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## DOES GLOBALISATION MATTER FOR MANUFACTURING LABOUR PRODUCTIVITY?

*Globalisation process has forced Malaysian manufacturing strengthen its ability to compete at international markets. Globalisation has increased the level of technology, which leads to increasing demand for quality labour, hence labour productivity. The objective of this paper is to analyse the depth of globalisation impact on labour productivity in Malaysian manufacturing sector. The analysis has used the data of the Manufacturing Industrial Survey, Department of Statistics Malaysia, comprising 24 years (1985 to 2008), and selected 6 sub-industries. A multiple regression model using panel data is estimated to analyse the impact of capital intensity, labour including local and foreign, foreign direct investment (FDI), and economic openness on labour productivity. The results show that globalisation indicators like FDI, economic openness and foreign labour have significantly affect labour productivity in manufacturing. While the effect of FDI and economic openness are positive, the effect of foreign labour is negative. In addition, a more capital-intensive industry seems to have greater impact on labour productivity through FDI.*

*Keywords:* globalisation, labour productivity, manufacturing sector, foreign labour, economic openness.

*JEL Classification:* J01, J08, J24.

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## ВПЛИВ ГЛОБАЛІЗАЦІЇ НА ПРОДУКТИВНІСТЬ ПРАЦІ У ВИРОБНИЦТВІ

*У статті показано, як процес глобалізації змусив малайзійську промисловість підвищити свою конкурентоспроможність на міжнародних ринках. Глобалізація підвищила рівень технологій, що призвело до збільшення попиту на якісну працю і продуктивність праці. Досліджено вплив глобалізації на продуктивність праці в обробній промисловості Малайзії. Для аналізу використано дані опитування промислових підприємств Департаменту статистики Малайзії за 24 роки, з 1985 по 2008 рік, по 6 підгалузях. Для аналізу інтенсивності впливу капіталу, робочої сили, включаючи місцеву й іноземну, прямих іноземних інвестицій (ПІІ) та економічної відкритості на продуктивність праці застосовано модель множинної регресії з використанням панельних даних. Результати показали, що такі показники глобалізації як ПІІ, економічна відкритість і іноземна робоча сила, істотно впливають на продуктивність праці у виробничому секторі. Вплив ПІІ та економічної відкритості є позитивним, вплив іноземної робочої сили — негативним. Крім того, більші капіталомістка галузь має більший вплив на продуктивність праці за рахунок прямих іноземних інвестицій.*

*Ключові слова:* глобалізація, продуктивність праці, виробничий сектор, іноземна робоча сила, економічна відкритість.

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## ВЛИЯНИЕ ГЛОБАЛИЗАЦИИ НА ПРОИЗВОДИТЕЛЬНОСТЬ ТРУДА НА ПРОИЗВОДСТВЕ

*В статье показано, как процесс глобализации заставил малайзийскую промышленность повысить свою конкурентоспособность на международных рынках.*

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*Глобалізація підвищила рівень технологій, що привело до збільшенню попиту на якісний труд і продуктивність праці. Досліджено вплив глобалізації на продуктивність праці в промисловості Малайзії. Для аналізу використовувалися дані опитування промислових підприємств Департаменту статистики Малайзії за 24 роки, з 1985 по 2008 рік, по 6 підотраслям. Для аналізу інтенсивності впливу капіталу, робочої сили, включаючи місцеву і іноземну, прямих іноземних інвестицій (ПІІ) і економічної відкритості на продуктивність праці застосована модель множинної регресії з використанням панельних даних. Результати показали, що такі показники глобалізації як ПІІ, економічна відкритість і іноземна робоча сила, суттєво впливають на продуктивність праці в промисловому секторі. Вплив ПІІ і економічної відкритості позитивний, вплив іноземної робочої сили — негативно. Крім того, більш капіталомістка галузь має більше впливу на продуктивність праці за рахунок прямих іноземних інвестицій.*

*Ключові слова:* глобалізація, продуктивність праці, промисловий сектор, іноземна робоча сила, економічна відкритість.

**1. Introduction.** Globalisation is a phenomenon that cannot be avoided. The world economy is moving towards global integration. Hoogvelt (1997:117-118) characterised globalisation in terms of the world habitation being increasingly dependent on a system. This occurs through trade, ties and cooperation between countries, the existence of international organisations and the global awareness manifested through the exposure of the global community to unify communication through the compression of time and space. From the economic perspective, Thomas and Skidmore (1997) view globalisation as the expansion of companies through national boundaries.

Globalisation can be linked with labour productivity through various ways including trade liberalisation or economic openness, exposure to new technology and FDI. FDI is often related to inflow of new technology to a recipient country. Developed countries usually use the latest production technology compared to less developed countries. Therefore, spillover effect of technology can occur from developed countries via FDI to developing countries. The spillover effect enhances labour productivity through the acquisition of new technology.

To enhance global competitiveness, increasing labour productivity is essential. Increasing labour productivity also means increasing wealth shared together by worker, employer and nation. Solow (1957) argued that labour productivity is the most important determinant influencing the nation's level of income. Meanwhile, according to Englander and Gurney (1994), low labour productivity will be a barrier to income increment rate and can also increase the incidence of conflicts in income distribution. Labour productivity has a close relationship with economic growth and is a determinant of economic stability. Therefore, understanding the determinants and sources increasing labour productivity is important to understand economic growth. Among the factors that increase labour productivity are technology, physical capital and human resources.

Therefore, the issue is that how the globalisation indicators, like FDI, economic openness and foreign labour affect labour productivity. This article will answer this question through estimating labour productivity models using various globalisation indicators as independent variables. This article is organised in 5 sections. The next

section has the literature review, followed by methodology and source of data, results, conclusion and policy implication.

**2. Literature Review.** There are various studies that link globalisation indicators to labour productivity, but study in Malaysia is rather scarce. Many past studies incorporate a single globalisation indicator when investigating the impact of globalisation on labour productivity.

Vather (2004) studied the impact of FDI on labour productivity in the manufacturing industry for 2 countries in transition, namely, Estonia and Slovenia. The emphasis of the study was to investigate if the local markets were export or import oriented. The study was based on the panel data at firm level. The results show that in Estonia, foreign investment firms that are export oriented have lower labour productivity as compared to local firms with foreign investment and domestic market oriented. On the other hand, in Slovenia, firms with foreign investment are not correlated to labour productivity. Furthermore, there is positive FDI spillover to local firms in Estonia, whereas, in Slovenia there is positive FDI impact but no FDI spillover in firms with foreign investment. The conclusion is that various types of FDI have different impact on recipient country and the presence of positive FDI spill over depends on the level of economic progress of a recipient country.

Koirala and Koshal (1999) investigated the effects of entry of foreign firms in Nepal as an indicator of globalisation clearly proves that labour productivity in foreign firms in Nepal is relatively higher than that in domestic firms. Performance of labour productivity is found to be higher for foreign firms, although technically they are less efficient as compared to domestic firms. The main factor for this higher performance is because foreign firms are utilising capital-intensive technologies.

The study is supported by Rasiah and Gachino (2005) who found that labour productivity is higher in foreign firms as compared to domestic firms in the textile industry and garment production in Kenya. Labour productivity achievement is motivated by higher technology intensity for foreign firms. Nevertheless, Ramstetter (2004) argues differently from other studies, showing that globalisation impact, namely, foreign ownership has a weak relationship with labour productivity and wages in the services sector in Thailand.

Another study in the electronics industry in China found that FDI has positive impact on labour productivity in the industry through the direct utilisation of capital input, technology, management skills and indirect spillover effects towards domestic firms. What is interesting is that labour productivity depends on the degree of foreign presence in the industry including other variables like capital intensity, human capital and firm size (Xiaming et al., 2001).

Oulton (1990) studied the labour productivity in the industrial sector in England during the 1970s and 1980s using the panel data. The results show that investment in new technology through FDI gives significant contribution to the growth of labour productivity in the industrial sector, whereas, increase in prices for intermediate goods makes labour productivity decrease. Apergis et al. (2008) studied the relationship between labour productivity, innovation and technology transfer in the services industry in 6 selected countries in Europe. They found that research and development (R&D), human capital and international trade could accelerate innovation process and facilitate transfer of technology. The results show a balanced relationship between

labour productivity, innovation and technology transfer in the long run. Furthermore, R&D, trade and human capital statistically have important and significant impact on labour productivity through innovation and indirectly through increased spread of technology.

Mei Hsu and Been-Lon Chen (2000) studied the factors that influence labour productivity between big and small-sized firms in Taiwan's manufacturing sector. The results show that increase in the export sector influences the increase in labour productivity in small-sized firms, on the other hand, increase in the export sector will cause the decrease in labour productivity in larger firms. Foreign direct investment has positive effect on labour productivity in smaller firms, but lowers labour productivity for larger firms.

The study in Indonesia conducted by Sjöholm (1997) investigates if international trade openness impacts labour productivity using the services industry data from 1980 to 1991. The impact of international trade openness is tested using the data on industry's participation in exports and imports. The results show that the export variable has positive impact on labour productivity. The bigger the export of total output, the bigger the growth of labour productivity. Import also caused a high growth of productivity. Besides that, Sjöholm is of the opinion that trade liberalisation causes the transfer of technology and knowledge that eventually increases productivity of the industry in the country.

Prasiwi Westining (2008) studied the impact of international trade on labour productivity in the textile industry and textile product with the 5 digit industrial code in Indonesia using the panel data from 1991 to 2005. The results of the study show that abolishing import quota gives negative influence towards labour productivity; meanwhile, labour productivity is influenced by export intensity variable that has positive and significant impact towards labour productivity.

Through the same method and approach, Phan (2004) did a research in the services industry in Thailand, while Jayantha Kumaran (1999) conducted the research on the manufacturing industry in Australia from 1989 to 1997, while Bloch and McDonald (2000) researched the manufacturing industry in Australia from 1984 to 1993, then Kwak (1994) researched the manufacturing sector in Korea. All 4 researches show that trade liberalisation has positive and significant impact on labour productivity.

The study by Hung et al. (2004) also analyses the impact of international trade on labour productivity and total factor productivity (TFP). Their study was more comprehensive, growth of labour productivity was divided into 3, caused by changes in import price, impact of economies of scale towards new market for import and export changes impact. Change in import prices towards labour productivity is positive and significant, a drop in import prices by 1% will increase labour productivity growth by 3% for both estimated models, namely, fixed-effects model and random-effects model. Both models assume that the changes in import price are constant for the whole period. The second variable, new market for import is found to have a positive and significant role for the growth of labour productivity. When both models assume changes in import prices differ, the new market for import variable also influences labour productivity positively. The third factor increases export positively to influence growth of labour productivity.

The study by Paus et al. (2003) related to globalisation refers to trade liberalisation and labour productivity in manufacturing among 27 industries in Latin America. Trade liberalisation shows that labour productivity has positive relationship with all the global variables studied, namely, export and import, including commercial reform index that indentifies the possible presence of a relationship between trade liberalisation and labour productivity in various aspects.

Differing from the study by Egger and Egger (2006), Tomiura (2007) studied the international outsourcing on labour productivity. Tomiura (2007) also analysed other globalisation variables like export and foreign ownership through FDI and found that foreign firms have higher labour productivity as compared to domestic firms that do international outsourcing. Egger and Egger (2006) focused on low-skilled labour productivity in manufacturing for Europe. The results show that for the short term, international outsourcing has negative impact on labour productivity; meanwhile, in the long run the impact is positive.

**3. Methodology and Data Source.** Analysis in this paper adopts the panel data approach from the manufacturing industrial survey data, Department of Statistics Malaysia. The approach combines time series data with cross sectional data. The study covers 24 observations by time series, namely, from 1985 to 2008 and 6 sub-industries, making 144 panel data observations. A multiple regression model is used to investigate the relationship between labour productivity and several independent variables, namely, number of local workers, number of foreign workers, economic openness, FDI, dummy of capital intensive industry, dummy of FDI interaction with capital intensive industry and dummy time.

To estimate the labour productivity equation, several models can be used, namely, pooled least square model, fixed effect model and one or two-way random effect models. To select the most suitable model with this set of data, a redundant fixed effect test is performed (Saadiah et al., 2008). Nevertheless, the analysis will only select between the pooled least square model and the fixed effect model because the random effect model cannot be used, as the number of cross sectional are less than the number of independent variables. In the analysis, there are 6 cross sectionals (based on the type of sub-industry) and 9 independent variables.

The estimation of the labour productivity model is done based on the Cobb Douglas production function. The function can be written as follows:

$$Y = AK^{\beta_1}L^{\beta_2}, \quad (1)$$

where  $Y$  is the total output;  $A$  is the parameter;  $K$  is the value of capital stock;  $L$  is the number of labour. If we assume constant returns to scale (CRS), then  $\beta_1 + \beta_2 = 1$ . But in this analysis we assume non-constant to scale, then  $\beta_1 + \beta_2 \neq 1$ , but there are 2 possible conditions, either  $\beta_1 + \beta_2 > 1$  which reflects the increasing returns to scale (IRS) or  $\beta_1 + \beta_2 < 1$  which reflects the decreasing returns to scale (DRS). From equation (1), the estimation model of labour productivity is as follows:

$$\frac{Y}{L} = \frac{AK^{\beta_1}L^{\beta_2}}{L} = AK^{\beta_1}L^{\beta_2-1} \quad (2)$$

or

$$\frac{Y}{L} = A \left( \frac{K}{L} \right)^{\beta_1} L^{\beta_1+\beta_2-1}. \quad (3)$$

In the logarithm form, equation (3) can be rewritten as:

$$\ln\left(\frac{Y}{L}\right) = \ln A + \beta_1 \ln\left(\frac{K}{L}\right) + (\beta_1 + \beta_2 - 1)\ln L. \tag{4}$$

Adding the globalisation indicators to equation (4) and splitting labour into local and foreign, we get:

$$\ln\left(\frac{Y}{L}\right)_{it} = \ln A + \beta_1 \ln\left(\frac{K}{L}\right)_{it} + \beta_2 \ln LL_{it} + \beta_3 \ln LF_{iy} + \beta_4 \ln OPEN_t + \beta_5 \ln FDI_t + \gamma_1 D_1 + \gamma_2 D_1 FDI_t + \gamma_3 D_2 + \varepsilon_t, \tag{5}$$

where  $Y/L$  is real labour productivity, which is the total gross real output of manufacturing divided by the total number of workers.  $K/L$  is the real capital-labour ratio that is the value of real capital owned by firms divided by the number of workers in manufacturing.  $LL$  is the number of local workers in manufacturing sector.  $LF$  is the number of foreign workers in the sector. The data is collected from the Ministry of Home Affairs. The data on 3 variables are collected from the Manufacturing Industrial Survey, Department of Statistics Malaysia.  $KE$  is the level of economic openness measured by the ratio of real value of export plus import in manufacturing and real output for the sector. The data is collected from the Ministry of International Trade and Industry (MITI).  $FDI$  is real foreign direct investment into manufacturing based on the total projects approved by Malaysian Industrial Development Authority (MIDA). This study uses 2000 as the base year.

Meanwhile, the sub-industries comprised 6 selected groups at 3 digits Malaysian Standard Industrial Classification (MSIC). They are selected based on their high contribution to gross output. They are the production, processing and freezing meat, fish, fruits, vegetables, oil and fat (MSIC 151), manufacturing of sieved petroleum products (MSIC 232), manufacturing of chemical base products (MSIC 241), manufacturing of iron base and metal (MSIC 271), manufacturing of office equipment, accounting and calculators (MSIC 300) and manufacturing of valves and electronic tubes and other electrical components (MSIC 321).  $D_1$  is the dummy variable for industry, 1 = capital intensity, that is, when the capital-labour ratio is more than the average value, 0 = labour intensity.  $D_2$  is the time dummy variable, 1 = is the period after 1995, 0 = before 1995.

**4. Results.** Table 1 shows the descriptive statistics of the variables. It shows that from 1985 to 2008 the annual average labour productivity is RM 14,534.0 and the capital intensity has the average annual value of RM 59,952. The average number of workers is 68,193.6 people and the average value of FDI is just above RM 17 mln. For the economic openness, the average value is 1.5281.

Table 1. Descriptive Statistics of the Variables

Variable	Mean	Median	Maximum	Minimum	Standard Deviation
Y/L (RM)	14,534.0	5,094.0	144,982.9	770.5	26,912.6
K/L (RM)	59,952	1,514.5	46,441.1	284.4	9,143.8
L (Number)	68,193.6	27,028.5	435,040.0	1,125.0	95,277.2
FDI (RM'000)	17,065.7	6,430.2	104,875.5	25.2	23,833.4
FL (Number)	6,495.7	3,474.0	43,744.0	27.0	7,469.0
OPEN (Ratio)	1.5281	1.5932	1.9212	0.8836	0.3210

Before we estimate the models, the data stationarity is checked to avoid spurious regression. The panel unit root tests results using the Im, Pesaran, Shin (IPS) test at the level and first differentiation are shown in Table 2. For the level, the IPS test results show that the null hypothesis is not rejected at the 5% confidence level. Therefore, all the variables in the series are not stationary. After the first differencing of all the variables, the IPS test gives homogeneous results, rejecting the null hypothesis. This confirms that all the variables are stationary at first differencing. The results verify that all the variables are integrated of order one, I (1). Based on the panel unit root test, it clearly shows that cointegration analysis is needed to get the long-run equilibrium equation. The panel cointegration results using the Pedroni (1997) method are shown in Table 3.

Table 2. Panel Unit Root Test

Variable	Level		First Difference	
	Range	W-stat	Range	W-stat
<b>Intercept</b>				
Y	0-4	3.17851	0-2	-8.1168***
X1	0	-0.36419	0-4	-7.2007***
X2	0-1	2.90056	0-1	-7.9065***
X3	0-1	3.88542	0-4	-7.9652***
X4	0-3	3.68039	0-1	-5.6933***
X5	0	-0.74054	0	-4.5510***
<b>Intercept and trend</b>				
Y	0-4	0.35068	1-6	-5.6287*
X1	0	0.27821	0-4	-5.9099***
X2	0-1	1.11284	0	-8.2051***
X3	0-1	-0.4689	0-4	-6.6451***
X4	0-4	2.71183	0-1	-4.6720***
X5	3	4.40783	2	-8.0393***

Note: \*\*\* – significant at 1%, \*\* – significant at 5%, \* – significant at 10%.

Table 3. Pedroni Residual Cointegration Test

Statistics	Statistics Value
Alternative hypothesis: general AR coefficient (internal-dimension)	
Statistics – $\nu$ Panel	-0.5783
Statistics – $\rho$ Panel	1.5062
Statistics – PP Panel	-2.5983***
Statistics – ADF Panel	-2.5985***
Alternative hypothesis: general AR coefficient (inter-dimension)	
Statistics – group $\rho$	2.5428
Statistics – group PP	-2.4781*
Statistics – group ADF	-2.4093*

Note: \*\*\* – significant at 1%; \*\* – significant at 5%; \* – significant at 10%.

With the exception panel  $\nu$ , panel  $\rho$ , and group  $\rho$  statistics, all the PP and ADF statistics show that the statistics values are higher than the critical value which is .64. This shows that the null hypothesis that there is no cointegration between labour productivity and economic variables involved is rejected. Thus, all the specifications form the long-run cointegration vector.

In estimating the model, the results showed strong evidence for the first order serial correlation. Therefore, further estimation using the Marquardt algorithm procedures was performed to correct this problem. Apart from this, a test for the heteroscedasticity using White test shows the estimation has this problem, therefore, we

estimate the model using the weighted least square. Further, we test for redundant fixed effect and the results are shown in Table 4. It is shown that the p-value in the redundant fixed effect test for all the models are significant at the 5% significance level. Therefore, the fixed effect model is more appropriate to be used in the analysis. Table 5 shows the results of the labour productivity regression equation.

**Table 4. Redundant Fixed Effect Test Results**

Equation	Cross-section F-statistics	Degrees of Freedom	P value	Adjusted R <sup>2</sup>	R <sup>2</sup>
I	33.236929	5,133	0.0000	0.8989	0.90526
IV	30.891828	5,130	0.0000	0.833341	0.842664

Models I and II are the labour productivity equations with the assumption of non-constant return to scale. In both models the value of R<sup>2</sup> is about 0.8, showing that about 80% of the variation in the dependent variable is explained by the independent variable. In the first model, when no globalisation variables are added, the results show that the capital-labour ratio is insignificant but labour coefficient is positively affect labour productivity at the 5% significance level. A 1% increase in the number of workers causes labour productivity to increase by 0.17%. However, in model II when globalisation indicators are added, capital-labour ratio is highly significant in influencing labour productivity. Number of local labour remains significant and all globalisation indicators are significant, but the number of foreign labour is negative. An increase by 1% of this variable reduces labour productivity by 0.2835%. Even though the result is contradicting to Zaleha et al. (2011), they used the aggregate manufacturing data, whereas in this study we cover only 6 dominant sub-industries in the manufacturing sector. Llull (2008) also found a negative impact of foreign labour on labour productivity in Spain.

The FDI variable and economic openness are positive and highly significant. A 1% increase in FDI will increase labour productivity by 0.1338%, while a 1% increase in economic openness will increase labour productivity by 1.1419%. The result is consistent with Chin Chen and Yir-Hueih (2000), Sjöholm (1997), Phan (2004), Kumaran (1999), Bloch and McDonald (2000). This implies that the entry of foreign investors together with technology and expertise has increased labour productivity in manufacturing of Malaysia. An increase in economic openness by 1% will increase labour productivity by 1.1419%.

The effect of FDI on the manufacturing labour productivity is higher in the capital-intensive industries as compared to the labour intensive. This implies advance technology utilization in capital intensive industries leads to greater efficiency. Foreign labour gives a significant negative impact on labour productivity. On the other hand, economic openness is positive and highly significant in influencing manufacturing labour productivity. However, the years after 1995 have greater positive impact on labour productivity in Malaysian manufacturing. Except in model II where it is insignificant.

The study also shows that manufacturing of sieved petroleum products (MSIC 232) has the highest labour productivity followed by manufacturing of chemical base products (MSIC 241). Whereas, manufacturing of valves and electronic tubes and other electrical components (MSIC 321) has the lowest labour productivity with the intercept of -1.4238. The labour productivity in the manufacturing of iron-based and



metal (MSIC 271) and the processing and freezing meat, fish, fruits, vegetables, oil and fat (MSIC 151) are almost equal.

**Table 5. Results of Labour Productivity Regression Analysis Fixed Effect Model**

Variable	Model 1		Model 2	
	Coefficient	t-value	Coefficient	t-value
C	-0.1798	-0.227	4.7640	8.052***
K/L	0.0177	0.188	0.4312	5.290***
L	0.1738	2.214**		
LL			0.5982	8.506***
FDI			0.1338	4.193***
FL			-0.2835	-4.454***
OPEN			1.1419	3.813***
D1	0.1303	0.350	-0.4085	-0.427
D1 FDI			0.4212	3.066***
D2	0.5615	6.297***	-0.0464	-0.753
Industry intercept				
151			-0.4292	
232			2.2988	
241			0.5731	
271			-0.4322	
300			-0.5868	
321			-1.4238	
R <sup>2</sup>	0.90526		0.84266	
Adjusted R <sup>2</sup>	0.8989		0.83334	

Note: \*\*\* significant at the 1% level; \*\* significant at the 5% level; \* significant at the 10% level.

**5. Conclusions and Policy Implications.** The study shows that all globalization indicators, namely FDI, foreign labour and economic openness have significant impact on labour productivity in the selected manufacturing sectors. However, the effect from foreign labour is negative. One of the prevalent problems is the existence of too many semi-skilled and unskilled foreign labours in manufacturing, limiting its capability to absorb new technologies. Therefore, the government needs to reduce dependency on foreign labour or upgrading their skills. Labour productivity in Malaysia is much lower than in newly industrialised countries in Asia. Therefore, reducing foreign unskilled labours will lead to higher technology to speed up labour productivity. At the same time it will attract more foreign investors to run business in Malaysia. The implementation of minimum wage would encourage employers to hire more skilled workers to increase their productivity.

FDI inflows must be continuously encouraged and economic openness must be increased through enhancing export-import activities. However, to speed up technological transfer and adoption, skilled workers are needed. Creation of high quality workforce will enhance FDI related technology and expertise absorption that will eventually lead to a more advanced domestic technology development.

To ensure and encourage high labour productivity in manufacturing relevant policies related to knowledge must be formulated to encourage investment in human capital, technology and innovation. Besides that, emphasis on manufacturing is crucial as this sector plays an important role contributing highly to national income and economic growth. Recruitment of foreign semiskilled and unskilled labour must be reduced to avoid a decrease in labour productivity as the result shows that an increase in the number of foreign labour will reduce labour productivity. Domestic skilled workers must replace the semiskilled and unskilled foreign workers. Hence, this strat-

egy will subsequently promote capital-intensive industry that produces higher value added to this country.

**References:**

1. *Apergis, N., Economidou, C., Filippidis, I.* (2008). Innovation Technology Transfer and Labor Productivity Linkages: Evidence from a Panel of Manufacturing Industries. *Review of World Economics*, 144(3): 491-508.
2. *Bloch, H., McDonald, J.* (2000). Impact competition and labour productivity. Melbourne Institute Working Paper Series, No. 9, Melbourne Institute of Applied Economics and Social Research.
3. *Department of Statistics, Malaysia.* The Report on Annual Survey of Manufacturing Industries. Kuala Lumpur: Government Printing Office, various years: <http://www.statistics.gov.my>.
4. *Economic Planning Unit, Malaysia* (2001). The Eighth Malaysia Plan, 2001-2005. Kuala Lumpur: Government Printing Office: <http://www.epu.gov.my>.
5. *Economic Planning Unit* (2006). The Ninth Malaysia Plan, 2006-2010. Kuala Lumpur: Government Printing Office: <http://www.epu.gov.my>.
6. *Egger, H., Egger P.* (2006). International outsourcing and the productivity of low-skilled labor in the EU. *Economic Inquiry*, 44(1): 98-108.
7. *Englander, S., Gurney, A.* (1994). OECD Productivity Growth: Medium-Term Trends. *OECD Economics Studies*, 22: 111-129.
8. *Greene, W.H.* (2003). *Econometric Analysis*. 5th Edition. New Jersey: Prentice Hall.
9. *Heathfield, D., Wibe, S.* (1987). *An Introduction to Cost and Production Function*. London: Mcmillan.
10. *Hoogvelt, A.* (1997). *Globalisation and The Post Colonial World: The New Political Economy of Development*. Basingstoke: Mcmillan.
11. *Hung, J., Salomon, M., Sowerby, S.* (2004). International trade and US productivity. *Research in International Business and Finance*, 18(1): 1-25.
12. *Jayanthakumaran, K.* (1999). Trade Reforms and Manufacturing Performance: Australia 1989-1997. *Economic Working Paper*: 9-18.
13. *Kathuria, V.* (1998). Technology Transfer and Spillovers for Indian Manufacturing Firms. *Development Policy Review*, 16(1): 73-91.
14. *Koirala, G.P., Koshal, R.* (1999). Productivity and technology in Nepal: an analysis of foreign and domestic firms. *Journal of Asian Economics*, 10(4): 605-618.
15. *Kwak, H.* (1994). Changing Trade Policy and its Impact on TFP in the Republic of Korea. *The Developing Economies*, 32(4).
16. *Malaysian Productivity Corporation* (2009). *Malaysian Productivity Report*. Kuala Lumpur: National Publication: <http://www.mpc.gov.my>.
17. *Malaysian Productivity Corporation* (2010). *Malaysian Productivity Report 2010*. Kuala Lumpur: National Publication: <http://www.mpc.gov.my>.
18. *Mei, H., Chen, B.-L.* (2000). Labour Productivity of Small and Large Manufacturing Firms: The Case of Taiwan. *Contemporary Economic Policy*, 18(3): 270-283.
19. *Oulton, N.* (1990). Labor Productivity in UK Manufacturing in The 1970s and in The 1980s. *National Institute Economic Review*: 71-91.
20. *Paus, E., Reinhardt, N., Robinson, M.* (2003). Trade Liberalization and Productivity Growth in Latin American Manufacturing 1970-98. *Journal of Policy Reform*, 6(1): 1-15.
21. *Phan, P.* (2004). *Trade Liberalisation and Manufacturing Performance in Thailand 1990-2000*. PhD Thesis. School of Economics and Information Systems. University of Wollongong.
22. *Prasiwi, W.D.I.* (2008). Pengaruh Liberalisasi Perdagangan Terhadap Produktivitas Tenaga Kerja Industri Tekstil dan Produk Tekstil di Indonesia: 1991-2005 (Impact of Trade Liberation on Labour Productivity in the Indonesian Textile Industry: 1991-2005). M.Ec dissertation, Department of Economics, Universitas Indonesia.
23. *Ramstetter, E.D.* (2004). Labour productivity, wages, nationality and foreign ownership shares in Thai manufacturing, 1996-2000. *Journal of Asian Economics*, 14(6): 861-884.
24. *Rasiah, R., Gachino, G.* (2005). Are foreign firms more productive and export- and technology-intensive than local firms in Kenyan manufacturing? *Oxford Development Studies*, 33(2): 211-227.
25. *Saadiah, M., Jusoff K.* (2008). Exchange Rates and Export Growth in Asian Economies. *Asian Social Science*, 4(11): 30-36.
26. *Sjoholm, F.* (1997). Export, Import and Productivity Results From Indonesia Establishment Data. Working Paper Series in Economics and Finance, 2.

27. *Solow, R.M.* (1957). Technical Change and the aggregate production function. *The Review of Economics and Statistics*, 39(3): 312-320.

28. *Thomas, D.L., Skidmore, D.* (1997). *International Political Economy: The Struggle for Power and Wealth*. 2nd Ed. New York: Harcourt Brace.

29. *Tomiura, E.* (2007). Foreign outsourcing, exporting and FDI: a productivity comparison at the firm level. *Journal of International Economics*, 72(1): 113-127.

30. *Vahter, P.* (2004). *The Effect of Foreign Direct Investment on Labour Productivity: Evidence From Estonia and Slovenia*. Tartu: Tartu University Press.

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