.02)		(0.02)		(0.06)		(0.04)	
POS		0.02*		0.017*		0.05***		0.04***
		(0.01)		(0.00)		(0.01)		(0.02)
NEG		-0.01*		-0.002*		-0.01*		-0.01*
		(0.01)		(0.001)		(0.006)		(0.005)
DUMMY	0.02***	0.02***	0.25**	0.05***	-0.030*	0.003	0.167	-0.01

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

	(0.01)	(0.01)	(0.11)	(0.01)	(0.02)	(0.008)	(0.39)	(0.01)
Constant	6.27***	6.27***	5.29 ***	3.34***	5.944***	1.55***	4.419***	0.01
	(0.00)	(0.00)	(0.27)	(0.02)	(0.07)	(0.00)	(1.17)	(0.13)
Short-run								
FDI	0.69***	0.63***	0.758***	0.77***	--	0.68***	--	0.62***
	(0.08)	(0.06)	(0.08)	(0.08)		0.09		(0.09)
TO		-0.002**	--	--	0.001	-0.001	--	
		(0.00)			(0.01)	(0.001)		
DI	-0.01**	-0.01***	0.008	0.01	--		-0.016***	-0.02***
	(0.00)	(0.00)	(0.01)	(0.01)			(0.00)	(0.00)
GDPPC	0.01*	0.01	0.01	--	0.001***	0.001	0.001	0.01
	(0.00)	(0.01)	(0.01)		(0.00)	(0.01)	(0.01)	(0.02)
INFR	0.01			-0.003*	0.002*	0.08	0.10*	
	(0.02)			(0.002)	(0.001)	(0.09)	(0.06)	
IQ	0.03**		-0.088***		-0.020		-0.029**	
	(0.01)		(0.03)		(0.01)		(0.01)	
POS		0.04		-0.23***				-0.02
		(0.04)		(0.07)				(0.04)
NEG		-0.03**		-0.04*				
		(0.01)		(0.03)				
DUMMY	0.01	0.01*	-0.037**	0.01	--		-0.002	0.002
	(0.01)	(0.01)	(0.02)	(0.01)			(0.01)	(0.01)
ECT								
	-0.48***	-0.22**	-0.37***	-0.44***	-0.596***	-0.25**	-0.45*	-0.53***
	(0.00)	(0.00)	(0.02)	(0.03)	(0.05)	(0.03)	(0.12)	(0.00)
Bound based F-statistic								
	4,99***	5.90***	4.15 **	3.28*	5.96***	5.02***	3.2*	3.12*
Diagnostic Statistics								
LM	0.18	1.02	1.36	1.36	0.51	0.18	0.026	0.89
	(0.66)	(0.31)	(0.24)	(0.24)	(0.47)	(0.67)	(0.87)	(0.34)
Reset	1.19	0.69	0.02	0.68	0.35	0.54	0.40	0.27
	(0.27)	(0.40)	(0.88)	(0.40)	(0.55)	(0.46)	(0.52)	(0.60)
ARCH	0.29	1.08	0.11	0.06	2.88	0.55	0.028	2.38
	(0.58)	(0.30)	(0.74)	(0.80)	(0.09)	(0.45)	(0.86)	(0.13)
Normality	4.65	3.30	4.65	3.5	2.5	4.5	3.5	4.3
	(0.10)	(0.19)	(0.10)	(0.17)	(0.29)	(0.11)	(0.17)	(0.12)
Cusum	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable
Cusum of squares	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable
Adj. R^2	0.68	0.69	0.70	0.71	0.66	0.65	0.78	0.78

Note: standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. The null hypothesis of no cointegration is tested with calculated F-statistic, critical values are taken from Pesaran et al. (2001), please see Appendix Table A2. Lag selection is based on the AIC.Numbers in parenthesis are the p-values corresponding to the diagnostic tests.

In long-run, the coefficients of institutional quality in both the symmetric and asymmetric models are significant. The short-run analysis shows mix results. ECTs in all the specifications are significant and negative. The signs of the coefficients are according to the economic theories.The models are correctly specified. The diagnostic tests are according to our expectations in both the linear and nonlinear models. The adjusted R-squared and F-statistic are also correctly specified. The Lagrange Multiplier (LM) tests show that our models are not suffering from autocorrelation problem. ARCH (Autoregressive Conditional Heteroskedasticity) results indicate that residuals are homoskedastic. Recursive estimation (i.e., CUSUM tests, the plot of the recursive residuals) identify that our models are stable. Ramsey RESET tests indicate that the models are linear and

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

correctly specified. Similarly, the Jarque-Bera (JB) test indicates that the residuals are normally distributed across all the models. The diagnostics reveal that valid inferences may be drawn from our results.

It may be seen that the symmetric impact of IQ is higher in the manufacturing sector than the primary and services sectors. Similarly, the values of POS and NEG in asymmetric models are also higher in the manufacturing sector than in the other two sectors. It shows that formal and informal institution matter for the FDI location choice in China. The nonlinear model offers a richer set of information compared to the linear ARDL. More importantly, the NARDL reflect the effect of formal and informal institutions, and heterogeneity arises due to the differences between the two.

Overall the results show that there exist long-run causal relationships between IQ and all level of FDI (aggregated and disaggregated) in linear and non-linear ARDL frameworks. However, the coefficients of POS and NEG in NARDL yields several new insights and offer a richer set of information compared to the IQ in a linear model. Informal institutions become unsupportive and produce a negative effect on FDI. Conversely, formal institutions are reformed to be supportive of investments. The results are similar to the findings Cai, Boateng, & Guney(2019); Du et al.(2008); Du, Lu, & Tao(2012). Du et al.(2012) find that *cultural distances* matter for the location choice of foreign investors in China. Foreign investors in China come from culturally diversified regions. Hong Kong and Taiwan are ethnically Chinese economies and share almost the same culture. Japan and Korea also have cultural similarities and had long been influenced by the Confucian doctrines. Therefore, Chinese culture positively influences investments from these regions. However, investors from the EU (European Union) and the USA are influenced by formal institutions. Therefore, the EU and USA firms are located in the regions with well-developed governance infrastructure in China.

The above result reveals thatprimary, services-oriented and manufacturing industriesattract more efficiency- and market-seeking FDI.Through the forward and backward linkages the foreign inventors make their entries into the host economies.On the primary sector level, the peasantry is still meaningful large since the economic reforms in 1978 and with the restoration of *private property rights*. Similarly the *intellectual property rights, joint-venture laws, contract enforcement,* and other institutional reforms are introduced to attract FDI in manufacturing sectors (IBM, HP, Dell, Apple, Cisco, and ARM, Microsoft, Apple, SAP, Cisco, Oracle, etc.).Moreover, the size of Chinese middle classis booming. Therefore, Chinese government is keen in developing and maintaining the supply-side structural reforms along with the institutional arrangements to attract foreign investor in service sector.The development of services sector was a strategic priority in the 12th Five-Year Plan (2011-2015) of the Chinese Government.The well-developed institutional framework increase productivity and efficiency.Therefore, Chinese government should take keen interest in developing the economic as well as cultural institutions.The massive FDI inflows carry spillover effects. These effects may not be reversed in

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

the presence of weak institutional quality (Feldstein, 2000; Loungani & Razin, 2001).The results are consistentwith the notionregardless of one-party ruleand weak IQ in China; all sectors (specifically the manufacturing and services sectors) have receiveda hugeamount of FDI relative to its size in GDP. The results are like the findings of Asiedu (2002).[4]

6. Conclusion and policy recommendations

Globalization and open-door policies haveboosted the Chinese economy by attracting a considerable amount of FDI. Therefore, a natural question arises as 'whether the IQ explains the FDIto the recent surge in the FDI inflow in China?'. Besides, the literature to date has ignored the asymmetry associated between IQ and FDI andmainly explored the relationship in the context of cross-country analytical framework. Similarly, the past studies focus on the aggregate level of foreign direct investment and ignoring its sectoral distribution. Hence, the presentstudy explores the symmetric and asymmetric effects explained by IQ on sectoral FDIof Chinausing the quarterly data from 1997 to 2017.

Formal and informal institutions shape the rules of the game for economies. The heterogeneity arises between the formal and informal institutions may create the possibility of asymmetric effects. Using ARDL and NARDL models on the quarterly data, we find that asymmetric analysis gives better insights into the relationship between institutional quality and sectoral distribution of FDI. We find a significant negative and positive effect of institutional quality on FDI.

China's rapid integration into the world economy and her open-door policy has potential implications for herIQ.The awareness and well-governance infrastructure should be the priority of policymakers to attract FDI in all over China, specifically the western regions. The informal institutions in western regions are valued more than the formal regulations. Similarly, through the FDI spillover effect in the form of technology, innovation, and good practices; the IQ may enhance as well. Manufacturing and service sectors are the backbones of the Chinese economy. China is in transition, moving forward from centrally planned to market economy; from low-technology to high-tech production. Therefore, these sectors may be targeted more. The cultural similarities and proximity with China may help East Asian's enterprises to take advantage of the vast market of China. The cultural proximity may enable the East Asian MNCs to outperform their counterparts in the USA and Europe.The improved institutional arrangements in these sectors ultimately attract more FDI in these sectors.

Since multinationals spend a huge amount on R&D activities, therefore, *investment promotion policies* should be in place to harness FDI to increase productivity and efficiency of the domestic firms. Investment Promotion is quite effectivein increasing inflows of FDI. Similarly, most of

[4] Asiedu (2002) refers to the case of Angola, which is the leading country to attract FDI from sub-Saharan Africa despite her poor institutional quality.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

the spillovers occur through interactions between multinationals andtheir local suppliers Therefore, the second policy should be the*supplier development programs*. Better financial institutions and financial infrastructure can attract more FDI through the allocative channel, transaction cost reduction, enforcement contract, and the liquidity. So the financial reforms should be introduced to facilitate the smooth functioning of the economy in general and investment in specific.

Disclosure statement

The authors reported no potential conflict of interest.

References

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Chapter 6 Institutions as a Fundamental Cause of Long-Run Growth. *Handbook of Economic Growth*. https://doi.org/10.1016/S1574-0684(05)01006-3

Adam, A., & Filippaios, F. (2007). Foreign direct investment and civil liberties: A new perspective. *European Journal of Political Economy*. https://doi.org/10.1016/j.ejpoleco.2006.08.006

Ahlquist, J. S. (2006). Economic policy, institutions, and capital flows: Portfolio and direct investment flows in developing countries. *International Studies Quarterly*. https://doi.org/10.1111/j.1468-2478.2006.00420.x

Aizenman, J., & Noy, I. (2006). FDI and trade-Two-way linkages? *Quarterly Review of Economics and Finance*. https://doi.org/10.1016/j.qref.2006.02.004

Arregle, J. L., Miller, T. L., Hitt, M. A., & Beamish, P. W. (2016). How does regional institutional complexity affect MNE internationalization? *Journal of International Business Studies*. https://doi.org/10.1057/jibs.2016.20

Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: Is Africa different? *World Development*. 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*. https://doi.org/10.1111/j.1467-9701.2006.00758.x

Asiedu, E., & Lien, D. (2011). Democracy, foreign direct investment and natural resources. *Journal of International Economics*. https://doi.org/10.1016/j.jinteco.2010.12.001

Ayala, L., & Triguero, A. (2017). Economic Downturns, Endogenous Government Policy and Welfare Caseloads. *Revista Hacienda Pública Española*. https://doi.org/10.7866/hpe-rpe.17.1.4

Bailey, N. (2018). Exploring the relationship between institutional factors and FDI attractiveness: A meta-analytic review. *International Business Review*. https://doi.org/10.1016/j.ibusrev.2017.05.012

Bénassy-Quéré, A., Coupet, M., & Mayer, T. (2007). Institutional determinants of foreign direct investment. *World Economy*. https://doi.org/10.1111/j.1467-9701.2007.01022.x

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Bevan, A., Estrin, S., & Meyer, K. (2004). Foreign investment location and institutional development in transition economies. *International Business Review*. https://doi.org/10.1016/j.ibusrev.2003.05.005

Blanton, S. L., & Blanton, R. G. (2007). What attracts foreign investors? An examination of human rights and foreign direct investment. *Journal of Politics*. https://doi.org/10.1111/j.1468-2508.2007.00500.x

Buchanan, B. G., Le, Q. V., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of Financial Analysis*. https://doi.org/10.1016/j.irfa.2011.10.001

Busse, M. (2004). Transnational corporations and repression of political rights and civil liberties: An empirical analysis. *Kyklos*. https://doi.org/10.1111/j.0023-5962.2004.00242.x

Büthe, T., & Milner, H. V. (2008). The politics of foreign direct investment into developing countries: Increasing FDI through international trade agreements? *American Journal of Political Science*. https://doi.org/10.1111/j.1540-5907.2008.00340.x

Cai, H., Boateng, A., & Guney, Y. (2019). Host country institutions and firm-level R&D influences: An analysis of European Union FDI in China. *Research in International Business and Finance, 47*, 311–326. https://doi.org/10.1016/j.ribaf.2018.08.006

Chakrabarti, A. (2001). The determinants of foreign direct investment: Sensitivity analyses of cross-country regressions. *Kyklos*. https://doi.org/10.1111/1467-6435.00142

Chenoweth, E. (2013). Terrorism and Democracy. *Annual Review of Political Science*. https://doi.org/10.1146/annurev-polisci-032211-221825

Choi, J. J., Lee, S. M., & Shoham, A. (2016). The effects of institutional distance on FDI inflow: General environmental institutions (GEI) versus minority investor protection institutions (MIP). *International Business Review*. https://doi.org/10.1016/j.ibusrev.2014.11.010

Du, J., Lu, Y., & Tao, Z. (2008). Economic institutions and FDI location choice: Evidence from US multinationals in China. *Journal of Comparative Economics*. https://doi.org/10.1016/j.jce.2008.04.004

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

Dunning, J. (2013). Towards a New Paradigm of Development: Implications for the Determinants of International Business Activity. In *New Challenges for International Business Research*. https://doi.org/10.4337/9781849808064.00015

Dunning, J. H. (1980). Theory Toward an Eclectic Production : of International Tests Some Empirical. *Journal of International Business Studies*. https://doi.org/10.1057/palgrave.jibs.8490593

Durnev, A., Morck, R., & Yeung, B. (2004). Value-Enhancing Capital Budgeting and Firm-specific Stock Return Variation. *Journal of Finance*. https://doi.org/10.1111/j.1540-6261.2004.00627.x

Dutta, N., & Osei-Yeboah, K. (2013). A new dimension to the relationship between foreign direct investment and human capital: The role of political and civil rights. *Journal of International Development*. https://doi.org/10.1002/jid.1739

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Engle, R. F., & Granger, C. W. J. (2006). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica*. https://doi.org/10.2307/1913236

Fan, J. P. H., Morck, R., Xu, L. C., & Yeung, B. (2009). Institutions and Foreign Direct Investment: China versus the Rest of the World. *World Development*. https://doi.org/10.1016/j.worlddev.2008.07.016

Feldstein, M. (2000). *Aspects of Global Economic Intergration: Outlook for the Future*. https://doi.org/10.3386/w7899

Fong, P. E., & Haggard, S. (2006). Pathways from the Periphery: The Politics of Growth in the Newly Industrializing Countries. *Pacific Affairs*. https://doi.org/10.2307/2760072

Gani, A., & Al-Abri, A. S. (2013). Indicators of business environment, institutional quality and foreign direct investment in Gulf Cooperation Council (GCC) countries. *International Review of Applied Economics*. https://doi.org/10.1080/02692171.2012.760066

Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B., & Frias-Aceituno, J. (2013). Determinants of Government Effectiveness. *International Journal of Public Administration*. https://doi.org/10.1080/01900692.2013.772630

Garten, J. E. (1997). One world, ready or not: The manic logic of global capitalism - Greider,W. *HARVARD BUSINESS REVIEW*.

Gastanaga, V. M., Nugent, J. B., & Pashamova, B. (1998). Host country reforms and FDI inflows: how much difference do they make? *World Development*. https://doi.org/10.1016/S0305-750X(98)00049-7

Ghatak, S., & Siddiki, J. U. (2001). The use of the ARDL approach in estimating virtual exchange rates in India. *Journal of Applied Statistics*. https://doi.org/10.1080/02664760120047906

Ghemawat, P. (2001). Distance still matters. The hard reality of global expansion. *Harvard Business Review*.

Globerman, S., & Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. *World Development*. https://doi.org/10.1016/S0305-750X(02)00110-9

Globerman, S., & Shapiro, D. (2003). Governance infrastructure and US foreign direct investment. *Journal of International Business Studies*. https://doi.org/10.1057/palgrave.jibs.8400001

Hall, A., Banerjee, A., Dolado, J. J., & Galbraith, J. W. (2006). Co-Integration, Error Correction, and the Econometric Analysis of Non- Stationary Data. *The Economic Journal*. https://doi.org/10.2307/2235236

Harms, P., & Ursprung, H. W. (2002). Do civil and political repression really boost foreign direct investments? *Economic Inquiry*. https://doi.org/10.1093/ei/40.4.651

Henisz, W. (2000). The institutional environment for multinational investment. *Journal of Law, Economics, and Organization*. https://doi.org/10.1093/jleo/16.2.334

Herzer, D. (2010). Outward FDI and economic growth. *Journal of Economic Studies*. https://doi.org/10.1108/01443581011075424

Holmes, R. M., Miller, T., Hitt, M. A., & Salmador, M. P. (2013). The Interrelationships Among

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Informal Institutions, Formal Institutions, and Inward Foreign Direct Investment. *Journal of Management*. https://doi.org/10.1177/0149206310393503

Johansen, S. (2006). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models. *Econometrica*. https://doi.org/10.2307/2938278

Khanna, T., & Rivkin, J. W. (2001). Estimating the performance effects of business groups in emerging markets. *Strategic Management Journal*. https://doi.org/10.1002/1097-0266(200101)22:1<45::AID-SMJ147>3.0.CO;2-F

Kim, D. H., Lin, S. C., & Suen, Y. B. (2013). Investment, trade openness and foreign direct investment: Social capability matters. *International Review of Economics and Finance*. https://doi.org/10.1016/j.iref.2012.08.008

Kim, D. S., Li, Y., & Tarzia, D. (2018). Value of corruption in China: Evidence from anti-corruption investigation. *Economics Letters*. https://doi.org/10.1016/j.econlet.2018.01.021

Kostova, T., & Zaheer, S. (1999). Organizational legitimacy under conditions of complexity: The case of the multinational enterprise. *Academy of Management Review*. https://doi.org/10.5465/AMR.1999.1580441

Kouakou, A. K. (2011). Economic growth and electricity consumption in Cote d'Ivoire: Evidence from time series analysis. *Energy Policy*. https://doi.org/10.1016/j.enpol.2011.03.069

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *Journal of Finance*. https://doi.org/10.1111/0022-1082.00115

Laurenceson James; Chai C.H. Joseph. (2003). *Financial Reform and Economic Development in China*. Edward Elgar Publishing.

Li, Q., & Resnick, A. (2003). Reversal of Fortunes: Democratic Institutions and Foreign Direct Investment Inflows to Developing Countries. *International Organization*. https://doi.org/10.1017/s0020818303571077

Loungani, P., & Razin, A. (2001). How beneficial is foreign direct investment for developing countries? *Finance and Development*.

Medvedev, D. (2012). Beyond Trade: The Impact of Preferential Trade Agreements on FDI Inflows. *World Development*. https://doi.org/10.1016/j.worlddev.2011.04.036

MengYun, W., Imran, M., Zakaria, M., Linrong, Z., Farooq, M. U., & Muhammad, S. K. (2018). Impact of terrorism and political instability on equity premium: Evidence from Pakistan. *Physica A: Statistical Mechanics and Its Applications*. https://doi.org/10.1016/j.physa.2017.11.095

Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics*. https://doi.org/10.1080/00036840500278103

National Bureau of Statistics of China. (2018). China statistical yearbook. *Beijing: Chinese Statistical Bureau*.

Neumayer, E., & Spess, L. (2005). Do bilateral investment treaties increase foreign direct investment to developing countries? *World Development*. https://doi.org/10.1016/j.worlddev.2005.07.001

NEWTON, K. (1982). IS SMALL REALLY SO BEAUTIFUL? IS BIG REALLY SO UGLY? SIZE, EFFECTIVENESS, AND DEMOCRACY IN LOCAL GOVERNMENT. *Political*

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Studies. https://doi.org/10.1111/j.1467-9248.1982.tb00532.x

North, D. C. (1990). Institutional Change and Economic Performance. In *Cambridge University Press*. https://doi.org/10.2307/2234910

Odhiambo, N. M. (2009). Energy consumption and economic growth nexus in Tanzania: An ARDL bounds testing approach. *Energy Policy*. https://doi.org/10.1016/j.enpol.2008.09.077

Okada, K. (2013). The interaction effects of financial openness and institutions on international capital flows. *Journal of Macroeconomics*. https://doi.org/10.1016/j.jmacro.2012.11.003

Ouattara, B. (2006). Aid, debt and fiscal policies in Senegal. *Journal of International Development*. https://doi.org/10.1002/jid.1282

Pajunen, K. (2008). Institutions and inflows of foreign direct investment: A fuzzy-set analysis. *Journal of International Business Studies*. https://doi.org/10.1057/palgrave.jibs.8400371

Palepu, K. G., & Khanna, T. (2005). Spotting Institutional Voids in Emerging Markets. *Harvard Business School Cases*.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*. https://doi.org/10.1002/jae.616

Phillips, P. C. B., & Hansen, B. E. (1990). Statistical Inference in Instrumental Variables Regression with I(1) Processes. *The Review of Economic Studies*. https://doi.org/10.2307/2297545

PRS Group. (2017). ICRG Methodology. In *International Country Risk Guide*.

Rammal, H. G., & Zurbruegg, R. (2006). The impact of regulatory quality on intra-foreign direct investment flows in the ASEAN markets. *International Business Review*. https://doi.org/10.1016/j.ibusrev.2006.05.001

Reinhardt, D., Ricci, L. A., & Tressel, T. (2013). International capital flows and development: Financial openness matters. *Journal of International Economics*. https://doi.org/10.1016/j.jinteco.2013.07.006

Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*. https://doi.org/10.1023/B:JOEG.0000031425.72248.85

Rottig, D. (2016). Institutions and emerging markets: effects and implications for multinational corporations. *International Journal of Emerging Markets*. https://doi.org/10.1108/IJoEM-12-2015-0248

Sethi, D., Guisinger, S. E., Phelan, S. E., & Berg, D. M. (2003). Trends in foreign direct investment flows: A theoretical and empirical analysis. *Journal of International Business Studies*. https://doi.org/10.1057/palgrave.jibs.8400034

Shin, Y., Yu, B., & Greenwood-Nimmo, M. (2011). Modelling Asymmetric Cointegration and Dynamic Multipliers in a Nonlinear ARDL Framework. In *SSRN*. https://doi.org/10.2139/ssrn.1807745

Sobel, A. C. (2002). State institutions, risk, and lending in global capital markets. *International Business Review*. https://doi.org/10.1016/S0969-5931(02)00047-1

Uddin, M., Chowdhury, A., Zafar, S., Shafique, S., & Liu, J. (2019). Institutional determinants of inward FDI: Evidence from Pakistan. *International Business Review*.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

https://doi.org/10.1016/j.ibusrev.2018.10.006

UNCTAD. (2018). World Investment Report 2018. Investmetn and New Industrial Policies. In *United Nations Conference on Trade and Development*. https://doi.org/10.1016/j.spinee.2004.12.003

Wei, S. J. (2000). How taxing is corruption on international investors? *Review of Economics and Statistics*. https://doi.org/10.1162/003465300558533

Wheeler, D., & Mody, A. (1992). International investment location decisions. The case of U.S. firms. *Journal of International Economics*. https://doi.org/10.1016/0022-1996(92)90050-T

You, K., & Solomon, O. H. (2015). China's outward foreign direct investment and domestic investment: An industrial level analysis. *China Economic Review*. https://doi.org/10.1016/j.chieco.2015.02.006

Yu, J., & Walsh, J. P. (2010). Determinants of Foreign Direct Investment: A Sectoral and Institutional Approach. *IMF Working Papers*. https://doi.org/10.5089/9781455202218.001

Yuan, Y., Chen, Y., & Wang, L. (2010). Size of government and FDI: an empirical analysis based on the panel data of 81 countries. *Journal of Technology Management in China*. https://doi.org/10.1108/17468771011053180

Zhao, H., & Zhu, G. (2000). Location factor and country-of-origin differences: an empirical analysis of\rFDI in China. *Multinational Business Review*.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Appendices

Table-A1. Average institutional quality (IQ) index.

Country	Rank	IQ Index	Country	Rank	IQ Index	Country	Rank	IQ Index	Country	Rank	IQ Index
Canada	1	6.89	Oman	38	5.42	Ukraine	75	4.49	Brazil	112	3.92
New Zealand	2	6.81	Czech Republic	39	5.41	Burkina Faso	76	4.49	Cote d'Ivoire	113	3.88
Switzerland	3	6.75	France	40	5.38	Colombia	77	4.42	Bolivia	114	3.86
Norway	4	6.68	Lithuania	41	5.38	Sri Lanka	78	4.41	Kazakhstan	115	3.83
United States	5	6.61	Slovakia	42	5.24	Trinidad & Tobago	79	4.40	Niger	116	3.82
Sweden	6	6.59	Italy	43	5.12	Guyana	80	4.39	Liberia	117	3.77
United Kingdom	7	6.59	Botswana	44	5.11	Argentina	81	4.36	China	118	3.76
Netherlands	8	6.50	Greece	45	5.10	Mongolia	82	4.36	Malawi	119	3.76
Australia	9	6.49	Bulgaria	46	5.09	Indonesia	83	4.36	Cameroon	120	3.75
Ireland	10	6.47	Uruguay	47	5.08	Zambia	84	4.35	Togo	121	3.75
Luxembourg	11	6.46	Philippines	48	5.06	Ethiopia	85	4.34	New Caledonia	122	3.73
Germany	12	6.43	Croatia	49	5.01	Vietnam	86	4.33	Cuba	123	3.71
Japan	13	6.42	Namibia	50	5.01	Pakistan	87	4.31	Gabon	124	3.70
West Germany	14	6.40	Dominican Republic	51	4.99	Bangladesh	88	4.31	Nigeria	125	3.67
Finland	15	6.30	Slovenia	52	4.93	South Africa	89	4.27	Paraguay	126	3.67
Iceland	16	6.14	Brunei	53	4.91	Nicaragua	90	4.27	Belarus	127	3.66
Singapore	17	6.10	Saudi Arabia	54	4.90	Turkey	91	4.24	Armenia	128	3.65
Israel	18	6.06	Bahrain	55	4.81	Congo	92	4.24	Iraq	129	3.64
Cyprus	19	6.04	Panama	56	4.81	Honduras	93	4.21	Mali	130	3.63
Bahamas	20	6.01	Morocco	57	4.79	USSR	94	4.21	Ecuador	131	3.61
Austria	21	5.98	East Germany	58	4.77	Algeria	95	4.20	Azerbaijan	132	3.56
Taiwan	22	5.97	Jamaica	59	4.73	Madagascar	96	4.17	Guinea-Bissau	133	3.49
Denmark	23	5.96	Jordan	60	4.73	Iran	97	4.17	Libya	134	3.46
Belgium	24	5.85	Tunisia	61	4.70	Uganda	98	4.17	Angola	135	3.42
UAE	25	5.74	Romania	62	4.68	Senegal	99	4.12	Serbia *	136	3.29
Malta	26	5.71	Tanzania	63	4.67	Thailand	100	4.08	Serbia & Montenegro *	137	3.21
Estonia	27	5.65	Malaysia	64	4.63	El Salvador	101	4.08	Syria	138	3.16
Poland	28	5.62	Ghana	65	4.61	Egypt	102	4.07	Sudan	139	3.08
Hong Kong	29	5.61	Peru	66	4.61	Sierra Leone	103	4.04	Korea, DPR	140	2.92
Hungary	30	5.59	Costa Rica	67	4.61	Moldova	104	4.01	Zimbabwe	141	2.92
Qatar	31	5.58	Czechoslovakia	68	4.58	Mozambique	105	4.01	Congo, DR	142	2.90
South Korea	32	5.57	Guatemala	69	4.54	Papua New Guinea	106	4.01	Yemen	143	2.72
Portugal	33	5.54	Kuwait	70	4.51	Gambia	107	4.01	Haiti	144	2.53
Latvia	34	5.53	Lebanon	71	4.51	Russia	108	4.00	Venezuela	145	2.50
Chile	35	5.51	Suriname	72	4.50	Guinea	109	3.97	Somalia	146	2.28
Spain	36	5.51	Albania	73	4.49	Myanmar	110	3.93	Serbia *	147	1.25
India	37	5.48	Kenya	74	4.49	Mexico	111	3.93	Serbia & Montenegro	148	1.19

Source: International Country Risk Guide (ICRG 2012), authors' calculations.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.06.119

Note: Rank of the country is based on average institutional quality (IQ) index (2027), which is calculated from the six components investment profile,bureaucratic quality, corruption, law and order, government stability, law and order, and democratic accountability.