



Outward FDI and Home Country Employment

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Abstract

This paper aims to explore the effects of Malaysian outward FDI on its home country employment, specifically skilled and unskilled employments. We use annual data spans from 1980 to 2012 that is examined in autoregressive distributed lag (ARDL) bounds testing framework. The findings reveal that national output is positively associated with both skilled and unskilled employments. Interest rate is found to have negative relationship with skilled labour that reflects complementary inputs between labour and capital. The positive and significant relationship between interest rate and unskilled labour indicates the existence of substitution relationship between them. However, we found no empirical evidence showing that outward FDI has a significant impact on skill composition.

INTRODUCTION

Internationalization is one of the growth strategies for the firms. Prior to 1990s, the activities of cross-border investment initiated by Malaysian firms are literally low. When came to 1990s, amount of investment abroad started to show an increasing trend where it reached the peak at almost \$4000 million in 1996 before it slumped greatly in 1998 in respond to Asian financial crisis. After the financial turmoil, investment abroad was revived and the flows marked a continuous upward trend from 2003 till 2012, except a downturn in 2009 where economy was hit by global crisis. Though investment abroad delivers benefits to the outward investing firms, the potential negative impact of investment abroad on home country employment is also the concern of home government. This is because investing abroad is perceived as job-exporting (Yamashita & Fukao, 2010) that adversely affects the home country employment. When outward investing firms relocate their production plants abroad, it may reduce the local operations where demand for local employment falls. Thus, it leads to negative substitution effect which local employment is replaced by overseas employment following the plant relocation abroad. This substitution effect retards local employment that becomes the main concern of the home government. However, outward investment

may not necessarily reduce the local employment. Conversely, it increases the demand for labour. This could be seen with the expansion in the market size that serves both local and foreign markets, and also the access to better resource allocation. Given these advantages, it promotes scale of home production and reduces cost of production. Consequently, home country employment grows. This situation is known as scale (output) effect where investment abroad increases the production scale and home country employment. Hence, the net effects of outward FDI on home employment could either be negative or positive, relying on the degree of substitution and scale effects (Hanson et al., 2003; Yamashita & Fukao, 2010).

At the time being, unemployment is not a serious problem in Malaysia. However, the high retrenchments of unskilled labour in manufacturing sector deserve our attention. Maybe we shall inspect the impacts of outward investment on employment in disaggregate level according to skill and unskilled employment. We postulate that outward FDI will cause a reduction in the demand for unskilled labour as a result of firms shifting labour-intensive part of production to other low-cost countries. For instance, manufacturing sector registered the highest number of retrenchments at 76.9% in 2007 (Economic Report 2007/2008) primarily due to firm's restructuring and realigning their operations to increase productivity and profitability. At the same time, outward FDI registered a tremendous increase in 2007. So, we are uncertain if this retrenchment is part of the motives of firm in searching for cost-efficiency by shifting plants abroad? On one hand, investment abroad increases the demand for skilled labour in home country. This is because knowledge-intensive operations are based in home country that require more managerial and professional workers to accommodate increasing supervisory to service foreign operations. As a result, it will increase the demand for skilled labour to support managerial-relating jobs in home country. Similarly, Malaysian outward FDI is mostly concentrated in service sector where the nature of job in service sector is characterized as skill-intensive function. Hence, an increasing outward FDI that requires skilled labour pose a challenge to unskilled labour where unskilled labour is the major workforce in Malaysia. Therefore, we are not sure if outward FDI will reduce the local employment, particularly unskilled labour. The issue of skill composition is crucial as outward FDI may result in the rise of real wage for skilled labour and reduction of real wage for unskilled labour that lead to the imbalance wage distribution between them. Therefore, we examine the possible effects of outward FDI on home employment according to skill composition.

The findings of this study have some implications for policy. Service sector provides the major source of employment in Malaysia which accounts for 53.4% of total employment in 2011 (Economic Report 2012/13). Despite of this, the percentage of skilled labour is still relatively low compared to unskilled labour which accounts for 70% of total employment. Specifically, the occupation for professionals accounts for only 9.9% while plants assemblers accounts for 12.7% in 2011 (Statistics Yearbook Malaysia 2012). Hence, outward investment could be a potential platform in helping government produces more skilled labour force and reduces the dependency on foreign unskilled labours, particularly in manufacturing sector.

LITERATURE REVIEW

The previous empirical studies in examining the effects of outward investment on home country employment and skill composition are conducted based on firm and industry experiences of advanced economies such as US, Europe, and Japan. Nonetheless, the studies in exploring the impact of outward FDI on skill composition is relatively scared compare to overall employment effects. Furthermore, the investigation in developing countries is limited as outward FDI is considered as a recent experience for developing countries. Thus, the empirical literatures found in developing countries are not as intensive as developed countries. The existing literatures show that the effects of outward investment on home employment are mixed. The studies that demonstrate negative effect on employment at home country are, for instance, Brainard & Riker (1997) in US; Konings & Murphy (2006) and Marin (2004) in European Union (EU); Hatzius (1998) in Sweden; and Becker et al. (2005) in Germany and Sweden. On the other hand, the positive effect of outward FDI on home country employment can be traced from Lipsey et al. (2000), Hijzen et al. (2007), and Yamashita & Fukao (2010) in Japan; Desai et al. (2005) in US, Hijzen et al. (2009) in France; and Sunesen et al. (2010) in EU. Nonetheless, the studies of Jäckle (2006) and Kleinert and Toubal (2007) found that the relationship between outward FDI and home country employment in Germany is neutral. Navaretti and Castellani (2004) also claimed that the effect is neutral in Italy.

In developing countries, Chen and Ku (2000) found that outward FDI is not detrimental to Taiwan manufacturing sector. Instead, it generates growth and improves domestic industries. Liu and Lu (2011) contributed to the existing empirical studies by focusing on association between outward FDI and home country employment in China. The

findings reveal that the impact of outward FDI on primary sector employment is not intense. Likewise, it affects the employment of secondary and tertiary sectors, where tertiary sector experiences much larger positive effect. Debaere et al. (2010) investigated whether location of host countries is a matter in affecting home country employment of South Korean firms. The findings are consistent with the hypothesis of job-exporting that investing in less-advanced economies leads to a reduction in firm's employment growth rate in short-run. In the meantime, FDI flowing to more-advanced countries give no effect on domestic employment.

With respect to skill composition, Blomström et al. (1997) compared the effects of outward investment on parent employment in US and Swedish manufacturing multinationals (MNCs). US MNCs seemed to allocate labour-intensive operations to affiliates in developing countries that reduced the labour intensity in their parent production. Surprisingly, Swedish firms' operations abroad increased the blue-collar (unskilled) employment in home country while not changing white-collar (skilled) employment. They claimed that unskilled production activities are preserved and developed in Sweden while skilled intensive productions are located abroad. Castellani et al. (2008) provided empirical evidence from Italian manufacturing MNCs. The results revealed that skilled workers in home country are benefited from outward investment. Similarly, Elia et al. (2009) claimed that outward FDI directed to low-wage countries of Central and Eastern Europe (CEE) negatively affect the demand for low-skilled labour in Italian parent firms. Hayakawa et al. (2013) examined the effects of outward investment on Japanese manufacturing firms. They found out that horizontal FDI increased the employment of non-production workers while vertical FDI increased the demand for skilled production workers.

MODEL SPECIFICATION AND METHODOLOGY

We assess the effects of outward investment on skilled and unskilled employment in Malaysia using labour demand equation which is written as:

$$\ln SL_i = \alpha_1 - \beta_1 \ln W_i - \beta_2 \ln INT_i + \beta_3 \ln Y_i + \beta_4 \ln OFDI_i + \mu_i \quad (1)$$

$$\ln USL_i = \alpha_2 - \beta_5 \ln W_i + \beta_6 \ln INT_i + \beta_7 \ln Y_i - \beta_8 \ln OFDI_i + \mu_i \quad (2)$$

where SL is number of skilled labour and USL is number of unskilled labour, As the sample is based on macroeconomic variables, we classify the skilled and unskilled labour in accordance to occupation groups that defined by Malaysia Standard Classification of Occupation (2008). In this study, skilled labour comprises (i) professionals and (ii) technician and associate professionals. The selected unskilled laborers reflects the employment related to manufacturing sector which are (i) clerical and related workers, (ii) production and related workers, transport equipment operators and labourers, and (iii) plant and machine operators and assemblers. W is wage, INT is cost of capital, Y is output, $OFDI$ is aggregate outward FDI flows.

Wage is own-price elasticity that is negatively related to demand for labour. Wage is the labour cost or income of labour in micro level. However, to accommodate in the macro level data, we use contribution of employee provident fund (EPF) which can be used as alternative to measure labour cost that stipulated in International Standard Classification of Labour Cost (Key Indicators of the Labour Market (KILM), 2014). The employee provident fund is divided by total employment to represent the average income of labour. Cost of capital or interest rate is measured by 3 months T-bills. Capital cost is expected to have negative relationship with demand for skilled labour in equation 1 to show that they are complementary inputs. Likewise, capital cost is positively related to demand for unskilled labour in equation 2 to reflect substitution effects between them. Output reflects demand shock that is measured by GDP. If the shock is positive, demand for labour increases, and vice versa. Outward FDI and skilled labour demand is expected to be positive as skilled-intensive operations are based in home country to support overseas operations. Thus, demand for skilled labour in home country increases. We expect employment of unskilled labour is negatively associated with outward FDI as a consequence of firms relocate labour-intensive operation to other developing countries. The data spans from 1980 to 2012 and all variables are measured in real terms of logarithms, except interest rate.

We start the analysis with augmented Dickey and Fuller (1981) (ADF) unit root test and Philip and Perron (1988) (PP) unit root test to check the stationary of each variable. After that, we use autoregressive distributed lag (ARDL) bounds test developed by Pesaran et al. (2001) to find the cointegration. Once the variables are cointegrated, we proceed with long-run elasticities and short-run models. Diagnostic tests are also performed to check the robustness of results.

EMPIRICAL RESULTS

Table 1 presents the results of unit root tests with the inclusion of constant and deterministic trend. ADF and PP give the same results that all variables are stationary at first difference. Thus, *SL*, *USL*, *W*, *INT*, *Y*, and *OFDI* are integrated at order 1, I(1).

We apply ARDL bounds test for cointegration using a maximum lag length of 3. The results are reported in Table 2. The computed *F*-statistics for the models exceed upper bound critical value at their respective significance levels, indicating the existence of long-run equilibrium relationship between dependent and independent variables.

Table 1
Unit root tests

Variables	Level		First difference	
	ADF	PP	ADF	PP
SL	-1.20	-1.53	-4.64***	-3.32*
USL	-1.78	-1.74	-6.86***	-6.86***
W	-1.42	-2.91	-7.13***	-6.61***
INT	-2.44	-2.30	-4.71***	-5.52***
Y	-1.32	-1.59	-4.32***	-4.34***
OFDI	-3.19	-3.18	-7.52***	-7.52***

For ADF, SBC is used to select the optimal lag length. The maximum number of lags is set to be 8. For PP, Barlett Kernel is used as the spectral estimation method. The bandwidth is selected using the Newey-West method. The asterisks ***, ** and * denote significant at 1%, 5% and 10% level, respectively.

Table 2
ARDL bounds test

Models	<i>F</i> -statistics	Upper bound at 1%	Upper bound at 5%	Upper bound at 10%
Model 1:				
SL = f (W, INT, Y, OFDI)				
<i>F</i> (SL/W INT Y OFDI)	5.704**	6.670	4.774	3.994
Model 2:				
USL = f (W, INT, Y, OFDI)				
<i>F</i> (USL/W INT Y OFDI)	7.873***	6.670	4.774	3.994

Notes: ***, ** and * denotes 1%, 5% and 10% significance level, respectively. The critical values are extracted from Narayan (2005), using Case III.

The long-run estimates, error correction terms, and diagnostic tests for respective models are shown in Table 3. The optimal lag lengths in the models are selected by the lowest value of Schwarz-Bayesian Criteria (SBC). Interest rate (*INT*) and output (*Y*) are statistically significant in the models. Interest rate is negatively related to skilled labour that reflects complementary inputs between them. Given a percentage point decrease in interest rate, the skilled employment would increase by 0.04%. When interest rate declines, it stimulates business firms to invest more in machinery purchases. As skilled labour is assumed to complement the machines, that skilled labour is knowledgeable in operating the machines, the demand for skilled employees would spike up following the increase in machinery investment. Likewise, interest rate is found to have positive relationship with unskilled employment that captures the substitution input relationship. Assume that the tasks performed by unskilled labour can be substituted by machinery, lower interest rate encourages firms to use more machines and tools that could replace unskilled workforce. Hence, unskilled employment shrinks as a result of cheaper capital cost.

Output is positively and significantly affecting both skilled and unskilled workforces. However, output or market expansion benefits skilled employment more because the percentage increase in skilled labour is higher than unskilled labour, given a percent increase in output. This explains that market expansion results in a greater production scale that requires skilled workforce to utilize technology-based production to fulfill the demand in the country. Outward investment is statistically insignificant in both models. Thus, we found no empirical evidence that outward investment is significant in affecting skilled and unskilled employment. The results may be different if

the data on outward investment in disaggregated according to sectors. Nonetheless, the data on sectors-based investment is available from 2008 onwards.

The coefficient of ECM is negative and statistically significant. This means that short-run deviation is corrected in the long-run equilibrium at a rate of 48% and 42% in the next period, respectively. The diagnostic tests show that at a 5% significance level, the estimated coefficients are free from serial correlation, functional form misspecification, and heteroscedasticity.

Table 3
ARDL: Long-run elasticities, error correction term (ECT), and diagnostic tests

Independent variables	Dependent variable: SL	Dependent variable: USL
	(2 0 0 2 0)	(1 0 0 1 0)
	Coefficients	Coefficients
Intercept	-5.658	-1.150
W	.0198	.263
INT	-.040***	.052***
Y	1.016***	.254*
OFDI	-.023	.021
ECT _{t-1}	-.482***	-.420**
Adjusted R ²	.997	.982
DW statistics	2.146	2.174
F statistics	1689.0[.000]	279.043[.000]
<i>Diagnostic tests</i>		
LM serial correlation	F(1, 21) = .548[.467]	F(1, 23) = .269[.609]
Ramsey's RESET functional form	F(1, 21) = .983[.333]	F(1, 23) = 1.113[.302]
Heteroscedasticity	F(1, 29) = .877[.357]	F(1, 29) = .031 [.861]

Notes: ***, ** and * denote 1%, 5% and 10% significance level, respectively. Diagnostic tests results are based on *F*-statistics. Figures in [] are probability values.

CONCLUSION

Outward investment raises the public fears of job-exporting as a result of firms shifting their production plants abroad. Nevertheless, outward FDI is not necessary depress the domestic employment. Instead, it would stimulate local employment following the expansion in larger foreign markets. The statistics show that the amounts of outward FDI engaged by Malaysian firms are increasing tremendously since 2003 where investment in service sector accounts for the largest portion. Meanwhile, service sector is the major employment in Malaysia. However, the percentage of skilled labour is still low. Thus, in this study, employment is divided into skilled and unskilled labour to examine whether outward FDI would lift up the skilled employment following the skill upgrading. The empirical findings indicate that interest rate and national output are significant factors in explaining the demand for skilled and unskilled workforces. Nevertheless, outward FDI gives no impact on both skill compositions. The results may improve if sector-based outward investment is used in future research.

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