DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN INDIA AND RETAIL SECTOR LIBERALIZATION: A GMM ESTIMATION

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Abstract

India has one of the largest retail markets in the world. In order to channelize the huge potential of Indian retail sector and to provide best of the cosmopolitan culture to the fast-growing Indian retail market and to stimulate India's FDI inflows, the Government of India has systematically liberalized FDI in the retail sector since 2006. The present study incorporates retail sector liberalization measures as one of the institutional changes and tries to empirically examine the impact of institutional changes on India's FDI inflows.   Along with the conventional determinants of FDI, extended institutional variable has been incorporated in order to study the inflows from 21 investing countries for the period 2001-2020. The results were captured by employing fixed effects, random effects, and GMM (two-step) estimation. The study suggested a positive and significant coefficient for extended market size, economic freedom index, and extended institutional variable whereas inflation was found to have a significant and negative impact on India's FDI inflows.

1 Introduction

Retailers are the face of producers and the ultimate link in the distribution chain for consumers; and with the fast-growing e-commerce, retailers are witnessing a fast-changing and dynamic market to serve. Retailers not only create impact on the chain of distribution but also influence the consumers lifestyle (Sivagnanasundaram, 2018). Furthermore, India being one of the most populated economies with lion's share of world consumers, has seen

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most emerging retail market in last few decades. As per Deloitte Retail Foreign Direct Investment (FDI) in India Report 2018, Indian retail market is likely to account for compound annual growth rate of 8.79% for the period 2000-2020. Even during the covid tenure, Indian retail market reached a mark of 1200 US$ billion in 2021 (see fig 1.1). Retailers are backbone of Indian economy (IBEF 2016) capturing both organized as well as unorganized divisions. As per Invest India[2] (National investment promotion and facilitation agency) 2020, presently India is the 4th largest retail market in the world and is likely to witness an expected growth of $1.5 trillion by the year 2030.
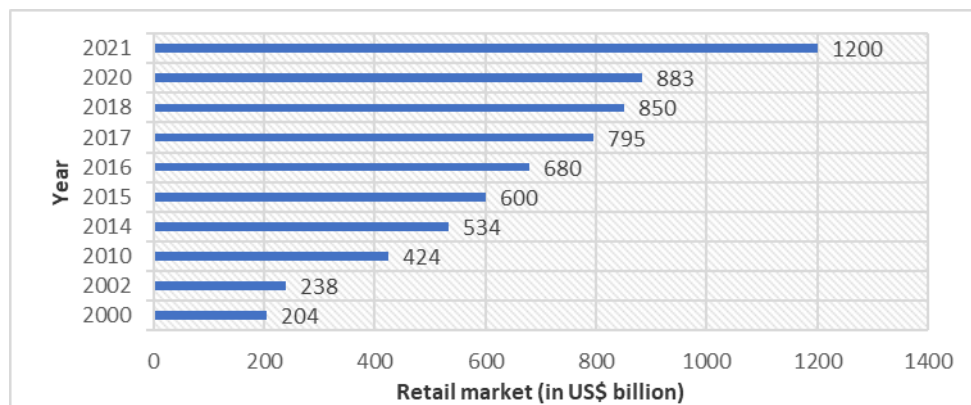

Figure 1.1: India's Retail market (in US$ Billion)
Source: Based on the data collected from https://business.mapsofindia.com/india-retail-industry/

However, contemporary retailers have a number of challenges to address. Presently, Indian consumers are more demanding and energetic; want ease and seamless/hassle-free delivery of goods. Secondly, structural changes in the supply chain and delivery channels (both in terms of online and offline) are forcing retailers to come-up with new avenues to address. Even, home-based platforms; e-commerce chains; physical stores; and tele-stores augmented with IT support are providing new challenges to the retail market. To address these imminent areas, retailers and policymakers must search for better prospects. To channelize the huge potential of the Indian retail sector; to support the changing consumer needs; and also, to provide best of the cosmopolitan culture to the fast-growing Indian retail market, Government of India systematically (and phase wise) came up with FDI policy specially in the retail sector. In other words, liberalization in India retail market was infused to add universal competitive cultural in Indian retail markets; boost the retailers to transform;

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[2]https://www.investindia.gov.in/sector/retail-e-commerce

and to provide better (and improved) infrastructure and technical strengthen to Indian business as a whole (Masharu & Nasir,2018).

1.1   India and Retail Sector Liberalisation

LPG was introduced in 1991. The major thrust of investment (FDI) liberalization was to not only infuse foreign exchange in the economy (and to reduce foreign debt) but also to revive the Indian economy in terms of infrastructure and technology. Investment liberalization in India was largely systemic and perpetual. India's investment liberalization can be studied in three varied time spans. The initial years (post 1991/1991-2000) were more focused on reducing the government approval routes [around 111 sectors by the end of 1997 were allowed via automatic route to operate in India] and opening liberalization gates for manufacturing sector. However, it was the period of 2000-2010 (second phase of liberalization) when Indian economy was in the course of adapting to global culture (MNC and transnational corporates); the policy makers gave a green single to FDI in single brand retail (in 2006) up to a limit of 51% via automatic route[3]. In the third phase (2010-2020), the limit for FDI in single brand retail sector was increased to 100% and in multi brand retail sector up to 51% (in 2012). However, investment in multi brand retail sector was introduced under the government approval only. The policy changes provided a competitive market to Indian retail sector, a strong and compact environment to the Indian consumers, and more avenues for foreign investors.

1.2   Retail Models (With Description) and Initiatives Taken Under FDI Policies

The major focus of the study is to examine the role of retail sector FDI policies therefore it is essential to briefly discuss the initiatives taken by the policy makers in this regard. In the view of liberalization of India's retail sector, *five* significant categories of retail sector can be stated (see fig 1.2). *Cash and carry/wholesale trading* can be identified as the first category. For this category, 100% FDI permitted in 1997 via automatic route. Cash and Carry / Wholesale trading refers to selling of goods to retailers, commercials, wholesalers, organisations, or to other professional businesses. However, the model was largely B2B dominated; and a retailer can carry on Cash and Carry/wholesale business but as a separate arm. Though this model provided a window of liberalisation for retailers engaging in cash and carry business but its spectrum was not captive enough for massive liberalisation in retail sector. Second significant category was *Single Brand retail trading (SBRT)* capturing sales that were administered under a single brand name in the domestic and overseas markets.

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[3] Automatic route refers to entry into a foreign economy for foreign investment without government approval

Indian government permitted 51% FDI in SBRT (in 2006) via automatic route. This initiative was a major step towards retail opening in Indian market for foreign investors and marked a significant institutional change for India and its investing partners. India being fast emerging economy with huge population to serve, initiative in this category was a major attraction for consumer items largely catering to technology products (Retail FDI report, 2018). The limit was further extended to 100% via automatic approval route in 2012, to strengthen SBRT.

Selling different product with varied brand name refers to *Multi brand retail trading (MBRT).* In 2008, policy makers suggested liberalisation in MBRT but it was in 2012 that 51% of FDI in multi branding was allowed but only via government approval and with certain conditions. Even *Duty-free Shops (DFSs)* /outlets setup in the custom bound area of an international port and other international passenger spheres were allowed for 100% FDI via automatic route in 2016 but with a condition that they were not supposed to have outlets in country's domestic tariff areas. Similarly, initiatives were also introduced in *e-commerce market*. (As per India brand equity foundation report 2021 India's online retail sector revenue was only 13 US$ billion in 2015 and it was expected to cross 55 US$ billion by the end 2021). 100% FDI in e-commerce market model was given a green signal but they were restricted to B2B models only. In 2017 government clarified that such arrangement was not true for e-commerce B2C (inventory-based) models.
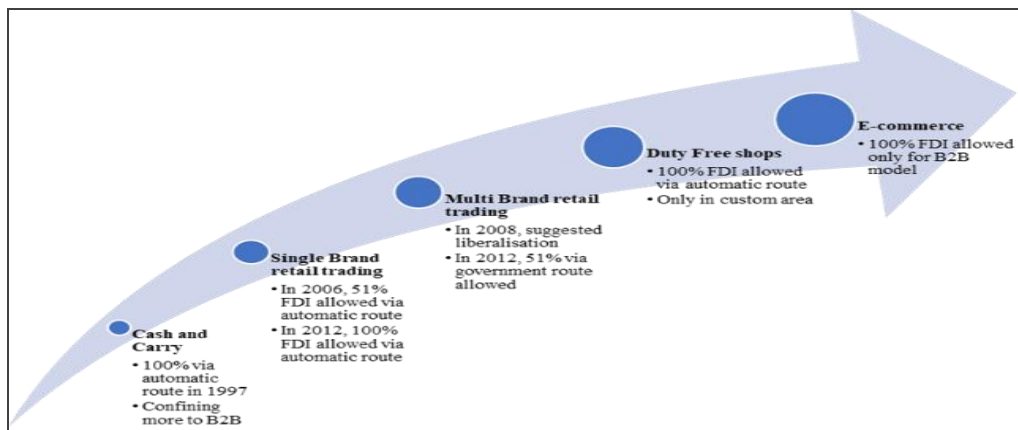

Figure 1.2: Pictorial representation of Retail models

Source: Based on information collected from https://www.rai.net.in/E-Mailers/knowledge-reports/FDI-in-Retail-RAI-and-Deloitte.pdf and India Brand Equity Foundation, (2016). India Brand Equity Foundation (IBEF) annual report. https ://www.ibef.org/annual-report.aspx

1.3 Retail Sector Measures and Institutional Quality

India's enormous support for retail sector FDI can be identified as an instrumental remodelling of India's institutional setup. With rising global competition and emerging FDI inflows (Oh & Ryu, 2019), need for strong institutional measures is inevitable. Less

developed and developing economies with strong institutional environment attract more investment from foreign corporates whereas countries with poor institutional environment attract less FDI and bear high transaction cost for corporates (Fiodendji, 2013; Mengmeng & Xiaochuan, 2021). Better institutional quality contributes to economic activities of a developing economy in terms of consumption and investment (Farhadi et al., 2015; Park, 2012; Zhang, 2016).

Number of studies have contributed towards the understanding of institutions and building institutional quality. However, the question what institutions are, remains debateable in the academic arena. Few studies that have stated the scope and spectrum of institutions and institutional quality. North (1990) stated institutions as humanly designed constraints and limitations that work as guiding framework for interaction between people. The limitations act as a framework of structure and system that assists economic players and provide a strength to economic, political, and social domains of an economy. Williamson (2000) augmented the definition provided by North (1990) and captured organised entities, decision policies, and regulatory setup within an economy as significant attributes.

Talking about institutional quality, North (1990) stated that formal rules and informal constraints provide a structural strength and enforcement mechanism to an economy and hence improve (or deteriorate) institutional quality. Suchman (1995) stated institutional measures as socially constructed norms and beliefs that assume whether an action of an entity is desirable (and appropriate) or not. Similarly, Acemoglu et al. (2001) employed perceived risk of an economy as a significant indicator of institutional quality. Easterly (2013) suggested that institutional measures as economic parameters that are long lasting and that acts as a building bloc with respect to the rights of an individual. The world development report: Building institutions for markets, World Bank, 2002 captured institutional quality of an economy as a measure of quality of rules and enforcement procedures for organisations and society at large. Kaufmann et al. (2011) also contributed towards institutional quality and its association with factors that are significant for regulatory framework. Hence, institutional qualities are broad spectrum covering laws and legislative framework, accountability and enforcement, individual rights, quality of government regulations, etc. Though number of studies have theoretically explained institutional quality but to provide objectivity to the research work quantitative measures (in terms of numbers and figures) are required.

World bank governance indicators proposed by Kaufmann et al. (2011) have been extensively employed as a quantitative measure for evaluating institutional quality (Fabro &

Aixalá, 2013; Kuncic, 2013; Nxumalo & Makoni, 2021) and have also been examined by few researchers while evaluating the determinants of FDI (Asongu et al., 2018; Sabir et al., 2019). However, the captivity of the indicators incorporated are restricted to six major domains, namely, voice and Accountability; political Stability and absence of violence/terrorism, Government effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.

The present study goes beyond the existing captivity of institutional quality measures and propose to extend/remodel the institutional quality for India by incorporating liberalisation expedient as an additional measure. Strong institutional measures provide strength to foreign investors (Trevino et al., 2008). With a long history of conservative approach towards FDI, globalisation and liberalisation measures are likely to bring sea change in the systems and structures of India. Since 1991, India started facilitating FDI but initially manufacturing and production, aiding R&D, collaborations, and mergers in India were the major motives. However, retail sector liberalisation (in 2006) was a step ahead, leading to penetration of foreign investment into Indian markets and consumers. Penetration into the retail sector helped foreign investor to understand the consumer perceptions, supply chains, and distribution networks in a comprehensive way, and hence support diversification in the various channels of investment leading to an upsurge in FDI inflows for India. Moreover, an understanding of the Indian retail market provided proximity towards consumers, and hence come up with manufacturing (and processing) units that are equipped as per the needs of Indian consumers. Therefore, the present study incorporates liberalisation measures as an additional arm of institutionalization along with the existing pillars of institutional environment to study the association with India's FDI inflows.

Allard (2016) formed an extended institutional measure for examining association between economic growth and institutional quality by including ease of doing business as an extended measure along with the six indictors suggested by World Bank. Following the methodology suggested by Allard (2016) to capture institutional quality measures, the present study incorporate six variables suggested by world bank and a variable capturing retail sector liberalisation as an additional measure of institutional quality to examine the determinant of India's FDI inflows. For the current study, absence/presence of retail sector liberalisation incorporated as a signal of liberalization measures towards FDI penetration.

Hence, retail FDI liberalisation measure was a signalling indicator by the government to provide FDI supportive policies and institutional support both to the existing and potential foreign investors. Kaushal (2021) suggested that institutional measures have a direct impact on the prosperity and institutionally strong economies tend to attract more foreign investment (by offering better prospects, avenues and hence returns). Talking about the existing literature, number of studies (Kaushal, 2021; Rozanski & Sekula, 2016; Sabir et al., 2019; Saha et al., 2022) have studied the association between FDI inflows and institutional measures. However, the institutional measures incorporated are largely restricted to the measures suggested by Kaufmann et al. (2011) and only few researchers (Allard, 2016) have gone beyond the suggested institutional measures. Further, developing economies (like India) are consistently working towards improving institutional quality. Sabir et al. (2019) suggested that developing economies need to enhance institutional measures to strengthen the FDI inflows. Retail FDI liberalisation was a strong institutional support in favour of foreign investor, supply chain management, and industrial restructuring (Chawla et al., 2016). Therefore, empirically examining the FDI retail liberalisation measures as an extended institutional measure will assist us to better examine the impact of policies initiatives of GOI on India's FDI inflows. Allard (2016) captured extended institutional measures by incorporating "Ease of doing business" as an additional arm along with the traditional variables of institutional support but the current study proposes to study FDI liberalisation as an additional variable as our major emphasis is on whether retail liberalisation has strengthened India's FDI inflows.

1.4   Objective of the Study

The present study proposes to form an extended institutional index with liberalization changes as one of the pillars of institutionalization for India. The study also attempts to empirically examine whether or not extended institutional index is a significant the determinants of India's FDI inflows along with other conventional determinants of FDI. The study empirically strives to evaluated whether retail FDI policies are providing better institutional support via strong distribution channels and infrastructure to the foreign investors which in turn is supporting the overall surge in FDI inflows for India or not. Hence, the objectives of the study can be stated as follows:

1. To briefly discuss India's initiatives in retail sector.
2. To empirically evaluate whether conventional determinants of FDI inflows such as extended market size, difference between per capita of both investing

countries, economic freedom, inflation, distance, and urbanization along with the institutional index (with retail sector liberalization as one of the arms) are significantly attracting investment inflows for India.

2   Review of Literature

Insight into the existing literature is required to identify the apertures; and to critically address the gaps. The current study tries to not only spell out the determinants of FDI inflows for India and also encompasses the impact of India's retail liberalization policies and institutional measures on India's FDI inflows. Therefore, a broad division of literature review in two parts is suggested, where one of the sections covers studies that are captive of India's retail liberalization policies since 1991 and the other part chalks down the studies that identify determinants of FDI inflows.

Rajput et al. (2012) covers the consolidated FDI policy 2012 and performs a SWOT analysis in order to discuss the impact of retail FDI policy on consumers and economy. The study found a positive impact of policy on India overall growth and retail sector. Patibandla (2014) captures the implications of FDI on retail sector and stated that foreign players can boost supply chain and support local producers and ease the generation externalities. The study captures a simple theory of supply chain along with economic growth. Masharu and Nasir (2018) analyses that before liberalisation Indian market was largely unorganised and retail sector FDI will contribute towards diversification, modernisation, and improvement in the retail market of India. Kaushal (2019) suggested that 100% FDI in MBRT will not be a threat for small shopkeepers as market will get segregated for upper-income and lower-income buyers; and foreign retail owners will facilitate the small shopkeeper via better catering environment. Mukherjee et al. (2014) captured the impact of the Retail FDI Policy on Indian consumers; and the study stated that FDI in multi-brand retail would promote brand knowledge, enhance product choices available to buyers and promote overall consumer welfare. Giridhar and Krishna (2013) concluded that introduction of FDI in retail sector will help Indian retail sector to bloom as India is one of the top attractive destinations for foreign investment.

However, Santra and Bagaria (2014) identifies brighter side as well as the limitation associated with liberalization of Indian retail sector. Anbu (2020) stated the growth and trends of India's FDI retailing pattern over the period of 2011-2020. The study also identified the benefits and challenges associated with India's retail FDI for Indian market and

consumers. Surya et al. (2021) captured the advantages and challenges associated with India's retail FDI and stated the nature of FDI in US, India, and China. Suguna (2016) though appreciated the presence of FDI in retail sector but suggested that the policy should not be encouraged and the issues of stakeholders should be carefully dealt in by the government. Moreover, suggested that more secure and affirmative environment in favour of farmers should be promoted to mitigate adverse effects of retail FDI. Yadav and Jauhari (2012) stated that Indian retail sector is dominated by family and traditional business; competing with global business will be a challenge for them and hence perceived closure of uncompetitive ingenious retail businesses in India leading to issues like decline in unorganised sectors, unemployment, and undermined livelihood.

As discussed earlier, the second part of literature review apprises empirical studies capturing the determinants of FDI inflows. Studies examining the FDI inflow determinants have captured varied explanatory variables; largely dependent upon the captivity of the objectives under study. Mariana (2016) examined the determinants of Romania FDI inflows for the period 1991-2013 using simple regression. The study found that variables such as GDP, gross fixed capital formation, inflation, and exchange rate are significant determinants whereas labour cost and trade openness are suggested to have moderate impact on Romania FDI inflows. Similarly, Shubiri (2016) examined the FDI determinants for Oman. The study captures financial, managerial, economic, and marketing factors affecting FDI inflows in Oman for the period of 2005-2014. The result for the study supported presence of management and investment policies for FDI inflows. Yakubu and Mikhail (2019) examined the determinants for FDI inflows in Ghana using a sectorial analysis for the period 2000-2014 using OLS regression frameset. The results suggested that GDP and labour cost is supportive for agriculture sector; trade openness and exchange for service sector; and none of the examined variable was found to be significant for manufacturing sector.

Few studies have also examined the determinants of FDI for group countries as sample size. Rozanski and Sekula (2016) examined determinants for 25 developing economies and 26 developed economies for a period of 1996 to 2014 using panel regression model. The study suggested that government stability index, institutional variables, and rule of law to be significant for attracting FDI. Similarly, Goyal (2022) examined FDI determinants for developing and emerging economies of Asia using a sample of top five emerging economies over the period of 2006-2016. The study adopted fixed panel regression

model and found that economic variables are better captive as FDI determinants as compared to political and institutional variables of FDI.

Few studies with institutional quality as an explanatory variable/s can also be stated. Sabir et al. (2019) examined the determinants of FDI for lower-income, upper-income, and high-income over the period of 1996-2016 by employing GMM framework. The study suggested positive association between institutional measures and FDI. Asonge et al. (2018) examined FDI determinants for BRICS and MINT countries over the period of 2001-2011 by employing fixed effects estimations. The study found market size, infrastructure availability and trade openness as significant determinants whereas availability of natural resources and institutional quality to be insignificant.

Few studies also capture the FDI (inflows) determinants for India. Kushwah and Garg (2020) examined the association between FDI and its macroeconomic determinants over the period of 2007-2019 by employing vector error correction model. The results for the study depicted positive and significant coefficient suggesting that liberal and flexible government policies will stimulate India's FDI in the years to come. Pattayat (2016) examined the determinants of India's FDI over the period of 1980-2013. The study found that GDP, trade openness and exchange rate are significant determinants of India's FDI inflows. Sarasa et al. (2014) also examined the variables of FDI inflows for India and results suggested that FDI inflows are positively related to GDP per capita of home economy, population, GDP of host economy, common language, and tax haven indicators but negative relationship was established for distance and growth rate of world FDI outflows. Bhasin and Manocha (2016) also examined the determinants of India's FDI inflows with special reference to presence of bilateral investment treaty (BIT) with the investing partner for the period 2001-12. The study found a positive coefficient for market size and presence of BIT negotiated between the partners. Reenu and Sharma (2015) captured the determinants of India's FDI using OLS for the period 1991-2010. The study found that market size and infrastructure play an important role in India's FDI inflows.

Baby and Sharma (2017) evaluated the determinants of FDI inflows for India 1994-2015. Along with the traditional variable of FDI determinants, the study also captured the impact of crisis year 2007-08 as a dummy variable. The study concluded that FDI inflows can be well captured by India's real GDP and stability in the global financial market. Singhania and Gupta (2011) employed a dummy variable to account for FDI policy changes along with

other traditional variables such as GDP, foreign trade, inflation rate, money supply growth on FDI inflows. The study concluded that GDP, inflation rate, dummy variable for FDI policy, and scientific research have significant impact on India's FDI inflows.

An insight into the existing literature depicted that variable such as market size (in terms of GDP of home country, GDP of host country), size of population, infrastructure, inflation, institutional quality, and other traditional variables of FDI inflows are examined while studying the determinants of FDI inflows. Furthermore, most of the studies have just examined the macroeconomic variables without accounting for changes in the FDI policies (in retail sector). Very few studies (Baby & Sharma, 2017; Singhania & Gupta, 2011) have incorporated the impact of policy changes or global financial market crisis as an explanatory variable (as a dummy variable) for examining the impact on FDI inflows. Furthermore, the studies encapsulating the India's retail FDI policy have analytically expressed likely gains/benefits and reservations of Indian stakeholders (farmers, consumers, shopkeepers) via-a-vis initiatives taken by policy makers specially in retail FDI however very few studies have empirically examined the impact of retail FDI initiatives/policy on country's FDI inflows. The existing literature suggested that Retail supportive FDI policies are providing institutional support and shaping India as one of the most sought-after destinations for FDI inflows. Therefore, the current study is an attempt to empirically examine the determinants of FDI inflows for India specially when lot of changes in the FDI policy have been initiated by the policy makers in the last 2-3 decades of India's liberalisation and globalisation initiative.

3   Data source and Research Methodology

The study employs panel regression specification on an augmented gravity model to capture the determinants of India's FDI flows with special emphasis on retail liberalisation policy measures (as an institutional support). Gravity model for bilateral trade has been substantially employed to examine the determinants of trade. Tinbergen (1962) suggested the basic gravity specification for bilateral trade. Since its inception, gravity model is not only popular for examining the bilateral trade variable but the model has also been augmented to capture the determinants of investment (FDI). Carr et al. (2001) (CMM) extended the gravity model for investment capturing both horizontal and vertical dimensions of FDI; enlarge market size was employed to discuss the horizontal dimensions whereas factor endowment/ cheaper labour suggested vertical motives.

The study also applies CMM augmented gravity model (also referred as Knowledge capital model) to examine India's FDI determinants. Horizontal motives of FDI are captive of extended market size therefore the aggregate/sum of GDP of home and host countries is encapsulated. Similarly, difference between the GDP per capita of India and investing partner is included as vertical/factor endowment motive for the augmented gravity specification. Owen et al. (2019) employed knowledge capital to examine intra-Asian FDI. Chellaraj et al. (2015) captured the determinants of FDI in service sector for Singapore using Knowledge capital model. Similarly, Bhasin and Manocha (2016); Egger and Pfaffermayr (2004) employed Carr, Markusen and Maskus (2001) model to examine BIT and FDI.

3.1 Sample Size

The present study captures FDI inflows of India from its 21 investing (home) countries for the period of 20 years starting from 2001 till 2020. India's investing partners captured are Belgium, Cayman, China, Cyprus, France, Germany, Hongkong, Italy, Japan, Republic of Korea, Luxembourg, Mauritius, Netherlands, Singapore, Spain, Switzerland, UAE, UK, USA, Saudi Arabia, and Canada. As per FDI statistics of Department for promotion of Industry and Internal trade (DPIIT), these countries are top 21 countries providing FDI equity inflows for the period 2000-2020[4] to India. Moreover, as per the India's FDI inflow data available on DPIIT, these countries contributed around 77% of India's total FDI inflows in year 2020.

3.2 Data Source

The data for GDP and GDP per capita of India and its investing partner was collected from World bank database. Data for institutional measures, namely, voice and Accountability; political Stability and absence of violence/terrorism, Government effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption were also collected from World Bank database for governance indicators. Percentage of urban population was used as proxy for urbanization and similarly, number of mobile cellular subscriptions was employed for infrastructure. Data for India's mobile subscriptions, and % of urban population were captured from World bank data base. Economic freedom parameter for India for the period 2001-2020 was collected from Heritage Foundation[5]. Data for FDI inflows between India and its investing partners was collected from World Investment Report UNCTAD, 2012 for the period 2001-2012 and for the tenure 2013-2020, the data was

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[4] https://dpiit.gov.in/sites/default/files/FDI_Factsheet_Spetember-21.pdf
[5] https://www.heritage.org/index/country/india

collected from RBI, annual reports[6]. Information relating to India's FDI retail liberalisation policies and initiatives/measures undertaken were collected from Indian retail analysis report, IBEF (2014); IBEF (2016) Brand equity annual report; Indian retail report (2013); and Retail FDI in India Leaping forward, 2018 Deloitte report (2018).

3.3   Model Specification

Before examining the determinants of FDI, the present study forms an index for institutional quality. As discussed earlier, in addition to the six institutional measures suggested by Kaufmann et al. (2011), liberalisation changes were also included as part of the extended institutional measure. Retail sector liberalisation initiatives started in India in 2006 (as discussed earlier). So, liberalisation initiative is incorporated as a dummy variable to capture the impact of retail sector opening for foreign investment. The variable is assigned value 1 starting from the year 2006 onwards, and prior to 2006 it was taken to be 0[7]. Liberalisation measure was categorical in nature (absence or presence) whereas other six indicators were continuous numerical data ranging between -2.5 to 2.5. Therefore, instead of using principal component analysis (PCA) as a tool for forming the index, the current study employs multiple factor analysis (MFA) to form an index as it takes care of both categorical data and continuous quantitative data. MFA is an extension of PCA that can be employed to integrate multiple data tables (categorical, qualitative, quantitative) collected on the same set of observations (Abdi et al., 2013) (Summary statistic and Eigen value for the index calculated are provided in annexure 2 and 3). The institutional index formed via MFA is employed as an explanatory variable along with the conventional variables of FDI inflows.

Studies examining the determinants of FDI via gravity model specifications have either taken FDI stock or FDI flows as dependent variable. Though some of studies have suggested FDI stock as better measure over FDI flows as stock is morestable and strongly reflects capital ownership (Subasat & Bellos, 2011) but few studies have suggested use of FDI flows over stock as estimation of FDI stock may not be uniform across countries (Globerman & Shapiro, 2002). The present study employs FDI flows as dependent variable not only because of the above said advantage but also because of non-availability of data for bilateral FDI stock between India and its investing partners over the period of 2001-2020. Moreover, various

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[6] https://m.rbi.org.in/Scripts/AnnualReportPublications.aspx?Id=1336

[7] Chol (2020) introduced a dummy variable to capture the impact of investment incentive by Sudan government while examining the determinants of FDI. Sinha and Singhal (2013) employed dummy variable for FDI in retail to empirically estimate its impact on macroeconomic variables.

subset of studies (Różański & Sekuła, 2016; Ullah & Inaba, 2104) have employed FDI flows to capture the determinants of investment.

The functional form of extended gravity model capturing the impact of extended institutional measure along with the traditional determinants of investment inflows is expressed as follows:

FDI inflow of India = f (market size, factor endowment, distance, economic freedom, infrastructure, urbanisation, inflation, institutional index)

Few FDI flows between India and its investing partners are narrated as zero. In order to address the issue, we can either drop the years/observations with zero flows (leading to reduction in sample size) or choose to go by method suggested by few studies (Eichengreen & Irwin, 1995; Sarasa et al., 2014) where we can balance the dependent variable by added 1 for the log transformation. For the current study, we accommodate zero flows in the data by adding up 1 prior to log convergence. Since the present study captures FDI inflows from 21 investing countries to India therefore panel regression model with log specification is stated as:

$$\ln(1 + FDI_{ijt}) = \alpha + \beta_1 \ln(GDP_{it} \cdot GDP_{jt}) + \beta_2 |\ln GDPpc_{it} - \ln GDPpc_{jt}| + \beta_3 \ln URB_{jt} + \beta_4 \ln DIS_{ijt} + \beta_5 \ln EcoFr_{jt} + \beta_6 INFLA_{jt} + \beta_7 INFRA_{jt} + \beta_8 INST\ Index_{jt} + \varepsilon_{ijt}$$

……….. (1)

For equation (1) ln denotes the natural log form, i represents the home/investing country, j represents the host country/India and t presents year. Variables captured are defined below:

- FDI_{ijt} foreign direct investment inflows of India (j) received from investing partner countries i for the period t,

- GDP_{it} gross domestic product of home country, i for year t,

- GDP_{jt} gross domestic product of India, j for year t,

- $GDPpc_{it}$ GDP per capita of home country i for year t,

- $GDPpc_{jt}$ GDP per capita of India, j for year t,

- $DISij$ distance between India and its investing partner,

- URB_{jt} Urbanisation in India represented by percentage of urban population for the year t,

- $INFRA_{jt}$ Infrastructure development represented by Mobile cellular subscriptions in India for the year t,

- $INST\ Index_{jt}$ Extended Institutional index for India for year t,

- $EcoFr_{jt}$ Economic freedom parameters in India for year t,

- INF_{jt} Inflation in India for year t,

- $\beta_1, \beta_2, \beta_3, \beta_4,\ \dots\dots\dots\dots\dots$ are coefficients

Before finally examining the variables, correlation among variables was examined (see annexure 5). The results suggested high correlation between infrastructure variable and economic freedom parameter, and infrastructure and institutional index (more than 0.85 in both the cases). Therefore, we dropped infrastructure variable for final interpretation of results. Moreover, to accommodate the endogeneity issues (see annexure 6, presence of heteroscedasticity and autocorrelation detected) and to capture dynamics in model specification one year lag is incorporate as part of the regression equation. The revised equation can be stated as follows:

$$\ln(1 + FDI_{ijt}) = \alpha + \beta \ln(1 + FDI_{ijt-1}) + \beta_1 \ln(GDP_{it}.GDP_{jt}) + \beta_2 |\ln GDPpc_{it} - \ln GDPpc_{jt}| +$$
$$\beta_3 \ln URB_{jt} + \beta_4 \ln DIS_{ijt} + \beta_5 \ln EcoFr_{jt} + \beta_6 INFLA_{ijt} + \beta_7 INST\ Index_{jt} + \varepsilon_{ijt}$$

……… (2)

where FDI_{ijt-1} represents the lag term.

A brief of review of explanatory variables helps us to understand the captivity of study therefore the description of the independent variables is stated in the annexure 1.

3.4 Methodology: Static and Dynamic Regression

To study the significance of variables, the study employs both static and dynamic regression specifications. In order to capture the results for static model, we employ fixed effects (FE) and random effects (FE) specification; hausman test was conducted to choose between FE and RE models. Both FE and RE carry certain advantages and limitations. FE takes care of heterogeneity among economies/firms and generates results that accommodate cross sectional aspects whereas RE does not account for cross sectional intercept but RE generates results for time invariant variables whereas FE fails to do so (Baltagi, 2001; Gujarati et al.,2012). The study supported use of random effect for result interpretation (see table 1) via use of Hausman test; might be because most of the countries providing FDI to India are developed countries with less variation among them. Moreover, the results for static models are stated with both FE and RE specifications in table1.

Other issues encountered were heterogeneity and autocorrelation in the panel data (see annexure 6) therefore the study also generates results via dynamic regression model. Introducing a lag of dependent variable reduces the problems associated with endogeneity and omitted variables (Kersan, 2015). To incorporate the lag variable, Generalised method of moments (GMM) is extensively employed as dynamic frameset.   Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) suggested two methods of GMM estimation, namely, system GMM and differential GMM. System GMM has an advantage of employing moment condition of level equation; considers problems/bias associated with finite sample; and takes care of first-order difference of lag variable as part of level equation (as an instrumental variable) (Kan & Huang, 2019; Singhania & Saini, 2021). Therefore, the present study employs system GMM model to study the results. But system GMM proposed by Arellano and Bond (1991) incorporates only fixed effect only as the model specification is fitted using first differences and hence, time invariant variables get omitted while calculating equation with first differences (Bhasin & Manocha, 2016).

For system GMM estimation, the results were initially generated by employing GMM one-step procedure; though the results for overidentifying restriction under Sargan test were found to be valid both at 5% and 10% but AR (2) null hypothesis for one-step GMM suggested presence of serial correlation at 10% significance level. Hence, GMM estimations both one-step and two-step were generated to account for dynamics and to take care of endogeneity but results generate via two-step GMM were found to be more apt for interpretation. Moreover, two-step GMM procedure are considered to be asymptotically more powerful as compared to one-step GMM estimation (Hwang & Sun,2015).

4 Results and Analysis

This section of the study summarises the results generated via static and dynamic regression estimations for equation 2. Table 1 captures the result using fixed and random effects specifications whereas Table 2 states result for one-step and two-step GMM. The result for extended market variable is found to be positive and significant for all three (FE, RE, GMM-twostep) econometric specifications; indicating India is definitely attracting FDI inflows from investing partners that are seeking India as a large market. The result for extended market variable is similar to Park and Park (2008) and Jang (2011) for horizontal FDI motives of investment inflows.

Table1: Results of static regression models for India's FDI determinants

	Dep: Log(1+FDIijt)			Period: 2001-2020		
atory Variables	Random effects			Fixed effects		
	Coeff	d err	value	Coeff	d err	value
led Market	0.317*	0.108	0.003	0.387	0.122	0.002
lifferential	0.576***	0.335	0.085	0.678	0.379	0.075
RBANjt	14.991*	4.782	0.002	14.835	4.999	0.003
oFrejt	1.292	3.678	0.725	0.927	3.684	0.801
Sij	-0.093	1.082	0.931	-----	-	------
FLAjt	-0.537**	0.236	0.023	-0.529	0.237	0.026
tional index	0.244*	0.059	0.000	0.242	0.059	0.000
ant	-20.154*	6.645	0.002	-21.552	5.606	0.000
	Diagnostic Statistics					
er of obs.			420			420
er of groups			21			21
-R square		0.5357			0.5362	
en-R square		0.0014			0.0018	
l -R square		0.2331			0.2164	
nan test			Prob>chi2 =	0.8531		

1. Source: Authors own calculation.
2. Results for random and fixed effects regression analysis were generated via Stata 15 and for calculating institutional index via multiple factor analysis XLSTAT was employed.
3. Notes: *, **, *** indicate 1%, 5% and 10% level of significance respectively. Hausman test is conducted; null hypothesis for Hausman test suggests that random effects results are preferred over fixed effect estimations.
4. Extended market size captures $[ln(GDP_{it}.GDP_{jt})$ and skill differential represents $|ln\ GDPpc_{it} - lnGDPpc_{jt}|$

The results for difference between GDP per capita of India and investing partner were found to be significant and positive for random and fixed effect specification; indicating difference in wage structure between both the economies is attracting vertical FDI for India. The results suggest investing partners are able to take advantage of relatively low wage structure in India. However, the results captured via two-step GMM were reported to be insignificant for the said variable; might be due to the endogeneity issues and dynamic associated with the models. Jang (2011) also found insignificant results for difference between GDP per capita of both home and host countries via Arellano–Bond Estimator. The result for distance between India and its investing partner were captured via random effects and was found to be insignificant but negative. The results for

urbanisation were found to be positive and significant. The result for urbanisation indicated that increasing urbanisation in India helps investing partner to have better access of amenities (in terms of banking, better transportation, trained workforce, telecommunication, power, and water supplies, etc) that are associated with urbanisation. Wu and Zhao (2019) suggested that new urbanisation is strongly facilitating foreign capital flows. Moreover, the FDI lag variable was found to have a positive and significant impact on India's FDI inflows (as per GMM model). Bhasin and Manocha (2016); Tripathi et al. (2015) also found similar results for FDI lag variables while examining the determinants of FDI.

Table 2: Results of dynamic regression models for India's FDI determinants

Explanatory Variables	Dependent variable: Log(1+FDIijt)			Period: 2001-2020		
	One-step GMM			Two-step GMM		
	Coeff	Std err	p-value	Coeff	Std err	p-value
Log(1+FDI$_{ijt-1}$)	0.634*	0.053	0.000	0.547*	0.144	0.000
Extended Market	0.888*	0.188	0.000	1.019*	0.318	0.001
Skill difference	-0.129	0.549	0.814	-0.594	0.489	0.224
LogURBANjt	17.787*	5.331	0.001	17.945*	5.966	0.003
LogEcoFrejt	4.428	3.404	0.193	5.269**	2.043	0.010
LogDISij	-----	-----	-----	-----	-----	----
LogINFLAjt	-0.468**	0.205	0.023	0.452**	0.193	0.019
Institutional						
Index	0.197*	0.047	0.000	0.170*	0.034	0.000
Constant	-13.952*	6.197	0.024	-17.5**	7.223	0.015
Diagnostic Statistics						
Number of observations			378			378
Number of groups			21			21
number of instruments			178			178
AR(1) [p-value]		-3.036 [0.0024]			-2.434 [0.014]	
AR(2) [p-value]		1.6562 [0.097]			1.3873 [0.1654]	

Sargan test [p-value]	193.8983 [0.1010]	18.7233 [1.000]
WaldChi^2 test [p-value]	737.81 [0.000]	757.77 [0.000]

1. Source: Results are generated via Stata 15.

2. Notes: *,** and *** represent 1%, 5% and 10% significance level respectively. AR (1) and AR (2) are first-order and second-order serial correlation test, asymptotically distributed as N (0, 1) with null hypothesis: no serial correlation. The p-value for serial correlation is depicted in the square bracket. For over-identifying restrictions, Sargan test is conducted and null hypothesis suggested that instruments as group are endogenous

3. Extended market size captures [$ln(GDP_{it}.GDP_{jt})$ and skill differential represents $|ln\ GDPpc_{it} - lnGDPpc_{jt}|$

The coefficient for economic freedom was found to be positive and insignificant for fixed and random effects but for GMM two-step, the results for economic freedom of India was found to be positive and significant. Azman-Saini et al. (2010), and Quazi and Rashid (2005) also suggested positive and significant association between FDI inflows and economic freedom while examining the determinants of FDI. The results indicate that India's tax structure, trade freedom, investment openness, labour freedom and fiscal policy freedom measures are supporting foreign capital inflows for India. Moreover, the results for inflation depicted a negative and significant outcome. The results for inflation and FDI were in line with Chol (2020) suggesting lack of stability in terms of macroeconomic environment reduces FDI inflows for India. Lastly, talking about the extended institutional variable; the study found a positive and significant coefficient indicating that India can significantly attract FDI by introducing investment supportive institutional and liberalisation measures. As discussed earlier, extended institutional variable captured in the present study incorporates institutional measures suggested by Kaufmann et al. (2011) and retail FDI liberalisation (as an additional measure). Adegboye et al. (2020), and Kurul and Yalta (2017) found positive and significant association between institutional measures and FDI inflows for developing economies. Similarly, Singhania and Gupta (2011) suggested positive and significant results for extended FDI policy measures (as a dummy variable) while studying the determinants of FDI inflows for India. The results are compatible with the existing literature. Hence, opening gates for foreign investor in retail sector along with better institutional measures have supported the investor to better understand Indian consumers and hence, comprehend the nature and kind of distribution channels as well as manufacturing units required for Indian markets. Moreover, foreign investor having liberty to directly serve the market provides an incentive not only to increase manufacturing units but also to diversify (and scatter) production units' region wise within India. Indian market is highly diversified in term of taste and preferences,

income level, age groups of consumers; and better institutional measures have reduced transactional and diversification cost for India's foreign investor. Understanding the consumer helps the investor to emerge as Smart investor and hence serve and manufacture goods as per the preferences of the consumers.

5   6.0 Conclusion

The motive of the study was to capture the traditional FDI inflow determinants of India and to examine the impact of extended institutional index (with FDI retail policy measures as one of the significant pillars) on India's FDI inflows. Explanatory variables examined via Knowledge-capital model of investment; an augmented gravity framework suggested by Carr et al. (2001) to study horizontal as well as vertical motives of investment flows. Along with static regression models, dynamic regression specifications were also employed to address exdogeneity issues and to study the lag variable of FDI as an explanatory variable. Extended market captive of horizontal FDI motives, economic freedom parameter of India, urbanisation and extended institutional index found to significant for India FDI inflows. However, results for inflation found to be significant and negative. India's institutional environment augmented with FDI retail policy measures suggest that policy measures are reducing transaction cost for India's investing partners and supporting penetration into India's retail market. Strong institutional support and unplugging the retail sector has provided foreign investor an opportunity to smartly understand Indian market (and consumers) and hence come up with more diversified distribution channels and manufacturing units.

5.1   Contribution of the Study

Extended institutional measures (incorporating India's FDI retail liberalisation impact) studied as a determinant of India's FDI inflows. The study provides an insight into the retail FDI liberalisation measures taken by the Government of India. In addition, it empirically evaluates the impact of FDI retail measures on India's FDI inflows by employing Knowledge-Capital model of investment. The research also appreciates extended market (horizontal FDI), skill differential, inflation, and urbanisation as determinants of India's FDI inflows.

5.2   Implications of the Study

India is one of the largest retail markets comprising of both organised and unorganised retailing channels. Further, being one of the most diversified and consumer-oriented retail

market; retail FDI liberalisation was a policy initiative and institutional measure for restructuring and strengthening Indian retail sector. Retail FDI was a need of the hour to provide a better structured and competitive goods (and services) to the consumers; a support and strength to the indigenous producers; a learning of global supply chains and distribution networks; and a platform for foreign investor to explore and supplement Indian retail market. The results captured also depicted that liberalisation initiatives have facilitated FDI inflows for India and have added to the restructuring of India's institutional environment with better distribution channels and competitive consumer-oriented products.

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Annexure 1: Data Description

Variable Description and expected associated with FDI inflow	Studies capturing the explanatory variable
1.*Extended market variable*, sum of GDP of India and its investing partner $[ln(GDP_{it} \cdot GDP_{jt})]$	
Captures horizontal motivation of FDI. Positive impact on India's FDI inflows in case the investing partner is looking for market access or horizontal FDI motives	Blonigen et al. (2003), Kristjánsdóttir (2010)
2.*Absolute difference between GDP per capita* of both the countries $\|ln\ GDPpc_{it} - lnGDPpc_{jt}\|$	
Vertical motive of FDI is captured. The variable is expected have positive or negative impact depending upon whether the FDI is flowing from high/low wage economies (as compared to India). In case FDI is flowing from high wage countries to take advantage of relatively low wages in India then it will create only blue-collar or low value jobs in India.	Helpman (1984): Jang (2011)
3.*Distance (lnDISij)*	
Associated with transportation and communication cost. Increase in distance may lead to increase in foreign investment as transportation cost reduces the export/import with the partner country. However, in case of high transportation leads to reduction in cultural proximity then with increase in distance FDI flows may reduce. So, the relationship between FDI inflows and distance is ambiguous.	Bhasin & Manocha (2016), Bi et al (2020)
4.*Urbanisation* $[lnURB_{jt}]$	
Associated with better support system in terms of banking facilities, transportation facilities, infrastructural set-up, and other advance amenities; suggesting a positive relationship. However, quick urbanisation might come up with various challenges such as income inequality, poverty, climate changes	Wu and Zhao (2019)

and lopsided urbanisation then a negative association with FDI flows might be depicted. So, the relationship is ambiguous.

5. Economic freedom lnEcoFre$_{jt}$ Suggestive of better economic environment in terms of monetary; labour; and business freedom, market openness covering financial freedom, investment freedom and trade freedom/trade openness. The variable is expected to have positive impact on the FDI inflows.	Singh and Gal (2020), Herrera-Echeverri et al (2013)
6. Institutional Index INST Index$_{jt}$ Seven dimensions captured are • Voice and accountability: extent to which citizens of the country can select and challenge the government in power. • Political stability and absence of terrorism/violence: More stability in the economy will suggest better potentials for growth and investment. • Government effectiveness: ability of the state to provide better quality of public services. • Regulatory quality: the ability of the government and its authorities to draft (and implement) better and sound laws, regulations, and policies. • Rule of law: focus on the quality of contract enforcement, property rights, and effectiveness of courts. • Control of corruption: Competitiveness to control corruption and bribery networks. • Liberalisation: Policy initiative by government to ease foreign investment in the host country. For the current study absence/presence of retail sector liberalisation has been incorporated as a signal of liberalization measures towards FDI penetration. Index is likely to be positively associated with FDI inflows.	Allard (2016), Herrera-Echeverri et al (2013)
7. Inflation [lnINF$_{jt}$] indicative of economic instability. Negative relationship between inflation and FDI inflows specially for developing economies.	Komla and Oyakhilome (2021)
8. Infrastructure [lnINFRA] Indicative of efficiency related infrastructure available.	Asiedu (2002); Asongu et al (2018);

The variable is likely to depict a positive association with FDI inflows.	Sekkat and Veganzones-Varoudakis (2007)	

Annexure 2: Summary statistics for variables employed for calculating institutional index

Variable	Obs.	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Liberalisation-FDI	20	0	20	0.000	1.000	0.750	0.444
Government Effectiveness: Estimate	20	0	20	-0.206	0.387	-0.002	0.160
Control of Corruption: Estimate	20	0	20	-0.536	-0.183	-0.377	0.106
Political Stability and Absence of Violence/Terrorism: Estimate	20	0	20	-1.509	-0.765	-1.10	0.202
Regulatory Quality: Estimate	20	0	20	-0.473	-0.138	-0.32	0.100
Voice and Accountability: Estimate	20	0	20	0.150	0.462	0.401	0.075
Rule of Law: Estimate	20	0	20	-0.091	0.330	0.029	0.103

Source: Authors own. Based on calculations.

Annexure 3 Eigen value and eigen vector using Multiple factor Analysis

	F1	F2	F3	F4	F5	F6	F7
Eigenvalue	1.279	0.899	0.229	0.146	0.089	0.044	0.016
Variability (%)	47.312	33.266	8.480	5.404	3.304	1.625	0.608
Cumulative %	47.312	80.578	89.059	94.463	97.766	99.392	100.000

Source: Authors own. Based on calculations.

Annexure 4: Summary of Descriptive Statistics for Explanatory Variables other than institutional index

Variables	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	Sum	Sum Sq. Dev.	Obs
Extended market	23.90	24.04	25.79	21.35	0.94	-0.57	2.82	10037.72	370.16	`420
Skill differential	1.46	1.51	2.09	0.37	0.33	-1.03	4.30	612.54	46.52	420
LogDISij	3.77	3.79	4.15	3.36	0.19	0.04	2.94	1582.34	14.68	420
LogEcoFrejt	1.73	1.73	1.75	1.69	0.02	-0.91	3.27	726.68	0.10	420
LogURBjt	0.76	0.76	0.80	0.74	0.02	0.28	1.73	321.27	0.15	420
LogINFLjt	0.76	0.73	1.08	0.52	0.18	0.37	1.74	320.85	13.32	420

Source: Authors own. Based on calculations.

Annexure 5: Correlation matrix for explanatory variables

Variable	lnFDI	Extended mkt	Skill	LnDis	LnURB	LnEF	LnINFL	INSTI index	LnINFRA
lnFDI	1								
Extended mkt	0.2112	1							
Skill	-0.142	-0.1388	1						
LnDis	0.0694	0.0819	0.3909	1					
LnURB	0.4832	0.3212	-0.352	0	1				
LnEF	0.426	0.2901	-0.264	0	0.7205	1			
LnINFL	0.1491	0.0833	-0.034	0	-0.0078	0.448	1		

| INSTI index | 0.5004 | 0.306 | - 0.319 | 0 | 0.7837 | 0.7141 | 0.2009 | 1 | | |
| LnINFRA | 0.5041 | 0.3362 | - 0.321 | 0 | 0.8327 | **0.8718** | 0.4128 | **0.8582** | 1 | |

Source: Authors own. Based on calculations

Annexure 6: Heteroscedasticity and Autocorrelation results

Likelihood-ratio test   LR chi2(20) = 285.25

(Assumption: nested in hetero) Prob > chi2 = 0.0000

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

 F (1, 20) =   18.969

 Prob > F =   0.0003

Source: Authors own. Based on calculations