

## **Interactive effect of globalization and FDI in predicting technology output of a country**

Ansar Waseem<sup>\*</sup>, Muqaddas Ullah<sup>\*\*</sup>, Naveed<sup>\*\*\*</sup> and Fatima azam<sup>\*\*\*\*</sup>

### **Abstract**

*The growth of ICT has paved a way for globalization and all countries are in some way affected with it. Globalization has led to trade liberalization which has allowed firms to operate in a number of countries. Globalization has paved a way for the investment of Multinational Enterprises in emerging economy. Literature shows that separately globalization and FDI can be used to increase technology capability and output of the host country. The knowledge spillover, collaborative networks, increased competition, and development of indigenous human capital facilitated by globalization and FDI has made diffusion of knowledge easier. This study aims to investigate the nexus of globalization and FDI in predicting technology output of country. Regression analysis was used for data analysis. Concurrent and predictive validity was used to check the robustness of the findings. The results indicate that both globalization and FDI lead to higher technology output. However, mixed evidences were obtained about the interactive role of globalization and FDI in predicting technology output. The results indicate that combined effect of globalization and FDI can provide more nuanced account of the variation in the level of technology output of different countries.*

**Key Words:** Technology Output, Innovation, Globalization, Foreign Direct Investment;

### **Introduction**

Since the seminal work of Schumpeter, there has been a constant interest in the field of technological innovation. Scholars around the world have researched on different forms of technological innovation. Innovation can be divided into four types including product, process, marketing and organizational innovation.<sup>1</sup> Whatever form of innovation is considered, it

---

<sup>\*</sup> Ansar Waseem, PhD Scholar, University of Management & Sciences, Lahore,  
Email: ansarwasim436@gmail.com

<sup>\*\*</sup> Dr. Muqaddas Ullah, Assistant Professor, Qurtuba University of science & information Technology, Peshawar.

<sup>\*\*\*</sup> Naveed, Assistant Professor, Qurtuba University of science & information Technology, Peshawar. urRahman

<sup>\*\*\*\*</sup> Fatima Azam, Lecturer, Minhaj University, Lahore.

is generally accepted that innovation support competitive position both at the firm and country level. Previous researches in the field of innovation have considered a wide range of factors. Among these, globalization and foreign direct investment are well cited factors which promote innovation.<sup>2</sup>

Many economists hold the view that economic liberalization is crucial for economic growth of a country and globalization has made free movement of capital easier. The concept of globalization is not restricted to trade liberalization and economic trends. Rather, it results in active exchange of ideas, information and knowledge. Globalization allows free circulation of goods, capital, people, and knowledge. The rapid growth of ICTs has facilities easier and rapid transfer of knowledge. News about innovation and technological advancement in one part of the world quickly spreads to other countries. Using this, many firms are taking advantage of lower cost of production since they are moving their production facilities to low wages countries. Thus, globalization has increased interdependency and integration between different actors in global value chain promoting cooperation as well as exchange of ideas, knowledge and information.<sup>3</sup>

Like globalization, many scholars believe that inward FDI is the driving engine for the growth of innovation and technical output as investigated by Baskaran & Muchie, Lin & Yu, Salim, Razavi, & Mofrad, Ning, Wang & Li, Wang.<sup>4</sup> Literature shows that MNEs improve the technological capacity of the host country through demonstration effect, competition effect and labour migration as well as forward & backward linkages, and development of human capital of labour.<sup>5</sup> Inflow of foreign direct investment fosters innovation and technological output in a country through knowledge spillover effect which improves domestic factors of production. Foreign direct investment of multinational firms also increases research and development activities in the host countries. Therefore, FDI can act as a conduit for transfer of technology to under-developed countries by observation, establishing relationship with foreign firms, rapid diffusion of technology and development of human capital.<sup>6</sup>

Globalization and inward flow of FDI can improve technology output through knowledge spillover, development of human capital, and competitive business environment. Globalization and FDI can be employed together to bring positive changes to host country in the form of reduction in trade barriers, higher mobility of capital, and transfer of technology which leads to higher level of innovation and technical output.<sup>7</sup>

Mattoo and Subramanian note that studies discussing the effect of global integration and FDI are limited to developed countries only. Most of the research investigating the relationship between foreign direct investment and innovation has focused on China.<sup>8</sup> For example, Li-Ming, Rui and Rui have found that inward FDI and technological innovation are positively associated for Chinese firms. Limiting the study to a single country implies that the findings may be specific to a country.<sup>9</sup> Very few studies have analyzed the interactive effect of globalization and FDI in enhancing innovative and technological output of a country. There is a lack of empirical support that how globalization stimulates foreign direct investment. To the best of our knowledge, none of the previous empirical studies have attempted to investigate the nexus between globalization, FDI and technological output of a country.<sup>10</sup>

This paper attempts to fill the gap in the extant literature by studying the interaction between globalization and inward foreign direct investment in predicting technological output of a country using a global data of 134 countries. It is proposed that this interaction can be used to explain variation in the level of technological output between developing countries.

## Literature Review

### *Globalization and Technological Output*

Innovation is not an isolated process. Firms cannot innovate independently (Ning, Wang & Li, 2016) because creation of new knowledge, product and process cannot occur in isolation (Iizuka & Thutupalli, 2014). It requires cooperation and interaction between different actors. Due to immense diversity of knowledge, it is not possible for a single firm to possess all the relevant knowledge. The notion of innovation is multidimensional (Halilem, Amara, & Landry, 2014); and it encompasses newness in the form of novel products, process, technology and even paradigms (Snieska & Vasauskaite, 2005). Innovation requires close collaboration between different firms working at domestic and foreign level. Globalization can provide a mean of enhancing integration and interdependency between these firms. Globalization has increased movement of financial and human capital (Wario, 2016). It has also enhanced the importance of knowledge in the economic activities carried out at national and international level (Archibugi & Iammarino, 2002). As a result, “knowledge creation processes of technology-based companies have become increasingly global” (Gassmann & Von Zedtwitz, 1998).<sup>11</sup>

Globalization provides new opportunities for many firms to conduct their business overseas. Due to globalization, there has been

rapid expansion in the number of Multinational Enterprises which operates in many countries (Spillan & Ziemnowicz, 2006). There are number of motives for MNEs to enter into international business activities. According to OLI framework proposed by Dunning (1998), MNEs enter into the foreign market to seek resources, new markets or efficiencies (Fan, 2011; Nunnenkamp, 2002; Underwood, 2012; Wang & Hong, 2012). In similar lines, Diymett and Mutambala (2014) have discussed three motives for MNEs to operate in other countries.<sup>12</sup> MNEs move to the other countries to explore the resources which are either unavailable or are too costly at home. Operating in international market allows these MNEs to expand their market. Thirdly, such international operation allows the MNEs to take advantage of institutional, economic and market structure of the host countries; thereby enhancing their efficiency. Globalization provides MNEs with access to foreign market niche resulting in higher demands; thereby promoting growth of these firms (Castano, Mendez, & Galindo, 2016).<sup>13</sup>

Results of many studies show that MNEs benefit from internationalization of R&D activities. A de-centralized R&D system of MNEs can produce better result than a centralized R&D system as it allows linkage with other firms as well as customers and suppliers (Masso, Roolah, & Varblane, 2010). The R&D internationalization initiatives of MNEs result in lower transaction cost, better innovation capabilities, and greater foreign market share (Fan, 2011).<sup>14</sup> Sometimes, MNEs don't have the requisite resources at home. Internationalization provides them with access to such resources. According to the resource based view of the firms multinational firms internationalize their activities to leverage from resources of other countries; while knowledge based view emphasizes that these firms exploits the knowledge base of host countries (Masanell & Ricart, 2010). MNEs are rapidly entering into global market to exploit knowledge and physical resources of other countries (Ren, Eisingerich & Tsai, 2015). As a result, such firms focus "their R&D activities at centres of technology excellence" (Gassmann & Von Zedtwitz, 1998). Consequently, MNEs can achieve low cost, more returns, and higher innovative output because of access to variety of resources (Halilem, Amara, & Landry, 2014).<sup>15</sup>

However, the benefits of globalization are not limited to MNEs. The host country can draw important benefits from the activities of these MNEs. The participation of foreign firms will result in better utilization of natural resources available in the country. MNEs possess more know-how to utilize natural endowments. Similarly, these firms internationalize their R&D facilities to use the knowledge of the host country (Chiva, Ghauri, & Alegre, 2014), and the indigenous firms benefit from such

utilization. Firms who internationalize enjoy higher technological output than firms which choose not to internationalize (Castano, Mendez, & Galindo, 2016).<sup>16</sup>

Based on the above argument, we can propose our first hypothesis as under:

### **Hypotheses Statement**

*Hypothesis No1: Globalization leads to higher level of technological output of a country.*

Literature shows that investment of foreign firms in other countries can boost innovative performance through different effect. According to Lall and Narula (2004), FDI allows transfer of technology through backward linkages, horizontal linkages, labour turnover, and technology spillover.<sup>17</sup> FDI becomes a potent tool to transfer knowledge either directly through interaction with partners firms in the host countries or indirectly through knowledge spillover (Turen, Dilek, & Gokmen, 2013). FDI allows transference of knowledge and latest technologies through both backward and forward linkages (Mohammad & Bani, 2017).<sup>18</sup> In addition to direct linkage, investment of foreign firms in the local industries enhances the level of competition between the firms operating in the same market (Masso, Roolah, & Varblane, 2010).<sup>19</sup> This greater level of competition means that both local and foreign firms have to constantly innovate in order to maintain their competitive advantage. FDI also enhance technical capabilities through demonstration effect which means that when the local firms see superior technology from their foreign competitors, they either imitate it through reverse engineering .

*Hypothesis No 2: Inward foreign direct investment results in enhanced technological output of a country.*

Literature asserts the importance of globalization and FDI in increasing innovation level of a country. However, these benefits are not automatic. For effective knowledge to take place between foreign firm and its domestic subsidiary, the host country should have adequate level of absorptive capacity (Turen, Dilek, & Gokmen, 2013; Smith & Thomas, 2017), human capital (Borensztein, De Gregório, & Lee, 1998; Ning, Wang & Li, 2016; Saggi, 2002) and institutional system (Smith & Thomas, 2017).<sup>20</sup> For example, Loukil (2016) have found a threshold level of technological development is necessary to yield positive effect of FDI on innovation since below this threshold level there is a negative relation between FDI and innovation. Similarly, Wang et al., (2016) have found that industrial specialization of a country diminishes the positive effect of the relationship between FDI and innovation while a diversified

industrial structure strengthens this relation. Likewise, many researchers have stressed on the role of absorptive capacity of the host country to benefit from the knowledge spillover caused by FDI (Li-Ming, Rui & Rui, 2016; Mohamad & Bani, 2017). According to Zhou and Dennis (2011), a certain amount of internal R&D investment is required by the host country to benefit from R&D activities of MNEs. Therefore, according to endogenous growth theories, globalization and FDI can boost technical and production capabilities of a country leading to rapid economic growth (Dhrifi, 2015).<sup>21</sup>

*Hypothesis No3: There will be an interaction effect of globalization and foreign direct investment in predicting technological output of a country, such that only countries with both higher level of globalization and foreign direct investment will have higher performance in technology output.*

#### Data Source and Research Methodology

Following Diyamett and Mutambla (2014) suggestion, we are focusing on technological capabilities instead of innovation capabilities as the describing the later is far more cumbersome. Such an overall capability score of technological output can provide a more robust statistical analysis (Wignaraja, 2008).<sup>22</sup> Therefore, data regarding technological output was obtained from Global Innovation Index. Data regarding globalization was obtained from KOF globalization index. Based on Dreher (2006), this measure is an aggregated score of Social, Economic and Political Globalization. Finally, data about inward Foreign Direct Investment was obtained from World Bank Site.

#### Result Section

Table No 1 shows the sources of the data along with the descriptive statistics of variables involved in the study. Results of descriptive statistics show that the technological output of the countries is gradually decreasing. Also, there is a constant increase in the globalization index score which indicates a steady increase in innovation level.

Table 1: Descriptive Statistics of Variables

Name of variable	Data source	2014		2015		2016	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Technology outputs	The Global Innovation Index	29.68	12.38	28.76	12.96	26.44	13.86
Globalization	KOF	62.57	15.29	62.65	14.99	63.00	14.88

Score	Globalization Index						
Log of Inward FDI	World Bank	9.34	0.82	9.34	0.87	9.61	0.95

Afterwards, correlation between the measured variables was calculated using Pearson's Correlation. In order to test the robustness of results, both concurrent and predictive association was checked. In concurrent validity all the variables are measured in the same year. In case of predictive validity, globalization and inward FDI are measured in the one year while technological output was measured in the following years. Table No 2 shows the result of concurrent association whereas Table No 3 shows the results of predictive association.

Table 2: Concurrent Correlation between measured variables

	2014		2015		2016	
	2	3	2	3	2	3
Technology Outputs						
Globalization	0.749***		0.692***		0.738***	
Log of FDI	0.632***	0.580***	0.622***	0.539***	0.673***	0.550***

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Both the tables show that technological output is positively and significantly associated with both globalization score and log of inward FDI. Globalization has stronger association with technology output as compared to FDI. Moreover, inward FDI is positively and significant related with globalization score. This is aligned with the findings of Leitao (2012) who has found that globalization positively impacts FDI.

Table 3: Predictive Correlation between measured variables

		Technology Outputs	
		2015	2016
2014	Globalization	0.693***	0.738***
	Log of FDI	0.626***	0.658***
2015	Globalization		0.734***
	Log of FDI		0.662***

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In order to test the research hypothesis, regression analysis was carried out. All the necessary conditions for regression analysis were fulfilled before running the actual test. Only concurrent association was employed to test the first two hypotheses. Table No 4 shows the concurrent association between globalization and technology output as both predictor and outcome belong to same year. The results of first three

models show that globalization is positively and significantly associated with technology output. A moderately strong relationship was observed as the value of  $R^2$  in all three models ranges between 0.500 and 0.597. This shows that our first hypothesis is proved.

Table 4: Concurrent Association between Globalization and Technology Output

	Globalization and Technology Outputs		
	2014	2015	2016
Year			
Model	1	2	3
Number of Observations	133	132	122
Value of Shapiro-Wilk Test	0.441	0.061	0.089
Value of Durban-Watson Statistics	1.775	1.946	1.807
Un-standardized Coefficient	0.608***	0.577***	0.626***
$R^2$	0.590***	0.500***	0.597***

\*\*\* p<0.01, \*\* p<0.05, \*p<0.1

Similar results are obtained when the association between Foreign Direct Investment and technology output was tested. Log of inward FDI is positively and significantly related with technology output. Therefore, our Hypothesis No 2 is also proved. This result is aligned with the findings of previous researchers such as Cheung and Lin (2004), Keller and Yeaple (2009), and Wang et al (2016) who have found a positive relationship between FDI and innovation. This shows that FDI can be used as a predictor to estimate level of technological output of countries since it is a key contributor in the introduction of new technologies in a country (Smith & Thomas, 2017).<sup>23</sup>

Table 5: Concurrent Association between Log FDI and Technology Output

	Log FDI and Technology Outputs		
	2014	2015	2016
Year			
Model	4	5	6
Number of Observations	129	121	64
Value of Shapiro-Wilk Test	0.098	0.073	0.263
Value of Durban-Watson	1.969	2.167	2.155
Un-standardized Coefficient	9.365***	8.699***	9.525***



R <sup>2</sup>	0.399 <sup>***</sup>	0.411 <sup>***</sup>	0.453 <sup>***</sup>
----------------	----------------------	----------------------	----------------------

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In order to check the nexus between globalization, foreign direct investment and technology output, the interactive effect of globalization and log of FDI in predicting technology output was checked. For this purpose, an interaction term was calculated from mean centred values of both globalization and log FDI. Table No 6 shows the results of concurrent validity of the results. In all three models, both globalization and log FDI were positively related with technology output. Furthermore, all these associations were statistically significant. But, in only one model i.e. for the year 2015, the interaction term was statistically significant at a p<0.05; while in both other instances it remained statistically insignificant. These results asserts the positive impact of globalization in the growth of FDI and consistent with the findings of Albuquerque, Loayza and Serven (2005) who have found that globalization is a strong determinant of FDI.

Table 6: Predicting Technology Output by Globalization and Log FDI for the same year

Outcome Variable	Technology Outputs In Year 2014	Technology Outputs In Year 2015	Technology Outputs In Year 2016
Predictor Variable	Globalization and log FDI Year 2014	Globalization and log FDI Year 2015	Globalization and log FDI Year 2016
Model	7	8	9
Constant	-42.167 <sup>***</sup> (8.036)	-48.908 <sup>***</sup> (10.233)	-60.694 <sup>***</sup> (8.877)
Globalization (G)	0.458 <sup>***</sup> (0.057)	0.432 <sup>***</sup> (0.056)	0.691 <sup>***</sup> (0.084)
Log FDI	4.585 <sup>***</sup> (1.017)	5.332 <sup>***</sup> (1.263)	4.271 <sup>***</sup> (1.101)
Interaction (G*log FDI)	0.040 (0.053)	0.097 <sup>*</sup> (0.0527)	0.047 (0.060)
Value of R <sup>2</sup> in the presence of interaction term	0.611	0.592	0.767
Change in value of R <sup>2</sup> due to interaction term	0.002	0.011	0.003

Note: Values represent un-standardized coefficients while those in parenthesis are standard deviation of un-standardized coefficients. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, †p<0.15

Different results were obtained when the robustness of the findings were testing using predictive validity in which both globalization and log FDI were measured in the preceding year and the outcome was measured in the following years. In only one instance (Model No 10), the interaction term was statistically insignificant. In Model No 11, the same term was significant below p<0.15; implying limited generalization. However, in

the last three models, the interaction term was statistically significant. Also, in the last four models (Model 11-14), the value of  $R^2$  was highest and a prominent change in the value of  $R^2$  observed after the introduction of interaction term. In most models, interaction term was statistically significant this means that our Hypothesis No 3 is supported. It is important to note that mixed evidences were obtained about the generalization of findings.

Table 7: Predicting Technology Output by Globalization and log FDI for the year 2014 and 2015

Outcome Variable	Technology Outputs In Year 2015	Technology Outputs In Year 2016	Technology Outputs In Year 2015	Technology Outputs In Year 2016	Technology Outputs In Year 2016
Predictor Variable	Globalization 2014 & log FDI 2014	Globalization 2014 & log FDI 2014	Globalization 2014 & log FDI 2015	Globalization 2015 & log FDI 2015	Globalization 2014 & log FDI 2015
Model	10	11	12	13	14
Constant	-45.672*** (8.620)	-59.136*** (10.765)	-48.268*** (10.229)	-61.469*** (9.641)	-60.238*** (9.662)
Globalization (G)	0.407*** (0.061)	0.457*** (0.064)	0.425*** (0.055)	0.468*** (0.062)	0.462*** (0.061)
log FDI	5.184*** (1.089)	5.973*** (1.366)	5.342*** (1.263)	6.135*** (1.216)	6.044*** (1.218)
Interaction (G*log FDI)	0.042 (0.057)	0.087† (0.055)	0.089** (0.051)	0.128** (0.049)	0.122** (0.048)
Value of $R^2$ in the presence of interaction term	0.560	0.615	0.573	0.639	0.639
Change in value of $R^2$ due to interaction term	0.002	0.007	0.010	0.017	0.016

Note: Values represent un-standardized coefficients while those in parenthesis are standard deviation of un-standardized coefficients. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, †p<0.15

### Discussion on Results

Aim of this paper is to investigate the interaction between globalization and foreign direct investment in predicting the technology output of a country. Result of this study shows that globalization enhances technology output of a country. Generally, the phenomenon of globalization is restricted to economic aspects. However, it can be extended to include technological changes which can be driver of economic growth (Wario, 2016). Globalization strengthens linkages between countries in an assortment of social, economic and technical aspects. Globalization has increased rate of diffusion of innovation and technology. This easier diffusion of technology between countries results in both expansion of market for foreign firms and import of latest innovation for domestic firms. Globalization has allowed firms belonging to emerging economies to be an active part in the global

collaborative network for the creation of new knowledge. Now, these countries are contributing towards development of new technology. Globalization and MNEs has improved technological capabilities and output of host countries.

Similarly, this study shows that foreign direct investment also enhances technological output of a country. These results are in agreement with open economy models which predict that greater level of foreign direct investment leads to higher growth of technology and innovation in the host country. These results are also consistent with previous studies. For example, AlAzzawi (2012) concludes that both inward and outward FDI can enhance domestic innovation of technological following countries.<sup>24</sup> Inward FDI fosters competition, employment and technology development. Researchers believe that FDI produces competition effect. This increased competition forces both domestic and foreign firms to increase their innovative activities (Vongpraseuth & Choi, 2015).<sup>25</sup>

The results also show that FDI cannot alone explain the variation in the level of technological output of countries. The combined effect of globalization and FDI can explain more variation in technology output. Economic globalization and FDI have significant influence on the technology and production capabilities of a country. Both MNEs and host countries may benefit from globalization and FDI. The MNEs obtains benefit in term of access to larger market and greater market growth. The growth of globalization and FDI gives flexibility to MNEs regarding choice of international market and control of asset. Similarly, the host countries benefit from operation of foreign firms as they enjoy access to latest knowledge, advance technology, and better managerial practices. Globalization and foreign direct investment has forced firms belonging to emerging countries to be innovative because of the competitive pressures. For the sake of their survival, local firms can improve their indigenous developed technologies or adopt latest technologies; resulting in better efficiency of domestic firms and more competitive business markets. The nexus of globalization and FDI can also improve human capital of a country by training domestic labour force which through labour mobility effect leads to more technology output for their country.

### **Conclusion**

This study highlights the importance of globalization and foreign direct investment as a potential source of new knowledge and technology. Due to rapid growth in ICT, there is a wave of globalization which began from 1980, and still continuing. FDI is one of the biggest impacts of

globalization. This globalization has led to liberalization of trade and economic policies. All countries are in some way affected by new global liberal structural. Globalization has allowed foreign firms to conduct their business overseas and they are investing in emerging economies. Globalization combined with FDI can stimulate economic development of many countries. Globalization coupled with foreign direct investment has paved a way for economic growth of under development countries through enhancing their technological capabilities. FDI is regarded to be core driver of innovative activities and technology transfer especially in developing countries. The knowledge spillover, collaborative networks, increased competition, and development of indigenous human capital has made diffusion of knowledge and technology easier. Countries which enjoy more foreign direct investment have more technology development. Result of this study shows that combined effect of globalization and FDI can provide more nuanced account of the variation in the level of technology output of different countries. However, to benefit from wave of globalization and subsequent foreign investment, it is imperative that the host country should have adequate level of absorptive capacity, human capital, and national institutional system.

## Notes & References

- <sup>1</sup> Chiva, R., Ghauri, P., & Alegre, J., Organizational learning, innovation and internationalization: A complex system model. *British Journal of Management*, 25(4), (2014), 687-705.
- <sup>2</sup> Gorodnichenko, Y., Svejnar, J., & Terrell, K., Globalization and innovation in emerging markets. Institute for the Study of Labor (IZA) Discussion Papers, No. 3299. Germany. (2008).
- <sup>3</sup> Archibugi, D., & Iammarino, S., The globalization of technological innovation: definition and evidence. *Review of International Political Economy*, 9(1), (2002), 98-122.
- <sup>4</sup> Wang, Y., Ning, L., Li, J., & Prevezer, M., Foreign direct investment spillovers and the geography of innovation in Chinese regions: The role of regional industrial specialization and diversity. *Regional Studies*, 50(5), (2016), 805-822.
- <sup>5</sup> Loukil, K., Foreign direct investment and technological innovation in developing countries. *Oradea Journal of Business and Economics*, 1(2), (2016), 31-40.
- <sup>6</sup> AlAzzawi, S., Innovation, productivity and foreign direct investment-induced R&D spillovers. *The Journal of International Trade & Economic Development*, 21(5), (2012), 615-653.
- <sup>7</sup> Wario, A. D., Globalization, Immigration Control, Transnational Terrorism, and Foreign Direct Investment. *Prime Journal of Social Science*, 5(1), (2016), 1282-1297.
- <sup>8</sup> Wignaraja, G., Foreign Direct Investment, Innovation, and Exports: Firm-Level Evidence from People's Republic of China, Thailand, and Philippines: ADB Economics Working Paper Series., (2008).
- <sup>9</sup> Berry, H., & Kaul, A., Replicating the multinationality-performance relationship: Is there an S-curve? *Strategic Management Journal*, 37(11), (2016), 2275-2290.
- <sup>10</sup> Neto, D. G., & Veiga, F. J., Financial globalization, convergence and growth: The role of foreign direct investment. *Journal of International Money and Finance*, 37, (2013), 161-186.
- <sup>11</sup> Gassmann, O., & Von Zedtwitz, M., Organization of industrial R&D on a global scale. *R&D Management*, 28(3), (1998), 147-161.
- <sup>12</sup> Diyamett, B., & Mutambla, M., Foreign direct investment and local technological capabilities in least developed countries: Some evidence from the Tanzanian manufacturing sector. *African Journal of Science, Technology, Innovation and Development*, 6(5), (2014), 401-414.
- <sup>13</sup> Castano, M.-S., Mendez, M.-T., & Galindo, M.-Á., Innovation, internationalization and business-growth expectations among entrepreneurs in the services sector. *Journal of Business Research*, 69(5), (2016), 1690-1695
- <sup>14</sup> Fan, P. Innovation, globalization, and catch-up of latecomers: Cases of Chinese telecom firms. *Environment and Planning A*, 43(4), (2011), 830-849.
- <sup>15</sup> Halilem, N., Amara, N., & Landry, R., Exploring the relationships between innovation and internationalization of small and medium-sized enterprises: A nonrecursive structural equation model. *Canadian Journal of Administrative*

---

Sciences/Revue Canadienne des Sciences de l'Administration, 31(1),(2014),18-34.

<sup>16</sup> Op.Cit.,Castano, M.-S., Mendez, M.-T., & Galindo, M.-Á.

<sup>17</sup> Lall, S., & Narula, R., Foreign direct investment and its role in economic development: do we need a new agenda? The European Journal of Development Research, 16(3),(2004), 447-464.

<sup>18</sup> Mohammad, A., & Bani, Y., Foreign Direct Investment, absorptive capacity and technological innovation: Empirical evidence in developing economies. Paper presented at the Global Conference on Business and Economics Research, University Putra Malaysia,(2017).

<sup>19</sup> Masso, J., Roolah, T., & Varblane, U., Foreign direct investment and innovation in Central and Eastern Europe: Evidence from Estonia. The University of Tartu Faculty of Economics and Business Administration Working Paper No. 67-2010. Estonia,(2010).

<sup>20</sup> Smith, N., & Thomas, E., Regional conditions and innovation in Russia: the impact of foreign direct investment and absorptive capacity. Regional Studies, 51(9),(2017), 1412-1428.

<sup>21</sup> Dhrifi, A., Foreign direct investment, technological innovation and economic growth: empirical evidence using simultaneous equations model. International Review of Economics, 62(4), (2015), 381-400.

<sup>22</sup> Op.Cit.,Wignaraja, G., Foreign Direct Investment, Innovation, and Exports.(2008)

<sup>23</sup> Keller, W., & Yeaple, S. R., Multinational enterprises, international trade, and productivity growth: firm-level evidence from the United States. The Review of Economics and Statistics, 91(4),(2009), 821-831.

<sup>24</sup> Op.Cit., AlAzzawi, S., Innovation, productivity and foreign direct investment-induced R&D spillovers.(2012).

<sup>25</sup> Vongpraseuth, T., & Choi, C. G., Globalization, foreign direct investment, and urban growth management: Policies and conflicts in Vientiane, Laos. Land Use Policy, 42, (2015),790-799.