Training, Research and Development, and Spillover Effects of Foreign Direct Investment: A Study on Labour Productivity in Malaysian Manufacturing Industry

Norhanishah Mohamad Yunus[1*], Fazelina Sahul Hamid[2]

[1,2] *School of Distance Education, Universiti Sains Malaysia. 11800, Pulau Pinang, Malaysia*
Corresponding author: norhanishah@usm.my

***Abstract*— Using 2-digit levels of panel data set from 16 manufacturing industries during the period of 2000-2014, the present study adds to the literature by presenting new evidence at the industry level. We investigated the impact of training and research and development (R&D) investments jointly with the spillover effects of Foreign Direct Investment (FDI) in influencing labour productivity in Malaysian manufacturing industry. We employed the ordinary least square (OLS) estimator using regression with a robust standard error to estimate the labour productivity model. Our results clearly showed that investment in training is important in increasing labour productivity. It is interesting to highlight that when FDI spillovers from both "learning" and "technology" effects are taken into account in the labour productivity function, R&D investment showed a positive and significant impact on labour productivity. However, more important findings to be reported is that the spillover effects of FDI appear to be quickly assimilated by workers in the Malaysian manufacturing industries through the "learning effect" as opposed to "technology effect" and that the fast pace is biased towards higher labour productivity. Findings from this study can help the FDI attraction policy to be carried out not only to increase Malaysian labour productivity, but most importantly to ensure the function of FDI transfer of knowledge to labour takes place, which must be based on Key Performance Indicators (KPIs).**

***Keywords*—** *Training, R&D investment, FDI spillover effects, labour productivity*

1. Introduction

Human capital, research and development (R&D), and technological spillovers have been widely recognised by the Malaysian government as a potential engine to achieve a productivity-driven economy [1, 2]. Nevertheless, slow labour productivity growth has become a major challenge in the Malaysian labour market to be productive in the fast-changing and increasingly competitive labour market [1]. Slow labour productivity growth is closely associated with a low level of skills labour, inadequate R&D capacity, and low level of absorption of skilled workers from the presence of FDI [3, 4, 5, 6]. We are not refuting that Malaysia labour productivity growth of 3.5% for 2016 has shown an improvement compared with 3.4% in 2015 [5]. However, the performance is still considered unsatisfactory as the country is still lagging behind the productivity levels of other countries, such as Singapore and South Korea. In 2015, Singapore's labour productivity was almost two times higher than that of Malaysia, South Korea was 1.8 times higher, and Japan was 1.7 times higher. In ASEAN, Indonesia and the Philippines have reported growth of 4.6% and 4.4% respectively, despite a slowdown in global exports [5].

Based on industry evidence, the first issue of slow labour productivity can be found in capital intensive firms such as in Electric & Electronic (E&E), transport equipment, and chemicals industries. Since the Eighth Malaysia Plan (8MP), the government has concentrated the provision of the budget in capital intensive industries such as E&E, chemical, and transport equipment, as these industries require the highest number of technology transfer agreements [4]. The government has also established centres of engineering excellence through collaboration between the industry and academia to conduct R&D activities and training in order to upgrade existing talent and supply of relevant talent [1].

International Journal of Supply Chain Management
IJSCM, ISSN: 2050-7399 (Online), 2051-3771 (Print)

The second issue is a consequence of the above issue where the slow adoption of high production technology (and consequently skilled workers) has resulted in a decline in Malaysia's labour productivity (measured by output per worker). However, less attention is given to lower labour productivity issue from the presence of FDI in recent studies [1, 3, 4, 6]. In Malaysia context, FDI spillover effects on labour productivity need to be examined because Malaysia is among the major FDI recipients in South East Asia. However, the benefits of FDI spillovers on labour productivity in Malaysia remain ambiguous [7]. Surprisingly, this issue has received very limited attention in the past because many evidences concentrated more on FDI study on Total Factor Productivity and skilled labour demand [7, 8, 9]. Based on the situation described above, we lack information of whether investments in training and R&D as well as FDI inflows are needed to increase further the enhancement of Malaysian labour productivity in the manufacturing sector because the slow labour productivity growth remains one of the major constraints of Malaysia in its journey towards productivity-driven economy [2].

The organisation of this paper is as follows: the second section provides a review of the literature. Section 3 provides research-related details in terms of data description and scope of study. Section 4 presents the empirical methodology. Section 5 discusses the results. Finally, we close with a conclusion and limitation of this study in Section 6.

2. Literature Review

Human capital plays an important role in determining the capacity to innovate and absorb new technology and is seen as a source of continuous innovation and growth [10, 11]. However, very few studies have investigated the interaction effect between human capital and innovation as a source of productivity growth. In line with the new growth theory, the determinants of productivity growth were based on long-run economic growth being affected by deliberate economic behaviour and human actions, such as innovation and education. Firms with highly educated workers were found to be capable of accelerating innovation activities as well as adopting modern and new technologies, thereby leading to a reduction in the costs of adjustment in firms, as compared to firms having more workers who were less educated [12]. Consequently, firms tended to make investments in human capital, such as training, because they believe in the capability of educated workers and their ability to absorb knowledge effectively, to be faster learners and to be more innovative [13, 14].

Similar results are found in the context of Malaysia. Training expenditures in Small and Medium Enterprises (SMEs) have a significant impact on labour productivity because an increase in the level of productivity reflects an increase in the efficiency of inputs. However, Malaysian training expenditures at the industry level are comparatively lower than expenditures for training in the US [15]. Tan & Batra [16], found that only 35% of Malaysian firms conducted formal training and the firms focussed only upon specific training related to their firms' needs. Meanwhile, in the manufacturing industry, training provided by employers also varies according to firm size. For small manufacturing establishments, the proportion of training has changed largely in recent years. Training declined from 34 percent in 1997 to 25 percent in 2002 but recovered to 31 percent in 2007. Meanwhile, for medium-sized manufacturing establishments, incidents of training increased from 56 percent in 1997 to 57 percent in 2002 and 72 percent in 2007. The amount of training provided in Malaysia was the highest compared with other selected countries, such as Colombia, Indonesia, Mexico and Taiwan. The survey conducted by Tan and Batra [16] covers a wide range of firms with different characteristics in relation to age, location, firm size, foreign capital, export orientation and industry.

The literature also showed that training and innovation are inextricably linked and reinforce each other due to the impact of training enhancing the profitability of innovation and encouraging firms to be more innovative [17, 18]. It is well recognised that the lack of skills and training acts as a main constraint when firms fail to develop skills and suffer from an inability to take advantage of innovations. Firms that are not investing enough in skills are unable to take advantage of carrying out R&D activities due to a lack of skills and training. This is seen as a constraint [19]. Firms active in R&D tend to implement more training programmes and consequently generate more productivity growth [20]. Nevertheless, the relevant empirical literature on the impact of investments in human

capital and R&D on labour productivity is still in its infancy despite some empirical studies that have highlighted the complementarities between both investments. Numerous studies focused on the investment in human capital that is measured by educational attainment and is linked with R&D. A few studies explored the effect of training sponsored by firms [18, 21].

With regard to the empirical evidence of FDI spillover effects on labour productivity, the literature on the matter is still absent from the empirical literature and remains under scrutiny, particularly in developing countries and at industry level [22]. To the best of our knowledge, only one study by Liu et al. [23] has investigated the direct impact of FDI on labour productivity in the Chinese electronics industry. The result showed that FDI may have a positive impact on labour productivity in recipient industries through direct introduction of capital, technology, and management skills, and indirectly through spillover effects on domestic firms. This study had used a model intended to examine the overall effects of inward FDI. Official data were used for 41 sub-sectors of the industry in 1996 and 1997 having differing levels of FDI. Labour productivity was modelled as dependent on the degree of foreign presence in the industry and other variables, namely capital intensity, human capital, and firm size for scale factors. The econometric results suggest that foreign presence in the industry is associated with higher labour productivity. It has been argued that FDI provides access to advanced technologies and other intangible assets, which may spill over to the host country and allow domestic firms to improve their performance.

Since the 1980s, Malaysia has relied heavily on multinational companies (MNCs) not only for trade but also for investment, aid, and technology transfer [24]. According to Malaysian Investment Development Authority (MIDA), Japan was the second highest rank in Malaysia's inward foreign direct investment (FDI) in 2013. Current data also indicate the strong ties between Japan and Malaysia, both in terms of trade and investment aspects. Despite the emerging importance of Japanese MNCs in Malaysian economy, particularly in technology transfer, no comprehensive study has been done to analyse the spillover effects of MNCs on productivity or labour productivity in Malaysian manufacturing sector especially at industry level [25, 26]. Thus, we deem it as important to take a closer look at the spillover effects of FDI on labour productivity in manufacturing sector. We aim to contribute to the literature by examining both training and R&D investments, and FDI spillovers from both effects ("technology" and "learning") on labour productivity at industry level.

3. Data Description and Scope of Study

The main data sources in this study are gathered from the Department of Statistics Malaysia (DOSM) and Malaysian Industry and Development Authority (MIDA) based on a manufacturing survey on industries. The variables gathered from DOS are total employment, local Research and Development (R&D) investment, cost of training (TRAIN), ICT investment (ICT), and Gross Domestic Product (GDP). Meanwhile, to measure the impact of foreign capital on labour productivity, the data is gathered from MIDA for 3 variables namely: the share of foreign capital investment (TECH), number of foreign firms (NF), and share of local employment (EMP) in foreign manufacturing industry. Labour productivity is measured by value-added per worker because the measurement of labour productivity reflects the combined effects of changes in capital inputs, intermediate inputs and overall productivity, without leaving out any direct effects of technical change, whether such effects are embodied or disembodied. The advantages of this measurement are that the results are easy and readable [27]. The summary of statistics for the variables used in this study as shown in Appendix A.

This study focuses on 16 manufacturing industries at 2-digit level and aggregate level during the period of 2000-2014 because technology spillovers have been associated with the manufacturing sector for a long time. These industries are: Electronics & Electrical, Food and Beverage, Textiles, Leather, Wood, Chemical, Rubber, Plastic, Basic Metal, Machinery & Equipment, Transport Equipment, Non-Metallic Mineral, Publishing, Paper and Printing. These industries are supported by private investment, and the regulatory framework is changed to attract both domestic and foreign investments, thus potentially contributing to economic growth and labour productivity [1].

The present study examines the period of 2000-2014. The limitation of the temporal scope of the present study is due to the industrial classification system (previously known as the Malaysia Industrial Classification (MIC), 1972: revised in 1979). After 2008, the MSIC code was revamped by DOS. The period is selected because investment in human capital is considered to be large during this period. In addition, the data from 2000-2014 provides comprehensive information on the status of R&D and the number of local employments in foreign firms in Malaysia at 2-digit industry level.

4. Empirical Methodology

This section presents the empirical methodology used to investigate the impacts of both investments in training and R&D and jointly with spillover effects of FDI on labour productivity. The combination of model specification by Ballot et al. [18], Bronzini and Piselli [28], and Liu et al. [23] is used to examine the interaction between investments in training, R&D, and FDI spillover effects on labour productivity. The basic model can be expressed as follows:

$$lnY_{it=}lnA_{it}+B_1 ln\left(\frac{K}{L}\right)_{it} + B_2 lnTRAIN_{it}+B_3 lnRD_{it}+ +B_4 lnFDI_{it} +B_5 lnEMP_{it} + B_6 lnN_{it} + B_7 lnX_{it}+\varepsilon_{it} \quad (1.0)$$

where *i* and *t* are the industry and time index respectively. *Y* refers to labour productivity per value-added.$\frac{K}{L}$ ratio of capital to worker (K/L) or capital intensity is approximated by gross investments in fixed capital per worker [29]. *TRAIN*, *RD* denote respectively cost of training per employee and R&D investment. *FDI* and *N* are share of foreign capital investment from total investment and number of foreign companies in the manufacturing industry respectively to represent FDI spillovers via "technology effects" [30, 31]. *EMP* is the share of local employment in foreign firms to total employment (parents and affiliates) that is used as a proxy for FDI spillovers via "learning effect". *X* is other factors commonly considered in the literature on labour productivity. It refers to ICT investment (share of ICT investment to GDP) [32]. ε_{it} is an error term that captures the time varying firm specific productivity shocks.

Our study employs ordinary least square (OLS) estimators with robust standard errors. The robust standard errors are appropriate even under homoscedasticity. The robust standard error option in regression is also efficient in dealing with normality minor problem because some observations might exhibit large residuals, leverage, or influence, as well as to capture the possible concerns about the effects of serial correlation on the standard errors [33]. Although the methodology employed is only a regression analysis, but the outcome of this analysis is still useful in providing a preliminary picture about the role of FDI spillovers effects in increasing labour productivity growth in Malaysian manufacturing sector at aggregate level.

5. Result and Discussion

In this section, we present the estimation of the labour productivity function in equation (1) using the standard OLS estimator with robust standard errors to correct for possible endogeneity problems. The overall results in Table 1 revealed that the investments in training and ICT have a significant impact on labour productivity. In the case of Malaysia, the effort made by the government is demonstrated by financial investments made to financially support education and training initiatives. For example, the Ministry of Human Resources has established a number of financial grant categories in the Human Resource Development Fund (HRDF) for the training and upgrading of employee skills. Firms that have contributed to this fund are eligible for grants to defray the costs incurred in training and retraining their workforce [1]. Specifically, the government has encouraged the private sector to conduct the specific training through sufficient programmes in order to resolve the problem of skill and education mismatches with industry requirements in Malaysia [34, 35].

In line with our aim to provides additional insights in the literature, this study re-estimates the model by including FDI spillover variables from both "technology" and "learning" effects. It is interesting to report that with the inclusion of FDI spillover variables, the result in this study showed that R&D investment in model (2) is significant in influencing labour productivity. This result is known as "spillover" effects. The spillover effects of MNCs

contribute to initial knowledge by introducing new technologies and products to domestic firms [36]. This result indicates that FDI inflows would increase host countries' R&D and innovation activities, hence may increase the labour productivity. The MNCs tend to increase expenditures on their R&D activities which help to create new ideas, increase stock of knowledge that stimulates innovation and new technologies, production process, and more high-tech goods within low cost local investment environment in the host country [37]. The "demonstration-imitation effect" that arises from arm's-length relationships between MNCs and domestic firms, thus enabling the domestic firms to learn and adopt superior production technologies, and managerial and organisational skills [38].

Table 1. Labour Productivity, OLS regression analysis 2000-2014

Variables	Model (1)		Model (2)	
	COEFF	**S.E**	**COEFF**	**S.E**
Capital/labour ratio	0.207	(0.028)**	0.200	(0.031)***
Training investment (*TRAIN*)	0.448	(0.025)*	0.473	(0.046)***
R&D investment (*RD*)	0.068	(0.011)	0.067	(0.026)**
Share of ICT investment to GDP (*ICT*)	0.160	(0.104)**	0.160	(0.031)*
Share of foreign capital investment (*FDI)*	_	_	0.008	(0.036)
Number of foreign company *(N*)	_	_	0.105	(0.011)*
Share of local employment in foreign firms (*EMP*)	_	_	0.234	(0.030)**
Cons	7.533	(0.210)*	6.934	(0.015)*
R^2	0.871		0.895	
No. of Observation	240		240	

Notes: Huber/White robust standard errors are in parentheses. COEFF: Coefficient, SE: Standard error.
All variables are transformed into natural log.
* p<0.05; ** p<0.1 ***p<0.001

We also found that the “technology” effect measured by the number of foreign firms in the Malaysian manufacturing industry has demonstrated positive impact on labour productivity. In this study, the presence of MNCs in Malaysian manufacturing industry may influence labour productivity through the "competition effect" with domestic firms. The competition from MNCs forces domestic firms to upgrade production technologies and techniques to remain productive and competitive. This is a positive move, as it helps to improve the labour productivity and competitiveness of local firms, forcing labour to operate efficiently by transforming the knowledge acquired into practical and commercial use [39][40].

Next, the attention has now been diverted to the effect of FDI via foreign capital investment. This study demonstrated that the “technology” effect via foreign capital investment is not statistically significant in influencing workers’ productivity. In the case of Malaysia, the abundance of unskilled workers at various production stages and the low absorptive capacity of local firms are severe problems limiting workers’ ability to absorb and adopt technology investments brought by MNCs into local firms, which embody technological knowledge and thus, it becomes a main hindrance in boosting labour productivity growth [7]. Another possible explanation for this result would be that the high levels of FDI enjoyed by Malaysia have been associated with capital investment that focuses on intermediate rather than on high value-added production. As a result, the overall impact of capital investment is biased towards unskilled labour.

6. Conclusion

We studied the effects of investments in training, R&D and jointly with both FDI spillover effects from “technology” and “learning” in influencing labour productivity. We focused on 16 manufacturing industries during the period of 2000-2014. Our overall results showed that investment in training and R&D have a positive impact on labour productivity and this gives the indication that both investments need to be increased further to boost the labour productivity growth in the manufacturing industry. The present study suggests that the adult education and training should be complementary to the technological change to solve for the available skill that is no longer required by firms as well as the short fall in the skills available for workers.

We found that the coefficient of FDI spillover effects via “learning” or imitation process is reported as higher than “technology” effect. This result demonstrated that the “learning” effect received by workers who are working in foreign firms can be easily assimilated quickly by

employees and ultimately has a positive impact in affecting the increase in labour productivity. The result in this study also indicated that inflows of FDI should be encouraged further to increase the labour productivity via R&D activities. This is because local R&D activities conducted by Malaysian enterprises are domestic market–oriented and involve in relatively low-level technologies, biasing demand for semi-skilled and low-skilled workers. This becomes the main hindrance to absorb the high-impact technology from FDI and thus lowering the productivity level of skilled labour.

Our empirical results suggested that the "learning" effect from FDI spillovers can be further enhanced when MNCs provide training for employees and hands-on learning opportunities, thus increasing labour productivity of skilled workers. Thus, this study suggests for a future study to explore the specific contents of each training program offered by MNCs to properly evaluate the effectiveness of these programs as literature and also depict that training likelihood tended to be different between industries.

Finally, to hasten the assimilation process of foreign spillovers by local workers, reducing regulatory constraints (i.e., of labour, business, and credit) is also important to maximise FDI spillovers from "learning" and "technology" effects and it will help FDI to increase further the number of foreign companies' establishments in the manufacturing industry. For example, fewer regulations in hiring and firing workers will encourage labour mobility across firms. Therefore, workers who have previously worked with MNCs are more viable to transfer their knowledge and experience with new technologies to domestic firms.

A major limitation in this study is the restricted database availability at the industrial level for the current study. For instance, the data provided for manufacturing industry is completely collected in 2000, particularly for training variable. In addition, there is an absence of data which is related to some factors that affect labour productivity such as hourly wages, and the number of engineers and technicians in a manufacturing industry. This study suggests for a future study to investigate the spillover effects via trade and FDI channels according to country. It will provide a review on the variation of technology spillovers across countries in affecting the labour productivity. The entry of MNCs from different countries would allow us to identify the country that has the most effective spillover effects for labour productivity and thus increase the demand of skilled labour. Therefore, the government can implement the appropriate policies to attract potential MNCs to improve the labour skills.

Acknowledgements

We would like to thank Universiti Sains Malaysia for funding this project under the Short-Term Research Grant Scheme No. 304/PJJAUH/6313248.

References

[1] EPU. (2010). *Tenth Malaysia Plan 2010-2015*. Putrajaya: Economic Planning Unit EPU, & World Bank (2010). *Malaysia Economic Monitor. Growth Through Innovation*. Malaysia: Economic Planning Unit, Putrajaya.

[2] EPU. (2016). *Eleventh Malaysia Plan 2016-2020*. Malaysia: Economic Planning Unit, Putrajaya.

[3] EPU, & World Bank. (2007a). *Malaysia and the knowledge economy: Building a world-class higher education system*. Malaysia: Economic Planning Unit.

[4] EPU, & World Bank (2007b). *Productivity and investment climate survey*. Malaysia: Economic Planning Unit.

[5] MPC. (2016/2017). *Productivity Report*. Malaysia: Malaysia Productivity Corporation

[6] OECD. (2011). Review of innovation in Southeast Asia: *Country profile of innovation in Malaysia*: Malaysia: Organisation for Economic Co-operation and Development.

[7] Yunus, N. M., Said, R., & Azman-Saini, W. N. W. (2015). Spillover effects of FDI and trade on demand for skilled labour in Malaysian manufacturing industries. *Asian Academy of Management Journal*, *20*(2), 1–27.

[8] Elia, S., Mariotti, I., & Piscitello, L. (2009). The impact of outward FDI on the home country's labour demand and skill composition. *International Business Review*, *18*(4), 357–372.

[9] Driffield, N., Love, J. H., & Taylor, K. (2009). Productivity and labour demand effects of inward and outward foreign direct investment on UK industry. *The Manchester School*, *77*(2),127-270. https://doi.org/10.1111/j.1467-9957.2008.02093.x

[10] Nelson, R. R., & Phelps, E. S. (1966). Investment in humans, technological diffusion, and economic growth. *The American Economic Review*, *56*(1/2), 69-75.

[11] Romer, P. (1990). *Are nonconvexities important for understanding growth?* (No. w3271). National Bureau of Economic Research.

[12] Bartel, A. P., & Lichtenberg, F. R. (1987). The comparative advantage of educated workers in implementing new technology. *The Review of Economics and Statistics*, *49*(1), 1-12.
[13] Bishop, J. (1994). *The impact of previous training on productivity and wages*. Chicago: University of Chicago Press.
[14] Chapman, B. J., & Tan., H. W. (1990). *An analysis of youth training in Australia, 1985-86: Technological change and wages*. *Youth in the Eighties.* Australian. Longitudinal Research Project (CEPR, Canberra, 1992: 99-125). Australia: Australian National University.
[15] Karuppiah, K. (2004). *Education and training practices in four selected Malaysian Manufacturing Companies.* Masters thesis, Universiti Putra Malaysia.
[16] Tan, H., & Batra, G. (1995). *Enterprise training in developing countries.* Washington, DC: World Bank.
[17] Booth, A. L., & Snower, D. J. (1996). *Acquiring skills: Market failures, their symptoms and policy responses*. New York: Cambridge University Press.
[18] Ballot, G., Fakhfakh, F., & Taymaz, E. (2001). Firms' human capital, R&D and performance: A study on French and Swedish firms. *Labour Economics*, *8*(4), 443-462.
[19] Mohnen, P., & Roller, L. H. (2005). Complementarities in innovation policy. *European Economic Review*, *49*(6), 1431-1450.
[20] Baldwin, J., & Johnson, J. (1995). Human capital development and innovation: The case of training in small and medium sized-firms: *Futures, 28*(2), 103-119.
[21] Yunus, N.M, Said, R., & Hook, L. S. (2014). Do cost of training, education level and R&D investment matter towards influencing labour Productivity? *Jurnal Ekonomi Malaysia*.
[22] Slaughter, M. J. (2002). Does inward foreign direct investment contribute to skill upgrading in developing countries? *Center for Economic Analysis Working Paper (2002-08).*
[23] Liu, X., Parker, D., Vaidya, K., & Wei, Y. (2001). The impact of foreign direct investment on labour productivity in the Chinese electronics industry. *International Business Review, 10*(4), 421-439.
[24] Ariff, M., Yokoyama, H., & Kenkyūjo, A. K. (1992). *Foreign direct investment in Malaysia: Trends, determinants and implications.* Tokyo: Institute of Developing Economies.
[25] Jomo, K. S. (2006). *Japan and Malaysian Economic Development: In the Shadow of the Rising Sun*: Routledge.
[26] Sundaram, J. K. (1994). *Japan and Malaysian development: in the shadow of the rising sun*: Psychology Press.
[27] OECD. (2001). *Measuring productivity: Measurement of aggregate and industry-level productivity growth: OECD Manual*. France:Organisation for Economic Co-operation and Development.
[28] Bronzini, R., & Piselli, P. (2009). Determinants of long-run regional productivity with geographical spillovers: The role of R&D, human capital and public infrastructure. *Regional Science and Urban Economics*, *39*(2), 187-199.
[29] Corvers, F. (1997). The impact of human capital on labour productivity in manufacturing sectors of the European Union. *Applied Economics, 29*(8), 975-987.
[30] Blonigen, B. A., & Slaughter, M. J. (2001). Foreign-Affiliate Activity and U.S. Skill Upgrading. *The Review of Economics and Statistics*, *83*(2), 362-376.
[31] Girma, S., Greenaway, D., & Wakelin, K. (2001). Who Benefits from Foreign Direct Investment in the UK? *Scottish Journal of Political Economy, 48*(2), 119-133.
[32] Belorgey, N., Lecat, R., & Maury, T.-P. (2006). Determinants of productivity per employee: An empirical estimation using panel data. *Economics Letters*, *91*(2), 153-157.
[33] Black, S. E., Devereux, P. J., & Salvanes, K. G. (2003). Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *American Economic Review*, *95*(1), 437-449.
[34] Yunus, N.M. (2017). Sheepskin effects in the returns to higher education: New evidence for Malaysia. *Asian Academy of Management Journal*, *22*(1), 151–182. https://doi.org/10.21315/aamj2017.22.1.7
[35] Yunus, N.M. (2018). Returns from higher education in Malaysia: Analysis of wage-employed and self-employed workers. *International Journal of Economics and Management, 12*(2),1-17.
[36] Fan, X., & Warr, P. G. (2000). *Foreign investment, spillover effects and the technology gap: Evidence from China*. Working Paper in Trade and Development No. 00/03, The Australian National University
[37] Erdal, L., & Göçer, İ. (2015). The effects of foreign direct investment on R&D and innovations: panel data analysis for developing Asian countries. *Procedia-Social and Behavioral Sciences*, *195*, 749-758.
[38] Blomström, M., & Kokko, A. (1998). Multinational corporations and spillovers. *Journal of Economic Surveys*, *12*(3), 247-277.
[39] Lall, S. (1978). Transnationals, domestic enterprises, and industrial structure in host LDCs: A survey. *Oxford Economic*, *30*(2), 217–248.
[40] Bamgbade, J. A., Kamaruddeen, A.M., & Nawi, M.N.M. (2015). Factors Influencing Sustainable Construction among Construction Firms in Malaysia: A Preliminary Study using PLS-SEM. *Revista Tecnica de la Facultad de Ingenieria Universidad del Zulia*. 38(3), 132 - 142.