How Does Foreign Direct Investment Affect Economic Growth in Pakistan: A Time Series Data Analysis

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ARTICLE DETAILS	ABSTRACT
History *Revised format: 30 June 2019* *Available Online: 31 July 2019*	In developing countries, the foreign sector plays an important role and a critically important one for economic stabilization. The yearly data was employed for the period 1975- 2017 for the analysis. The variables of the study include the gross domestic product, foreign direct investment, inflation rate, industry sector growth, broad money, gross fixed capital formation, trade openness, and gross savings. An empirical analysis is done by using Auto-Regressive Distributed Lag Model (ARDL), and the Augmented Dickey Fuller (ADF) test is applied to analyze the unit root. In the present study, empirical findings demonstrated the negative association between economic growth and foreign direct investment in Pakistan. This argument also supports the idea, where foreign direct investment will not be in favor of the growth of developing countries as the domestic industry would not compete to the foreign industry which provides the products at a low rate. Secondly, foreign direct investment in Pakistan is not that level which can affect the GDP of Pakistan.
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JEL Classification: *E24, F38, E31, G32*	

1. Introduction

Foreign investment is a source of revenue for the developing countries and it is also a source of technological innovation that came with foreign investment. These, financial and technological resources are indispensible for economic growth (Salacuse and Sullivan, 2005). Foreign direct investment demonstrates the direct investment from the foreign investors attaining a permanent interest in a project in another country (Calvoand Sanchez-Robles, 2001).

Technology transfer from foreign investors to the domestic nation increases productivity in developed countries which merely not have been observed in the developing countries as a consequence of a scarcity of adequate human capital. There are three types of foreign direct investment, for example, horizontal, vertical and the platform. In first, foreign direct investment is defined by the investment that determines industrialized services, and the second

one arises when direct Investment shifts upward or downward with the various unit changes and the last one deals with the purpose of trading to another country (Khan, 2007).

Attaullah and Le (2006) reported that developing countries have a big saving-investment gap. To fill the gap, foreign direct investment is indispensable to enhance economic growth. May of the existing theories in literature elaborate on the role of foreign direct investment in the economic growth of a country as elaborated by the (Adams, 2009)? Technology transfer to developing economies through foreign direct investment stimulates economic growth by providing the health facilities, socio-economic development, and availability of educational facilities (Calvo and Sanchez-Robles, 2002). Most of the opponents of the theories demonstrated the negative effects of FDI on economic development as it creates competition among the domestic non-developed and the developed foreign firms (Dunning and Pitelis, 2008).

FDI is favorable that it first one is that foreign direct investment will minimize production cost and expand economies of scale (Shatz, 2003). As far as the motivation for the foreign direct investment is concerned, the diversification of the motivators can be observed as specific economic freedom in a positive way; hence economic freedom is a substantial source and the main factor of foreign investment. Consequent upon the FDI inflows, two major changes in an economy happen one is the capital accumulation and the enhancement of factor productivity (Haryana, 2009). Dunning (2001) has elaborated the benefits of foreign direct investment as well that further leads to economic growth.

2. Literature Review
Azam and Ling Lukman (2005) stated various determinants of FDI i.e. market size, urbanization, economic reforms, inflation, exports, tariff, and the volume of trade. Cobham (2001) elaborates on the domestic investment and concluded that the expansion of the size of the industry leads to the provision of the opportunities for employment in the host country.

Buckley and Wang (2002) examined the contribution of foreign direct investment to growth. The research found that the foreign direct investment inflows are a consequent of the social and economic conditions of the country and concisely the environmental conditions of the recipient country. Lipsey (2000) showed a positive relationship between foreign direct investment and GDP growth. Foreign direct financing might have a positive association with economic growth while being the major contributor to technological innovation and skill enhancement in the country (Campos and Kinoshita, 2002).

Asiedu (2002) studied the high return on investment and improved fiscal policies are important factors to attract foreign investors. Choe (2003) supported the same findings as the growth is positively related to foreign investment. Atique et al, (2004) by using 1970-2001, examined as domestic capital enhance economic growth in Pakistan. Gross domestic product may be enhanced by the foreign investment to help in poverty reduction that enhances the income levels (Nunnekamp, 2004). Blonigen (2004) discussed that quality and quantity of foreign direct investment for both industrial and underdeveloped nations. Javorcik (2004) concluded the significant positive association is established between foreign direct investment and productive capability.

Trade openness significantly influences foreign direct investment (Agosin and Machado, 2007). Iwanow and Kirkpatrick (2007) elaborated the positive association of foreign direct investment and economic growth. Khan (2007), examined the relationship between growth rate and foreign direct investment. Azamand Luckman (2010) showed the effect of various economic factors on foreign direct investment for the economy of Indonesia, Pakistan, and India by using panel data for 1971–2005. Log-linear regression and panel ordinary least square are employed. Findings of several variables associated with Pakistan and India were similar except two variables (trade openness and government consumption) while Indonesia results differ from Pakistan and India results. (Kokand et al., 2009) showed a positive relationship among infrastructural improvement with foreign direct investment. Khadaroo and Seetanah (2010) proved the accumulated gains by infrastructure enhancement are associated with higher availability of transportation facilities and a reduction in transaction cost.

Nair-Reichert and Weinhold (2001) used random and fixed effect model and permits heterogeneous in panel data. The cause and effect relationship among foreign direct investment and development is positive. Falki (2009) illustrated an inverse behavior in foreign direct investment and economic growth. (Ejaz and Atif, 2010) critics of foreign direct investment claimed that foreign direct investment in developing countries may control resources,

supplant domestic investment, use inappropriate technology. Malik (2015) showed a negative association among foreign direct investment and growth using panel of SAARC countries and concluded that economical execution is negativity associated with foreign direct investment.

3. Data and Methodology

In this section, the researcher will form the empirical and theoretical models to examine the relationship between foreign direct investment and economic growth of Pakistan. Foreign direct investment the core regressor while gross domestic product is the dependent variable, while the other variables include Inflat1eaw2ion, industry sector growth, broad money, gross fixed capital formation trade openness and gross savings.

3.1   Data Sources

Data for the eight variables gross domestic production, foreigners direct investments, inflation, industry sector growth, broad money, gross fixed capital formation, gross savings and trade openness collected for the analysis. Required data is collected from WDI with annual frequency for a period of 1975-2017.

3.2   Empirical Methodology

Following contemplation have been formulated to econometrically analyze the variables of the study.

$$GDPt = \beta0 - \beta1FDIt - \beta2INFt + \beta3IND.SECt + \beta4M2t + \beta5GFCFt - \beta6TRt + \beta7GSt + \varepsilon \text{ equation (1)}$$

Where,

GDP = Gross Domestic Production
FDI = Foreign direct investment
INF = Inflation Rate
$IND.SEC$ = Industry sector
$M2$ = Broad money
$GFCF$ = Gross fixed Capital Formation
TR = Trade
GS = Gross savings
εt = Error term

Equation (1) above model the relationship between variables of the study has been elaborated. Presented. Foreign direct investment is an essential factor in economic growth (Kowalski, 2000). And foreign direct investment has a significant relation with economic growth in the long run (Kogid et al., 2010).

4. Results and Discussion

This section deals with the complete details of the estimation that have been done on empirical grounds. All the parameter estimations and the descriptive details are as follows.

4.1   Descriptive Analysis of the Data

Analysis is usually used to delineate the essential characteristics of the time series. In a study, the researcher has given the detailed information of the each descriptive statistic cut-down slews of data into a simple summary.

Table 1: Descriptive Estimation

	GDP	FDI	INF	IND.SEC	M2	GFCF	TR	GS
Mean	5.0288	0.8303	9.4968	5.7240	45.6002	16.1748	11.1807	22.4723
Median	4.8463	0.6129	8.5850	4.92108	44.8202	16.8371	9.9681	22.1660
Maximum	10.2157	3.6683	24.8911	16.2629	58.8676	19.2354	17.6116	30.4314
Minimum	1.0143	0.0616	1.8107	-5.2068	33.6679	12.5206	4.6887	14.291
Std. Dev	2.1504	0.8071	5.4479	3.6426	6.1961	1.6979	3.8931	3.3942
Skewness	0.2059	2.1470	1.2039	0.0172	0.4317	-0.4956	0.3168	-0.1496

Kurtosis	2.4241	7.3347	4.1615	4.6125	2.3065	2.2196	1.7194	3.1304
Probability	0.6382	0.0000	0.0016	0.0972	0.3332	0.2402	0.1606	0.9089

Source: Authors' calculations

Table 1 represents the mean, median and the standard deviation for the variables of the research. All the information is presented in the table. Row 1 describes the variables of the research. While the mean, median, maximum, minimum, st.dev, Skewness, kurtosis and probability are presented in the table in the rows.

4.2   Stationary of the Data
Dickey and Fuller (1981) introduced the "Augmented Dickey Fuller" test to test for the unit root and it is defined by a constant variance and the average of series overtime. The details of the unit root process are described in the table below.

Table 2: Augmented Dickey Fuller Test

	At Level		At 1st Differenc		Conclusions
Variables	Intercept	Intercept and Trend	intercept	intercept and Trend	
GDP	-3.9247*	-4.0671*	-10.1003*	-10.0261*	I (0)
FDI	-2.8284	-3.0963	-4.5205*	-4.4850*	I (1)
INF	-5.8676*	-5.7857*	-7.9903	-7.8868*	I (0)
IND.SEC	-4.7580*	-4.7580*	-7.6450*	-7.5515*	I (0)
M2	-1.5028	-3.6357	-5.4734*	-5.4094*	I (1)
GFCF	-1.9228	-3.5560	-6.1994*	-6.0690 *	I (1)
TR	-1.5833	-1.8753	-7.0522*	-7.3355*	I (1)
GS	-3.5854	-3.6244	-6.7917*	-6.7841*	I (1)

Note: "*" shows 1 % level of significance for the variable.
Source: Authors' calculations based on software, E-Views

Table 2 checked the stationary of the time series or not. Estimates of the unit root for gross domestic product, foreign direct investment, inflation rate, industry sector growth, broad money, gross fixed capital formation, trade openness, and gross savings are presented here. Among the above mentioned variables the foreign direct investment, broad money, gross fixed capital formation andtrade, gross savings has unit root but the other variables of the study that were the gross domestic product, inflation and industry sector are stationary at level. So, a mixed order of integration is found in the variables of the study.

4.3   Cointegration Analysis (The Bound Test)
As the variables are having mixed order of integration among the series, so there is need to check the continuation of the long run relationship among the mentioned series. By using some of the co-integration tests, as Bound Test, it is tested the existence of the long run association. ARDL bound Test" is developed on the hypothesis that the variables are with zero order of integration and the order of integration one i.e. I (0) and I (1) (Pesaran et al., 2001).

Table 3: Co-Integration Results

F − Statistic	Upper Bound (Critical Value)	Results
6.6127	4.26	Co integration exists

Source: Author's Estimations

Table 3 illustrates the F-statistic is 6.612 that is greater than upper bound value 4.26 in the model. The results are in favor of the existence of a long run relationship.

4.4   Auto-Regressive Distributed Lag Model
Auto-Regressive Distributed Lag Model results are elaborated of the model here (Jagadeesh, 2015). ARDL has the advantage of estimation when the series is non-stationarity and there is cointegration among the variables. So the researcher has developed an important strait for checking the long run associations among the economic variables.

Table 4: Short-Run Estimates of ARDL

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(GDP(-1))	0.3260	0.1582	2.0600	0.0499
D(FDI)	-0.8132	0.6831	-1.1903	0.2451
D (FDI (-1))	1.9154	0.6941	2.7593	0.0107
D(GS)	0.2039	0.1038	1.9648	0.0606
D(GFCF)	0.5074	0.2856	1.7764	0.0878
D(IND.SEC)	0.3308	0.0858	3.8560	0.0007
D(IND.SEC(-1))	-0.2791	0.0932	-2.9952	0.0061
D(M2)	0.0708	0.1018	0.6955	0.4931
D(M2(-1))	-0.1907	0.1078	-1.7682	0.0892
D(TR)	-0.1122	0.0707	-1.5864	0.1252
D(INF)	0.0065	0.0574	0.1140	0.9101
CointEq(-1)	-1.7578	0.2596	-6.7691	0.0000
Cointeq = GDP - (-1.3221*FDI + 0.1160*GS + 0.2887*GFCF + 0.4520 *IND.SEC + 0.1598*M2 -0.0638*TR + 0.0037*INF.DEF -8.9846)				

Source: Authors' Estimations

Table 4 elaborated that Foreign direct investment has an insignificant effect on growth while the lagged value it shows significant (positively) association with a gross domestic product in Pakistan in the short run. Gross savings have a positive association with economic growth. Changes in gross saving influence the investment level that helps to influence the productivity potential of the economy sequentially and plays a role in changing the economic behaviors of a country.

Due to expansion and in a gross fixed capital formation the other indicators like infrastructure facilities goes improved leads to enhance the employment opportunities connected with such sectors. There is a strong association between gross fixed capital formation and economic growth. As a consequence, with the development of the industrial sector, it would lead to an increase in economic productivity, raise employment, higher income level, and increase in savings and enhancement of productive capability. All other sectors also demonstrate the upward and increasing trends in case of Pakistan.

Broad money demonstrates liquid possessions in a financial system. As there is an increase in money supply it positively affects economic growth. Inflation rate showed a statistically insignificant correlation with the growth in the economy of Pakistan. At last the Error correction term elaborates on a long run convergence among the variables. The value for this term is -1.400333 that demonstrates not only that there's a long-run relationship among the dependent and independent variables but also demonstrates a long run stable equilibrium.

Table 5: Long-Run Estimates of ARDL

Variable	Coefficient	Std. Error	T-Statistic	Prob.
FDI	-1.3221	0.3318	-3.9837	0.0005
GS	0.1160	0.0632	1.8350	0.0784
GFCF	0.2887	0.1571	1.8366	0.0782
IND.SEC	0.4520	0.0781	5.7825	0.0000
M2	0.1597	0.0577	2.7677	0.0105
TR	-0.0638	0.0401	-1.5902	0.1244
INF	0.0037	0.0327	0.1137	0.9104
C	-8.9845	5.4077	-1.6614	0.1091

Source: Authors' Estimations

Table 5 illustrate the long-run estimates of the analysis, articulate a negative relation of foreign direct investment with growth. Consequently a one-unit change in foreign direct investment inflows GDP growth rate declined by "-1.322100" units. The reason behind this is that when foreigners invest in recipient country market, by using monopolizing power they discourage domestic investment. So, the main problem for a society occurred in the form of declining gross domestic product growth (Jagadeesh, 2015).

This negative correlation in the case of Pakistan is attributed to the notion that most of the foreign programs and investment bring no benefit to Pakistan economy moreover; it increases the costs of production in the economy. Appropriate examples for this notion are "China Pakistan Economic Corridor" the benefits attached with these long-term projects will be achieved after a long period and require hard struggle. Gross savings shows a positive relation with economic growth. Due to 1 unit change in gross savings, Gross Domestic Product increases by 0.116049 units. As Pakistan's economy saves more which in turn also encourages investment level of Pakistan either foreign or domestic. The results of this study are also consistent with Ellahi et al. (2011) and Jagadeesh (2008) and exhibit the positive correlation of Gross Saving with economic growth. The one unit change in gross fixed capital formation there's "0.288705" units change gross domestic product. The objective of this strong relationship was that as infrastructure conditions changes in a country this will increase its growth rate and show a positive trend of economic growth in the long-run relationship. Empirically it is revealed that there is a positive association between gross fixed capital formation and economic growth. One unit change in industrial growth with the gross domestic product will change by 0.452046 changes.

4.5   Stability Analysis

The stability analysis illustrates that the estimated relationship is stable in the long run or not. And the results are presented in the figures below.

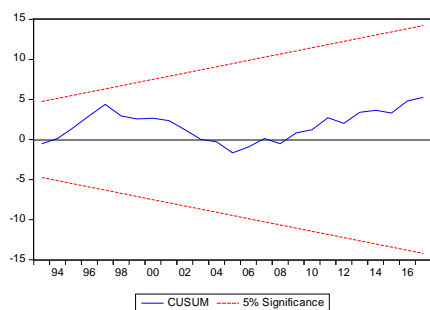**Figure 1:** CUSUM Diagram   **Figure 2:** CUSUM-Square Diagram
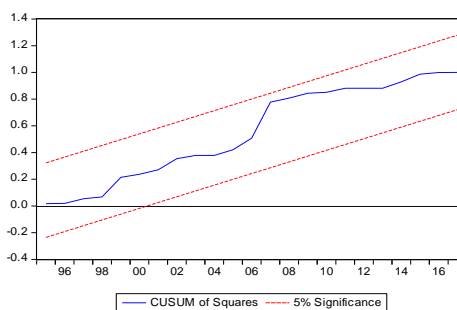

Figure 1 and 2 as by CUSUM illustrate that the model is statistically significant and stable. The assessment of CUSUM-Square also elaborate illustration examiner envisages that model is statistically significant and stable. Intensity or criteria for the significance decided for this CUSUM-Square plot is 5%.

5. Conclusion and Policy Implications

There exists contradictory arguments in literature as some researcher concluded a positive association stuck among FDI and economic development while additional ones argued that the dependence hypothesis cleave under-developing nations.   Our finding also concluded the negative correlation of foreign direct investment with economic growth. Not only foreign direct investment but international trade and Inflation are also negatively   associated   to   the   economic growth   in   Pakistan.   The   variables   of industrial sector, broad money, gross saving and   gross fixed capital formation are positively related to the growth in Pakistan. Findings are based on the results of the "ARDL". Estimates confirm the negative correlation of foreign direct investment with an economic performance for the time series data 1975 – 2017. Policies that relate to foreigners may also recheck to keep away more external financing. Infrastructure improvements also develop the association of foreign direct investment with economic growth.

References

Adams, S. (2009). FDI, domestic investment, and economic growth in Sub-Saharan Africa. Journal of Policy Modeling, 31(6), 939-949.

Adams, S. (2009). FDI, domestic investment, and economic growth in Sub-Saharan Africa. Journal of Policy Modeling, 31(6), 939-949.

Agosin, M. R., and Machado, R. (2007). Openness and the international allocation of FDI. The Journal of Development Studies, 43(7), 1234-1247.

Ahmad, M. H., Alam, S., Butt, M. S., and Haroon, Y. (2003). FDI, Exports, and Domestic Output in Pakistan [with

Comments]. The Pakistan Development Review, 715-723.

Asiedu, E. (2002). On the determinants of FDI to developing countries: is Africa different?. World development, 30(1), 107-119.

Atique, Z., Ahmad, M. H., Azhar, U., and Khan, A. H. (2004). The impact of FDI on economic growth under foreign trade regimes: A case study of Pakistan [with Comments]. The Pakistan Development Review, 707-718.

Attaullah, A. and Le, M.H. (2006). Foreign Capital and Economic Performance of Pakistan. The Lahore Journal of Economics 7:1, pp. 1– 32.

Azam, M., and Lukman, L. (2010). Determinants of FDI in India, Indonesia, and Pakistan: A Quantitative Approach. Journal of Managerial Sciences, 4(1).

Bank (2012). "The World Development Indicators 2012", CD-ROM Version. Washington: The World Bank, www.unctad.org/.

Blonigen, B. A., and Wang, M. (2004). Inappropriate pooling of wealthy and poor countries in empirical FDI studies (No. w10378). National Bureau of Economic Research.

Buckley, P. J., Clegg, J., and Wang, C. (2002). The impact of inward FDI on the performance of Chinese manufacturing firms. Journal of international business studies, 33(4), 637-655.

Calvo, M. B., and Sanchez-Robles, B. (2001). Does FDI Foster Economic Growth? Some Theoretical and Empirical Arguments. Departmento de Economia, University of Cantabria. at: http://personales. unican. Es/sanchezb/web/Does% 20FDI% 20foster% 20growth. Pdf.

Calvo, M. B., and Sanchez-Robles, B. (2001). Does FDI Foster Economic Growth? Some Theoretical and Empirical Arguments. Departmento de Economia, University of Cantabria. at: http://personales. unican. Es/sanchezb/web/Does% 20FDI% 20foster% 20growth. pdf.

Campos, N. F., and Kinoshita, Y. (2002). FDI as technology transferred: Some panel evidence from the transition economies. The Manchester School, 70(3), 398-419.

Chaitip, P., Chokethaworn, K., Chaiboonsri, C., and Khounkhalax, M. (2015). Money Supply Influencing on Economic Growth-wide Phenomena of AEC Open Region. Procedia Economics and Finance, 24, 108-115.

Chaudhry, I. S., Farooq, R. I. F., and Murtaza, G. (2015). Monetary policy and its inflationary pressure in Pakistan. Pakistan Economic and Social Review, 53(2), 251.Aslam, Mehvish and Awan, Dr.Abdul. (2018). Impact of Monetary Policy on Economic Growth- Evidence From Pakistan. Global Journal of Management. Social Sciences and Humanities. 89. 89-109.

Choe, J. I. (2003). Do FDI and gross domestic investment promote economic growth?. Review of Development Economics, 7(1), 44-57.

Dunning, J. H. (2001). The eclectic (OLI) paradigm of international production: past, present, and future. International journal of the economics of business, 8(2), 173-190.

Dunning, J. H., and Pitelis, C. N. (2008). Stephen Hymer's contribution to international business scholarship: an assessment and extension. Journal of international business studies, 39(1), 167-176.

Ellahi, N., Mehmood, H. Z., Ahmad, M., and Khattak, N. A. (2011). Analyzing the empirical relationship between trade openness, industrial value added and economic growth: A case study of Pakistan. Interdisciplinary Journal of Contemporary Research in Business, 3(1), 754-763.

Falki, N. (2009). Impact of FDI on economic growth in Pakistan. International Review of Business Research Papers, 5(5), 110-120.

International Money Fund (2011). "International Money fund Report 2011" http://ssrn.com/abstract=525882 .

Iwanow, T., and Kirkpatrick, C. (2007). Trade facilitation, regulatory quality and export performance. Journal of International Development, 19(6), 735-753.

Jagadeesh, D. (2015). Determinants of Industrial Sector Growth in Pakistan. Journal of Poverty, Investment and Development. 34. 15-23.

Jagadeesh, D. (2015). The impact of savings in economic growth: An empirical study based on Botswana. International Journal, 10.

Khadaroo, A. J., and Seetanah, B. (2010). Transport infrastructure and FDI. Journal of International Development, 22(1), 103-123.

Khan, M. A. (2007). FDI and economic growth: the role of the domestic financial sector (No. 2007: 18). Pakistan Institute of Development Economics.

Khan, M. A. (2007). FDI and economic growth: the role of the domestic financial sector (No. 2007: 18). Pakistan Institute of Development Economics.

Kogid, M., Mulok, D., Beatrice, L. F. Y., and Mansur, K. (2010). Determinant factors of economic growth in Malaysia: Multivariate cointegration and causality analysis. European Journal of Economics, Finance and Administrative Sciences, 24(24), 123-137.

Kok, R., andAcikgozErsoy, B. (2009). Analyses of FDI determinants in developing countries. International Journal of Social Economics, 36(1/2), 105-123.

Kowalski, E. (2000). Determinants of Economic Growth in East Asia: A Linear Regression Model. Research Honors Project, Illinois Wesleyan University.

Lipsey, R. E. (2001). Interpreting developed countries' FDI. In Investing Today for the World of Tomorrow (pp. 285-325). Springer, Berlin, Heidelberg.

Malik, K. (2015). Impact of FDI on Economic Growth of Pakistan. American Journal of Business and Management, 4(4), 190-202.

Muhammad azam & Ling Lukman, "Determinants of FDI in India, Indonesia and Pakistan: A Quantitative Approach" 2005.

Nair-Reichert, U., andWeinhold, D. (2001). Causality tests for cross-country panels: a New look at FDI and economic growth in developing countries. Oxford bulletin of economics and statistics, 63(2), 153-171.

Nath, K. Haryana (2009). Trade, FDI, and Growth: Evidence from Transition Economies. Comparative Economic Studies, 51, 20-50.

Nunnenkamp, P. (2004). To what extent can FDI help achieve international development goals?. The World Economy, 27(5), 657-677.

Pradhan, Jaya Prakash., (2003). FDI and Economic Growth: The Case of Developing Countries, Unpublished M.Phil Dissertation submitted to Jawaharlal Nehru University, New Delhi.

Quazi, R. (2005). Economic Freedom and FDI in East Asia, College of Business, Prairie View AandM University, Prairie View, Texas 77446. In USA International Academy of Business and Public Administration Disciplines (IABPAD) Meetings.

Salacuse, J. W., and Sullivan, N. P. (2005). Do BITs really work: An evaluation of bilateral investment treaties and their grand bargain. Harv. Int'l LJ, 46, 67.

Shatz, H. (2003). Gravity, education, and economic development in a multinational affiliate location. J. Int. Trade and Economic Development, 12(2), 117-150.

SmarzynskaJavorcik, B. (2004). Does FDI increase the productivity of domestic firms? In search of spillovers through backward linkages. American economic review, 94(3), 605-627.