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Does outward foreign direct investment crowd out domestic investment in India?

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Abstract

This study examines the long-run effect of outward foreign direct investment (outward FDI) on domestic investment in India using the time series framework over the period 1982-2017. Gross domestic savings, real economic growth, trade openness, real interest rate and financial development are further included as control variables in domestic investment function. The results using the ARDL model indicate that outward foreign direct investment, gross domestic savings and real economic growth significantly promote domestic investment in India, whereas real interest rate significantly deteriorates it. Trade openness and financial development are not effective in enhancing domestic investment in India. However, outward FDI unidirectionally causes India's domestic investment in the long-run. The finding shows that Outward FDI stimulates domestic investment and thus support “crowd-in-hypothesis”. On the policy ground, it urges the Indian government to push outward foreign direct investors for the long-run benefit of the domestic investors.

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1. Introduction

Emerging economies require massive capital to stimulate the production process. The growing capacity of developing economies could be limited if capital availability becomes an issue in the long run. The limits to economic growth will not allow emerging economies to realize the long-run sustainable and inclusive growth process. The failure to achieve an inclusive growth process will again deny emerging economies from reducing poverty and uneven income distribution. Therefore, emerging economies need to integrate themselves with other countries across the globe to enhance overseas capital inflows and outflows. The emerging economies in the higher correlation territory of domestic savings and investments are deprived of profitable opportunities caused by their lesser economic openness. Similarly, restricting the movement of outward foreign investors to other countries will also deny emerging economies the receipt of higher foreign exchange reserves. Various existing theoretical and empirical research have primarily discussed the impact of foreign direct investment on domestic investment in developing economies (Agosin and Machado 2005; Wang 2010). To the best of my knowledge, the studies focusing on the impact of outward FDI on domestic investment are relatively scant in the literature for emerging economies. In this context, our study attempts to analyse the impact of outward FDI on domestic investment in India. According to World Investment Report (2020), India has made outward FDI flows of U.S. \$12104. 2 million. India is a vital transition and emerging economy contributing around 0.9 % of global OFDI flows. The adoption of economic liberalization policies in 1991 stimulated the outward FDI from India. The Foreign Exchange Management Act (FEMA) introduced in 2000 also helped expand OFDI from India.

There are different arguments on the impact of outward FDI on domestic investment in the home country. i) if the firms shift production abroad through outward FDI, foreign investment will substitute the domestic investment. ii) another argument is related to the financing of these investments. While investments at different locations are made, a scarcity of funds arises, which will reduce concurrent domestic investment (Stevens and Lipsey, 1992). This is because outward FDI may divert resources away from the home country and reducing domestic investment. Therefore, outward FDI substitutes domestic investment. An alternative perspective shows the positive impact of outward FDI on domestic investment. This literature argues that outward FDI helps import inputs and technologies at a cheaper rate, thus reducing the domestic cost of production; and raising domestic investment (Desai et al., 2005). The effect of outward FDI on domestic investment varies from country to country based on the motivation firms invest abroad, viz., market-seeking, natural resource-seeking, cost-seeking etc. and other characteristics of the home country's economy. The impact of outward FDI on domestic investment is rather ambiguous and depends on the motivation of outward FDI, its impact on exports and other activities in the home country (Ardnt et al., 2007). If outward FDI is cost-seeking, the negative impacts are likely because of the substitution of domestic activities. However, if the motivation of outward FDI is market-seeking, the effect rather depends on the replacement effect on exports and other activities.

The major theoretical works on motives and objectives like the Ownership, Locational and Internationalization (OLI) paradigm¹ (Dunning, 1998) fail to explain the motivation of emerging countries' firms to invest abroad. However, the recent emergence of emerging

¹ OLI Paradigm: This paradigm explains the factors determining the internationalisation activity of firms in terms of FDI. According to OLI (eclectic) paradigm (Dunning, 1998, 2000), ownership and locational advantages determines the internationalisation of firms.

countries as important contributors of global outward FDI has exposed the flaws in traditional theories explaining the emergence of Multi-National corporations (MNCs) from developing countries (Ramamurti, 2012). This has created a puzzle in the literature to determine what motivates emerging countries to invest more in outward FDI.

Steven and Lipsey (1992) find that outward FDI and domestic investment are substitutes for each other in the context of U.S. economy. Higher outward FDI reduces domestic investment and substitutes each other since investing abroad will eventually shift most domestic investments abroad. However, Feldstein (1994) and Desai et al. (2005) find a complementary relationship between outward FDI and domestic investment using large Multinational corporations (MNCs) data from the U.S economy. This set of studies finds that higher outward FDI contributes to domestic investment by facilitating a lesser domestic cost of production. Existing empirical literature in the context of developed and developing countries on FDI primarily focuses on the impact of FDI inflows on the host economy (Gui-Diby, 2014). Even though there are few studies on outward FDI and its impact on the host economy, most of these studies focus on the impact of outward FDI flows on the host economy from an industry-level or micro-level perspective (Hsu et al., 2015). The investigation about the macroeconomic effects of outward FDI on the domestic investment of the host economy is minimal (Al-Sadig, 2013; Ameer et al., 2017). Sadig (2013) investigates the effect of outward FDI on domestic investment in the context of 91 developing countries. Using GMM estimation, the study finds evidence of the ‘crowd-in effect’ of OFDI on domestic investment. Ameer et al. (2017) also find a unidirectional long-run relationship running from OFDI to DI in China. Thus, empirical studies also show mixed evidence of the relationship between outward FDI and domestic investment.

The current study attempts to investigate whether there exists any crowding-out or crowding-in effect of outward FDI on domestic investment in the context of India. The contributions of the study are as follows. Firstly, the study contributes to the literature on the impact of OFDI on domestic investment by examining the effect of outward FDI on domestic investment in India. Secondly, we use a more extensive sample period of 35 years (1982-2017) to account for the relationship between outward FDI and domestic investment. Thirdly, by using the Autoregressive distributed lag model (ARDL) (Pesaran et al., 2001) to investigate the long-run relationship between outward FDI and domestic investment, the study attempts to overcome the econometric weakness of previous studies.

The remainder of the paper is as follows. Section 2 explains the analytical framework of the study. Section 3 reports data sources and methodology. Section 4 discusses the empirical results, and section 5 concludes the study with policy remarks.

2. Analytical Framework

Our model is based on Feldstein and Horioka (1980), which explain that domestic savings rates are positively associated with domestic investment. Feldstein (1995) and Goh and Wang (2014) extended this model to explain the relationship between outward FDI and domestic Investment. We use this model by including a set of control variables following the standard literature. The estimated model is as follows.

$$DI = f(OFDI, S, X) \quad (1)$$

DI stands for the Domestic Investment defined as Gross Domestic Capital Formation as a percentage of GDP (Hsu et al., 2015; Al-sadig, 2013; Ameer et al., 2017), outward FDI is the ratio of total outward FDI flows to GDP; S is Gross Domestic Savings; X is a vector of control variables including trade openness, domestic output proxied by Real GDP at constant US\$ 2010 (DO), real interest rate (RIR) and domestic credit to the private sector (FD).

The control variables are selected following the existing literature. Trade openness (TO) is expected to positively impact domestic investment through technology and knowledge spillovers (Ndikumana, 2000). Few studies have also found evidence on the negative impact of the same on domestic investment through the adverse effect of imports. Real GDP, which is the proxy for the level of economic activity or domestic output (DO) is expected to have a positive effect on domestic investment. Domestic output plays an important role in determining domestic investment (Greene & Villanueva, 1991). Financial development facilitates higher availability of finance through channelizing higher savings (Beck and Levine, 2002; Levine, 2005). Domestic credit to the private sector (as a percentage of GDP) is a proxy for Financial Development (FD) (You and Solomon, 2014). Real Interest rate (RIR) is another important variable affecting domestic investment. RIR determines the cost of borrowing; thus, a higher RIR reduces domestic investment. Therefore, RIR is expected to have a negative effect on domestic investment (Ndikumana, 2000). Ameer et al., (2017) find a significant long-run causality from outward FDI to domestic investment in the case of China.

3. Data and Methodology

We use Gross Capital Formation as a share of GDP as the measure of domestic investment taken from World Development Indicators (WDI, 2018). Data on outward FDI as a share of GDP is taken from the UNCTAD FDI database. Data on control variables are also accessed from World Development Indicators (WDI, 2018). The sample period is from 1982-2017. Table I reports the definition of variables and descriptive statistics.

The study employs the Autoregressive Distributed Lag (ARDL) Model, or bound testing approach (Pesaran et al., 2001), to check the short and long-run relationship between outward FDI and domestic investment. The model is estimated using a multivariate approach including all control variables; trade openness, domestic output proxied by real GDP at constant US\$ 2010 (DO), real interest rate (RIR) and financial development (FD). We use Auto-Regressive Distributed Lag (ARDL) approach developed by Pesaran et al. (2001). This approach has the advantage that we can apply this method even if our variables are of I (0), I (1), or integrated of mixed order; I (0) and I(1). Thus, this method does not require the testing for unit root tests, which is inherent in the traditional co-integration test (Johansens test). The main advantage of this method is that it will give efficient results even in the case of variables in mixed order, and none of the variables is I (2) (Pesaran et al., 2001).

Zivot Andrews (1992) test is used to test the unit root as it helps us detect the structural breaks too. According to Pesaran et al (2001), the dependent variable should be I (1), and the independent variables should be I (0) or I(1) or a combination of both.

The first step in the ARDL framework is the bound test. The cointegrating relationship between domestic investment and outward FDI is tested by calculating the F-statistic against the null hypothesis that there is no cointegration. Pesaran et al. (2001) provide two sets of critical values; upper bound and lower bound. If the F-statistic value is less than the lower bound critical value, the null hypothesis cannot be rejected. In contrast, null hypothesis is rejected if the F-statistic is higher than the upper bound critical value. If the F-statistic falls between the critical value bounds, the result is inconclusive. The second step, cointegration between outward FDI and domestic investment is examined using a multivariate model including all the control variables. The equation specified is as follows.

Table I. Descriptive Statistics

Variable	Definition of variables	Source	Mean	SD	Min	Max
DI	GCF/ GDP	WDI	29.29	(6.549)	19.49	41.95
OFDI	OFDI/ GDP	WDI	0.325	(0.479)	0.41	1.68
GDS	Gross domestic savings/ GDP	WDI	25.65	(6.336)	14.46	34.38
TO	Export- Import/ Export	WDI	30.13	(14.78)	12.21	55.79
DO	Log of GDP In real terms	WDI	10.29	(0.062)	10.22	10.43
RIR	Real Interest Rate	WDI	5.99	(2.441)	-1.98	9.19
FD	Domestic credit to private sector (% of GDP)	WDI	34.14	(11.73)	22.51	52.38
N			35			

Note: Real GDP is measured in logs. Standard errors are reported in parenthesis.

$$\begin{aligned}
\Delta DI_t = & a_o + \sum_{i=1}^n m_{Gi} \Delta DI_{t-i} + \sum_{i=0}^n m_{Fi} \Delta OFDI_{t-i} + \sum_{i=0}^n m_{Ci} \Delta GDS_{t-i} + \sum_{i=0}^n m_{Di} \Delta TO_{t-i} + \sum_{i=0}^n m_{Pi} \Delta DO_{t-i} \\
& + \sum_{i=0}^n m_{Hi} \Delta RIR_{t-i} + \sum_{i=0}^n m_{Ji} \Delta FD_{t-i} + a_1 DI_{t-1} + a_2 OFDI_{t-1} + a_3 GDS_{t-1} \\
& + a_4 TO_{t-1} + a_5 DO_{t-1} + a_6 RIR_{t-1} + a_7 FD_{t-1} + \varepsilon_{1t}
\end{aligned} \tag{2}$$

Once we identify the long-run relationship, we estimate the long-run coefficients from equation (2). For this, we need to determine the lag order through VAR specification. The short-run dynamic parameter is estimated in the final step with the following Error-Correction Model (ECM).

The results in Table V show that the null hypothesis of no-cointegration is rejected at 1 % significance level for equation (2). It implies a long-run relationship between outward FDI and domestic investment in the presence of control variables. This is found true as suggested by the bound test of cointegration. To obtain the long-run coefficients, the ARDL model is estimated as shown below:

$$\begin{aligned}
(1 - \theta_1 L - \dots - \theta_u L^u) DI_t = & \phi_0 + (1 - \phi_1 L - \dots - \phi_v L^v) OFDI_t \\
& + (1 - \alpha_1 L - \dots - \alpha_x L^x) GDS_t \\
& + (1 - \beta_1 L - \dots - \beta_y L^y) TO_t \\
& + (1 - \gamma_1 L - \dots - \gamma_z L^z) DO_t \\
& + (1 - \nu_1 L - \dots - \nu_k L^k) RIR_t \\
& + (1 - \kappa_1 L - \dots - \kappa_n L^n) FD_t
\end{aligned} \tag{3}$$

The optimal lags are selected according to Akaike information criteria. The maximum possible values of u, v, x, y, z, k and n in equation (3) are set at (2) due to the small sample size used in the study. The long-run coefficients from reparametrized equation (3) is reported in Table (7). Further, based on the results of bound tests of Cointegration, we also estimate the error correction model as follows:

$$\begin{aligned} \Delta DI_t = & a_o + \sum_{i=1}^n m_{Gi} \Delta DI_{t-i} + \sum_{i=0}^n m_{Fi} \Delta OFDI_{t-i} + \sum_{i=0}^n m_{Ci} \Delta GDS_{t-i} + \sum_{i=0}^n m_{Di} \Delta TO_{t-i} + \sum_{i=0}^n m_{Pi} \Delta DO_{t-i} \\ & + \sum_{i=0}^n m_{Hi} \Delta RIR_{t-i} + \sum_{i=0}^n m_{Ji} \Delta FD_{t-i} + \tau ECT_{m-1} + \varepsilon_t \end{aligned} \quad (4)$$

where ECT_{m-1} is the error correction term (ECT).

4. Findings and Discussion

4.1 Unit root testing

Firstly, we test whether the variables are stationary or non-stationary to employ the ARDL model. We use Zivot Andrews (1992) test for unit root test with structural breaks. Using the Zivot Andrews (ZA) unit root test, we found two breaks (2003 and 2004) in the context of outward foreign direct investment. The results are reported in Table II. The results show that the model follows a mixed order of I (0) and I (1). Results of unit root tests motivate the study to employ the ARDL model of Cointegration technique by Pesaran et al., (2001).

Table II. Unit Root Test Results

Variable	ZA	
	I(0)	I(1)
DI	-4.463 (2004)	-7.979** (2003)
OFDI	-7.246 (2006)	-7.785** (2009)
GDS	-3.540 (2004)	-5.673** (2002)
TO	-2.969 (2011)	-7.157* (2004)
DO	-3.562 (1991)	-5.367* (2008)
RIR	-5.422** (2010)	-8.102* (2011)
FD	-4.283* (2002)	-4.457** (2004)

Note: *, ** and *** indicate significance at 1%, 5% and 10% levels, respectively. Figures in parenthesis denote structural break years.

4.2. ARDL Estimation

The Akaike information criteria is used to select the optimal lag length of the model. The selected model is ARDL (1, 1, 2, 1, 2, 1). Therefore, the optimal lag length of the variables OFDI, GDS, TO, DO, RIR and FD are 1, 1, 2, 1, 2 and 1, respectively. Since there can be a high correlation between gross domestic savings and trade openness, we estimate two different ARDL models using gross domestic savings and trade openness, respectively.

4.3. Diagnostic tests of the model

The diagnostic tests carried out include the tests for serial correlation (Breusch-Godfrey Serial Correlation LM tests), Normality (Jarque-Bera test) and Heteroskedasticity (Breusch Pagan

Godfrey Test). Table III illustrates that, the selected model passes the diagnostic checks. The results suggest that the models are correctly specified. The Lagrange multiplier (LM) tests for autocorrelation do not show evidence of serial correlation as the p-value is insignificant and thus, H_0 of no serial correlation is accepted. The p-value of LM tests for Autoregressive Conditional heteroscedasticity (ARCH) is also not significant, supporting the H_0 of Homoscedasticity. Jarque-Berra (JB) test for normality does not reject the null hypotheses of normal distribution across all models.

Table III. Model Diagnostic Tests Results

Test	Model 1		Model 2	
	χ^2	Probability	χ^2	Probability
Breusch-Godfrey Serial Correlation LM test	5.51	2.568	3.283	2.846
Breusch-Pagan-Godfrey Heteroskedasticity test	34	0.419	32	0.416
Jarque-Bera test	3.35	0.187	1.053	0.590

4.4. ARDL bounds test

Since the model qualifies all diagnostic tests, we proceed to the next level, i.e., the bound test for cointegration. The null hypothesis states that there is no cointegration between the variables against the alternative; there is cointegration between the variables. There are two sets of critical values; lower bound and upper bound critical values. The upper bound critical values assume that all variables are I(1) and the lower bound value assume that all variables are I(0). If the calculated F-statistic falls in between the two critical values, the test is inconclusive. However, the null hypothesis can be rejected if the calculated F-statistic exceeds the upper bound value. We cannot reject null hypothesis if it lies below the lower bound critical value. The critical values are based on Narayan² (2005). For k=5 (number of independent variables) and n= 35 the relevant critical values with unrestricted intercept and linear trend from p.1990 of Narayan (2005) are given below (Table IV).

Table IV. Results of Bound-test for Cointegration

Models 1 & 2		
Critical Values	Lower bound I(0)	Upper bound I(1)
1%	5.095	6.770
5%	3.673	5.002
10%	3.087	4.277

Note: Critical values are based on Narayan (2005)

The associated F-test result of ARDL model (1) with gross domestic savings is 5.377, and that of ARDL model (2) with trade openness is 5.625. The F-statistic values are significant and are greater than the upper bound critical values from Narayan (2005) for equation (2) where domestic investment is the dependent variable. Thus, for equation (2), the H_0 can be rejected. Thus we accept the alternative hypothesis for both models (1 & 2) at the 5 per cent significance level.

Once the long-run relationship among the variables in equation (2) is confirmed, long run coefficients are estimated from equation (2) using the ARDL model. The results are shown in Table 5. The results show that outward FDI has a significant positive effect on domestic investment. This implies, higher outward FDI increases domestic investment in the long run in the context of India. Similarly, other control variables such as GDS, DO, TO, FD and RIR also

² The F-statistic value is compared with the critical values given by Narayan (2005), since these values are more efficient in case of small sample size.

show the expected results. Finally, GDS, DO and FD coefficients indicates a positive impact on domestic investment, which corroborated with the *a priori expectation*.

4.5. Long- run and short-run relationships

4.5.1 Long run relationship

The long run equilibrium relationship among the variables estimated using the ARDL (Pesaran et al., 2001) is reported in Table V. The analysis is conducted using two different specifications in both the long run and short run. Model 1 reports the results using OFDI along with GDS, DO, FA and RIR as the control variables. Model 2 reports the results with outward FDI and other control variables excluding gross domestic savings³. This follows the standard literature approach (Desai et al., 2005). The results show that the coefficients of outward FDI, gross domestic savings, real GDP are positive and significant. This indicates that outward FDI, gross domestic savings, real GDP have positive impacts on domestic investment. This is confirmed with the sign and statistical significance of their coefficients as reported in Table V.

Table V. Long run and short- run estimates (Linear ARDL) Coefficients

Variables	Long-run results		Short-run results	
	Model 1 Coefficients	Model 2 Coefficient	Model 1 Coefficients	Model 2 Coefficient
OFDI	2.436** (1.099)	3.491** (1.367)	5.942** (1.757)	5.332*** (1.417)
GDS	0.656** (0.310)		0.286** (0.274)	
DO	0.561** (1.618)	0.283* (0.239)	0.954* (0.879)	0.152* (0.538)
TO		-0.64 (0.211)		0.263 (0.273)
FD	0.268 (0.213)	0.236 (0.386)	-0.110 (0.097)	-0.207 (0.264)
RIR	-0.266 (0.191)	-0.749*** (0.204)	-1.119** (0.383)	-1.321*** (0.365)
D _t = 2004	2.422 (1.706)	4.426* (1.996)		
ECM _{t-1}			-0.638*** (0.168)	-0.964*** (0.243)
CUSUM	Stable	CUSUMSQ	Stable	

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Standard errors are reported in parenthesis. Dt represents the structural dummy.

The long run coefficients of the ARDL model show evidence of the long-run relationship between outward FDI and domestic investment. The results indicate that outward FDI positively contributes to India's domestic investment. This supports the model by Feldstein (1995) and Goh and Wang (2014)⁴. The findings suggest that the crowding-in effect of outward FDI on domestic investment exists in the long-run. Further, 1 % increase in outward FDI leads to an increase in domestic investment by 2.4 % in Model 1 and 3.4 % in Model 2. These results are interesting as they suggest a long-run positive relationship between outward FDI and domestic investment in the context of India. Outward FDI can increase domestic investment through two channels i) Firstly, the effect of outward FDI on domestic savings in the financial market. Domestic savings are expected to be driven out of the country through outward FDI, reducing domestic investment. However, this argument has less implication in India's context

³ This has been done to examine the effect of OFDI on domestic investment with and without controlling GDS.

⁴ Goh and Wang (2014) finds a complementary relationship between outward FDI and domestic investment, whereas a substitute relationship between FDI inflows and domestic investment in the context of Malaysia which is also an emerging country with increasing amount of outward FDI like India.

as the results suggests a positive relationship between outward FDI and domestic investment, ii) Secondly, the effect of outward FDI on domestic investment can be explained through the product markets. This depends on the set of various motives with which firms invest abroad. The positive effect of outward FDI indicates evidence in favour of the resource-seeking motive of firms. The existing literature on India's outward FDI suggest resource-seeking as the major motive for firms investing abroad (Hattari and Rajan, 2010; Saikia et al.,2020) which can have a positive impact on domestic investment rather than market-seeking which could have a negative, neutral or positive impact. Further, gross domestic savings and domestic output also positively and significantly influence outward foreign direct investment. The real exchange rate is found to have a negative and significant impact on domestic investment in the long-run. Trade openness and financial development is insignificant in the long-run.

4.5.2. Short run dynamics

The final step of the ARDL model is the error correction for estimating short-run dynamics (short-run parameters) with the speed of adjustment. The short run results corresponding to Eq. (2) are shown in Table 5. The results confirm a stable long run relationship among the variables as shown by the significance of the error correction term. The coefficient of lagged error correction term measures the speed of adjustment. We conclude that short run dynamics are consistent with the long run relationships as shown by the value and sign of lagged error correction term (ECT). As required, ECT is negative and significant at 1 % level. This suggests a long run relationship between the dependent variable, domestic investment and the regressors. The error correction terms of (0.63) and (0.96) for model 1 and model 2, respectively are significant at 1 per cent and negative. This indicates a quick adjustment of 63 per cent (Model 1) and 96 per cent (Model 2) of the previous year's disequilibrium adjustment to equilibrium in the current year. Cumulative sum of Squares (CUSUM), and Cumulative sum of squares of Residuals (CUSUMSQ), for the error correction model, has also been carried out to verify the stability over time, and the model is found to be stable.

The coefficient of outward FDI is positive and significant, as shown in Table V. This implies that higher outward FDI stimulates domestic investment in the short run. The findings align with Feldstein (1995) and Goh and Wang (2014). The short-run results also indicates a positive influence of outward FDI on domestic investment. The control variables; gross domestic savings, and real GDP also report a positive and significant coefficient suggesting a positive relationship with domestic investment in the short run. Real interest rate reports a negative and significant coefficient implying a negative effect on domestic investment in the short run. The findings of the study are consistent with Herzer and Schrooten (2008) and Ameer (2017). These studies also find a complementary relationship between outward FDI and domestic investment in the context of USA and China respectively. This implies that higher outward FDI helps improve domestic investment in the long run in India. However, these results contradict the results of Feldstein (1994) and Desai et al (2005).

5. Conclusion and policy remarks

This study examines the short-run and long-run effect of outward FDI on domestic investment in India using a large annual sample over the period 1982-2017. The ARDL model results indicate that outward FDI and gross domestic savings significantly add to domestic investment in India, whereas real interest rate also significantly deteriorates it. In addition, real economic growth, trade openness and financial development are ineffective in enhancing domestic investment in India. However, there exists long-run unidirectional causality running from

outward FDI to domestic investment in India. It concludes that outward FDI is complementary to the domestic investment in India. This finding is similar to that of Herzer and Schrooten (2008) and Ameer et al. (2017), who found a complementary relationship between OFDI and domestic investment in the context of U.S and China respectively. On the policy ground, it urges the policy makers to push outward foreign direct investors for the long-run benefit of domestic investors.

References

- Agènor, P., (2004), *The economics of adjustment and growth*, second edition, Harvard University Press.
- Agosin, M. R., and Machado, R. (2005) "Foreign investment in developing countries: Does it crowd in domestic investment?" *Oxford Development Studies* 33(2), 149-162.
- Al-Sadig, A. (2013) "The effects of foreign direct investment on private domestic investment: Evidence from developing countries" *Empirical Economics* 44, 1–9.
- Alvarado, R., Iniguez, M., and Ponce, P. (2017) "Foreign direct investment and economic growth in Latin America" *Economic Analysis and Policy* 56, 176-187.
- Ameer, W., Xu, H., and Alotaish, M. S. M. (2017) "Outward foreign direct investment and domestic investment: evidence from China" *Economic research-Ekonomska istraživanja* 30(1), 777-788.
- Arndt, C., C. M. Buch, and Schnitzer M. (2007) "FDI and Domestic Investment: An Industry-level View." Centre for Economic Policy Research Discussion Paper Series, Discussion Paper No 6464, London.
- Asante, Y. (2000) "Determinants of Private Investment Behaviour". Nairobi: African Economic Research Consortium, AERC Research Paper No. 100.
- Beck T, and Levine R (2002) "Industry growth and capital allocation: does having a market- or bank-based system matter?" *Journal of Financial Economics* 64(2): 147-180.
- Carkovic, M and Levine, R. (2002) "Does foreign direct investment accelerate growth?". In mimeo, University of Minnesota.
- Dickey, D. A., and Fuller, W. A. (1979) "Distributions of the estimators for autoregressive time series with a unit root" *Journal of American Statistical Association* 74 (366), 427–431.
- Desai, M. C., Foley, C. F., and Hines Jr., J. R. (2005) "Foreign direct investment and the domestic capital stock" NBER working paper number w11075.
- Desai, M. A., Foley, C. F., and Hines, J. R. (2009) "Domestic effects of the foreign activities of US multinationals" *American Economic Journal: Economic Policy*, 1 (1), 181-203.

- Dunning, J. H., Van Hoesel, R., and Narula, R. (1998) "Third world multinationals revisited: New developments and theoretical implications. In J. H. Dunning (Ed.), *Globalization, trade and foreign direct investment*: Oxford: Pergamon Press, 255–286.
- Feldstein, M. S. and Horioka, C. Y. (1980) "Domestic saving and investment capital flows" *Economic Journal* 90 (358), 314–329.
- Feldstein, M. (1994) "The effects of outbound foreign direct investment on the domestic capital stock" NBER working paper number 4668.
- Feldstein, M. S. (1995) "The effects of outbound foreign direct investment on the domestic capital stock" NBER working paper number c7739.
- Goh, S. K., and Wong, K. N. (2014) "Could inward FDI offset the substitution effect of outward FDI on domestic investment? Evidence from Malaysia" *Prague Economic Papers* 23(4), 413-425.
- Greene, J., and Villanueva, D. (1991) "Private investment in developing countries: An empirical analysis" *Staff Papers-International Monetary Fund*, 38, 33–58.
- Gui-Diby, S. L. (2014) "Impact of foreign direct investments on economic growth in Africa: Evidence from three decades of panel data analyses" *Research in Economics* 68(3), 248-256.
- Hattari, R., and Rajan, R. S. (2010) "India as a source of outward foreign direct investment". *Oxford Development Studies* 38(4), 497-518.
- Herzer, D., and Schrooten, M. (2008) "Outward FDI and domestic investment in two industrialized countries" *Economic Letters* 99 (1), 139–143.
- Hines, J. R., Hubbard, R. G., and Feldstein, M. (1995) "*The Effects of Taxation on Multinational Corporations*" University of Chicago press, 225-248.
- Hsu, W. C., Wang, C., and Clegg, J. (2015) "The effects of outward foreign direct investment on fixed-capital formation at home: The roles of host location and industry characteristics" *Global Economic Review* 44(3), 353-368.
- Levine, R., (2004) "Finance and growth: Theory and evidence" NBER working paper number 10766.
- Narayan, P.K., (2005) "The saving and investment nexus for China: evidence from cointegration tests" *Applied Economics* 37 (17), 1979–1990.
- Ndikumana, L. (2000) "Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from panel data" *World Development* 28 (2), 381–400.
- Onaran, Ö., Stockhammer, E., and Zwickl, K. (2013) "FDI and domestic investment in Germany: crowding in or out?" *International Review of Applied Economics* 27(4), 429-448.

- Ouattara, B. (2004) “*Modelling the Long Run Determinants of Private Investment in Senegal*.” University of Nottingham: Centre for Research in Economic Development and International Trade, CREDIT Research Paper No. 04/05.
- Pesaran, M. Hashem, Shin, Y., and Smith, R. J. (2001) “Bounds testing approaches to the analysis of level relationships” *Journal of Applied Econometrics*, 16 (3), 289–326.
- Ramamurti, R. (2012) “What is really different about emerging market multinationals?” *Global Strategy Journal* 2(1), 41-47.
- Romero, J. (2012) “Foreign Direct Investment and Economic Growth in Mexico: 1940-2011” *Investigación Económica*, 71(282), 109-147.
- Saikia, M., Das, K. C., and Borbora, S. (2020) “What drives the boom in outward FDI from India?” *International Journal of Emerging Markets* 15 (5), 899-922.
- Stevens, G. V., and Lipsey, R. E. (1992) “Interactions between domestic and foreign investment” *Journal of International Money and Finance* 11 (1), 40–62.
- Wang, M. (2010) “Foreign direct investment and domestic investment in the host country: evidence from panel study” *Applied Economics*, 42(29), 3711-3721.
- You, K., and Solomon, O. H. (2015) “China’s outward FDI and domestic investment: An industrial level analysis” *China Economic Review* 34, 1–39.