FOREIGN EMPLOYMENT MULTIPLIER IN MALAYSIA: AN INPUT – OUTPUT ANALYSIS

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ABSTRAK

Malaysia telah menjadi negara destinasi bagi pekerja asing terutamanya daripada negara Asia Tenggara dan Asia Selatan. Kemasukan pekerja asing di Malaysia menyelesaikan masalah kekurangan tenaga kerja di Malaysia terutamanya dalam industri pertanian, pembuatan dan pembinaan. Tujuan penulisan ini adalah untuk membuat anggaran sumbangan multiplier pekerja asing kepada sektor ekonomi di Malaysia menggunakan pengganda tenaga kerja, lanjutan daripada analisis Input-Output. Penemuan mendapati sumbangan pekerja asing lebih kecil daripada pekerja tempatan dan sumbangan terbesar pekerja asing dicatatkan dalam industri pertanian dan pembinaan manakala peningkatan sumbangan tertinggi direkodkan dalam aktiviti padi. Kajian ini merupakan input bagi ahli akademik dan penggubal perancangan pembangunan negara untuk mengkaji sumbangan pekerja asing kepada sektor ekonomi di Malaysia.

Kata kunci: Pekerja Asing, Pengganda Tenaga Kerja, Analisis Input-Output

ABSTRACT

Malaysia has become a destination country for foreign workers mainly from neighbouring South East Asian nation and South Asian countries. The influx of foreign workers in Malaysia solves the labour shortage problem in Malaysia especially in agriculture, manufacturing and construction industries. The aim of this paper is to estimate the contribution of foreign workers towards Malaysian economic sectors using the employment multiplier model, an extended Input-Output analysis. Findings showed that the total contribution of foreign workers was smaller than local workers and the largest contribution of foreign workers was mainly in agriculture and construction industries while the most rising contribution was found to be highest in the paddy sector. This study is a valuable input in understanding which economic sector receives the most and least contribution from foreign workers in Malaysia and a useful tool for policy makers and academician to conduct an in-depth analysis regarding this issue.

Keywords: Foreign Workers, Employment Multiplier, Input-Output Analysis

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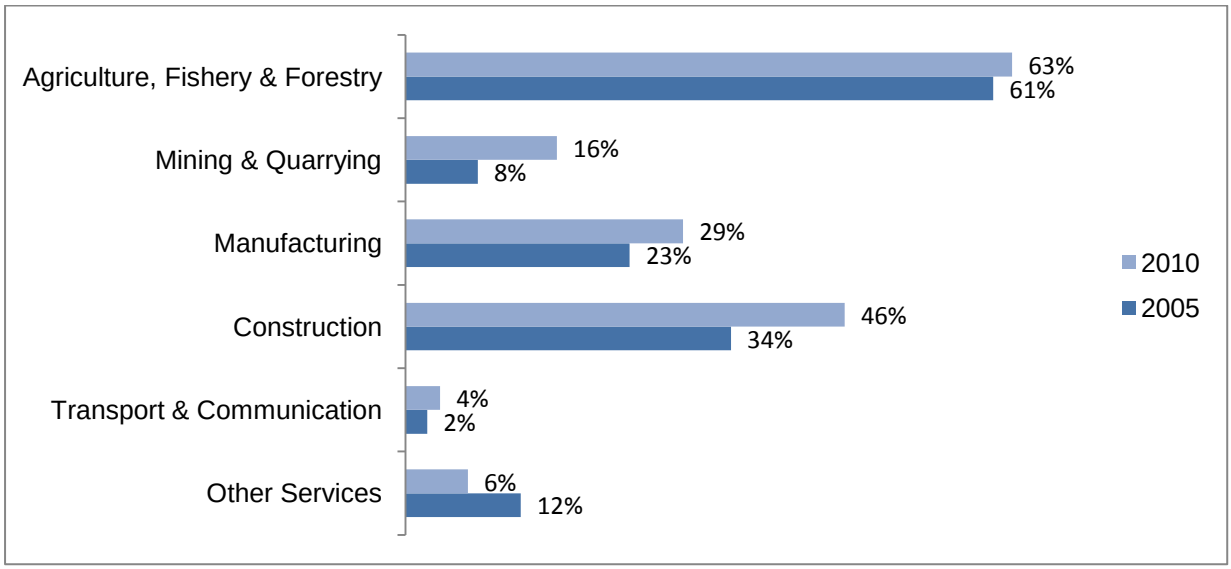
1. INTRODUCTION

The practice of employing foreign workers in Malaysia is neither new nor recent. The first wave of foreign labour inflow occurred in 1970s due to structural changes and the second wave followed in the late 1980s. Since then, Malaysia began to heavily depend on the foreign labour market to support its high growth (Kanapathy, 2001). Malaysia has become a destination country for foreign workers mainly from neighbouring South East Asian nation and South Asian countries (MEF, 2014). Based on the 'Migration and Remittances Factbook 2011' by The World Bank, Malaysia was placed twentieth among the countries that have the most number of immigrants in 2010 and placed at eleventh in terms of US dollars among the top remittance-sending countries in 2009.

Based on the unpublished data obtained from the Economic Census 2005 and 2010, the Agriculture, Fishery & Forestry Industry had the largest percentage share of foreign workers in both 2005 and 2010; rose to 63 per cent in 2010 from 61 per cent in 2005. Meanwhile, the highest growth was shown in the construction industry which posted a 12 per cent growth from 2010. Overall, as can be seen in Figure 1.1, all industries posted an increase of percentage of foreign workers, except for Other Services which has decreased from 2005 to 2010.

Figure 1.1: Percentage Share of Foreign Workers by Industry, 2005 & 2010



Source: Department of Statistics Malaysia, DOSM. Economic Census 2005 and 2010.

There are many reasons why demand for foreign workers is relatively high in Malaysia which include labour shortage, construction sector seen as 3D; dirty, difficult and dangerous as well as lack of skilled local workers. One of the reason for the presence of foreign workers in Malaysia was to support labour shortage in construction sector. In the late 1990s, construction sector was one of the key sectors during the period of rapid economic growth due to the industrialisation policy. However, the sector was seen unattractive to local workers due to the nature of 3D; dirty, difficult and dangerous (Castles and Miller, 1998). Compared to local workers, foreign workers tend to receive cheap wages, have good working attitude and

provide better productivity, which were another reasons for employers to hire them (Aminuddin and Usha, 2008).

Lack of skilled local workers is another reason for the demand for skilled foreign workers. Tandrayen-Ragoobur (2014) stated that foreign workers are mostly semi-skilled and unskilled from developing countries and highly skilled from developed countries. Malaysia is one of the politically and environmentally stable countries which have attracted massive foreign direct investment. Thus, skilled foreign workers are certainly needed to sustain those foreign investments. To cite an example, Japanese managers and engineers are required to work in a newly built Japanese car plant in Malaysia (Lewis, 1997).

Although foreign workers may contribute towards Malaysia's economy, they tend to be associated with rising number of crime activities and deprive national's minimum wage. The existence of foreign workers in Malaysia had raised serious issues and impact towards the nation. The rising number in crime activities involving foreign workers has become a concern. In Johor Bahru, the employment of foreign workers in the construction site contributed to social ills apart from increasing the local unemployment rate (Abdul Rahim et. al, 2011). Apart from that, cheap wages offered to foreign workers consequently deprives the minimum wage received by domestic workers (Athukorala and Devadason, 2012). As a result, it will reduce the wage rate in the local labour market (Che Hashim, 2009).

The inflow of foreign workers in Malaysia has mixed effect; it reduced labour shortage problems but creates a number of major issues and has economic and social implications. However, the contribution of foreign workers in Malaysia has not been thoroughly investigated and a limited number of researches have been done on the contribution of foreign workers in Malaysia (Ramesh et. al., 2012). Furthermore, research specifically on foreign employment multiplier in Malaysia is found to be scarce. Therefore, it raises a question, as to what extend the foreign workers contribute towards Malaysian economy? Based on the employment multiplier model, an extended input-output analysis, this paper aims to estimate the contribution of foreign employment towards Malaysia's economic growth using the recently published Malaysia Input-Output Tables 2010. To date, Hussain (2011) used the 1983 to 2000 and Poo et. al (2012) used 1978 and 2000 I-O Tables.

The rest of the paper is organised as follows. Section 2 presents the literature review on the impact of foreign workers in Malaysia. Section 3 provides data sources and methodology. Section 4 discusses findings and section 5 concludes the paper.

2. LITERATURE REVIEW

In conjunction with the perception where foreign workers filled in the labour shortage in a certain industries in Malaysia and consequently contributed towards economic growth, some would rather believe that foreign workers caused more harm than good. For example, Hamzah et. al (2012), Ramesh et. al (2012) and Athukorala and Devadason (2012) found negative impact of foreign workers.

Hamzah et. al (2012) conducted a survey to study the impact of the presence of foreign workers in Malaysia. Data were collected through a structured interview and survey on professionals in construction projects who have direct contact with foreign workers. Only companies registered under CIDB class G7 was chosen for the survey. It was found that the employers were over-dependent on foreign workers and foreign workers had given rise to cause the increasing number of crime activities. However, the respondents from the survey were among the professionals i.e. one point of view and thus might provide biased results.

In view of economic impact, Ramesh et. al (2012) pointed out that the employment of foreign workers might increase domestic unemployment rate and retain domestic wage. Not only the employment of foreign labour might deprived the chance of domestic workers to be employed but also left no room for domestic workers to bargain higher wages (since foreign workers generally accept low wages). As a result, this will raise the nation's unemployment rate and dampen wage rise which affect the economic growth adversely. Athukorala and Devadason (2012) agreed that there was a statistically negative significant effect from the existence of foreign workers on the growth of unskilled wages using econometric analysis, which supported the findings mentioned above.

On the other hand, Zaleha (2011) and Pant et. al (2011) found positive impact of foreign workers towards the economy. Zaleha (2011) estimated the impact of foreign workers on labour productivity in Malaysian manufacturing sector and concluded that foreign workers have positive and significant impact on productivity although smaller than that of domestic workers. This study adopted the Cobb-Douglas production function and employed the vector autoregressive (VAR) model using the value added and employment data from 1972 to 2005.

Pant et. al (2011) studied the effect of labour migration from three South Asia countries namely Nepal, India and Bhutan on poverty and agricultural production in the light of recent economic crisis. They appraised the role of foreign employment on growth, poverty and agricultural development. The results from Nepalese case study showed that migration decreased poverty and agricultural production whereas the Indian case study showed that foreign employment helped in reducing poverty and also promoted agricultural growth. In Bhutan, domestic migration is found to decrease poverty.

It can be seen that previous research adopted various approaches such as survey, descriptive analysis, and Cobb-Douglas production approach. However, the Input-Output (I-O) analysis provides a more comprehensive structure and in depth analysis as it has detailed structure of the economy. I-O table has been used widely to examine the relationship and interdependencies of the economy activities. Studies using this method to investigate the contribution of workers towards economy were found conducted by Oxford Economics (2009), Clemens (2013), Hussain (2011) and Poo (2012).

Oxford Economics (2009) investigated the economic, labour market and skills impacts of migrant workers in Northern Ireland in 2008 and found that the employment multiplier from pre-2004 migrants to post-2004 migrants was more

than 1 and increased over time. In this case, the foreign workers were highly populated in manufacturing industry.

In the United States of America, it is found that foreign workers benefit North Carolina's economy and create jobs for Americans. The employment multiplier for Type I and Type II are astonishingly high with 9.527 and 13.815 respectively for the subsector Crop and Animal Production. This indicates that foreign workers do contribute significantly in the particular sector ("How Foreign Workers Help American Farm Grow Crops - and the Economy", 2013). However, this paper applied the multiplier by Regional Input-Output Modelling System (RIMS II) that created to estimate the effect of local demand shocks after gross output, value added, earnings and employment regions of the United States.

In Malaysian labour market studies, Hussain (2011) adopted the input-output analysis to study the relationship between employment and Malaysian economic sectors. Using Input-Output tables from 1983 to 2000, he concluded that the biggest employment multiplier effect was from agriculture sector. In addition, Poo et. al (2012) also used the Input-Output analysis to study manpower requirement of Malaysian manufacturing sector under the Third Industrial Master Plan. They forecasted that there will be heavy demand for professional, technical and related workers and administrative and managerial workers in that sector.

To date, the studies on extended input-output analysis in Malaysia are seen to be scarce. Although Hussain (2011) opted for input-output analysis to explore the relationship between employment and Malaysian economic sectors, the disaggregation between foreign and local workers in Malaysia is yet to be explored. Besides that, Poo et. al (2012) which used input-output analysis to study the manpower requirement in Malaysia focussed only on Manufacturing sector. This study adds to the emerging literature on the input-output analysis in Malaysia.

3. DATA SOURCES AND METHODOLOGY

3.1 Data Sources

The vector of local and employment workers data are obtained from the Economic Census 2005 and 2010, conducted by the Department of Statistics, Malaysia. Data from Input-Output Tables 2005 and Input-Output Tables 2010 are also used. It is suggested that the ideal calculation of coefficient should be obtained from the constant Input-Output Tables. Dietzenbacher and Temurshoev (2012), however, found out that the impact analysis on gross output and employment in Denmark using the current and constant prices of Input-Output Tables were very similar. Therefore, obtaining the coefficient from basic Input-Output tables for this paper is deemed plausible. The classification of those tables have been aggregated into 120 economic sectors using Malaysia Standard Industrial Classification (MSIC) 2008.

3.2 Methodology

The basic equation of Leontief Inverse which also known as the basic multiplier model in input-output is written as follows:

$$Q_t = (I-A)^{-1} * f_t \quad (1)$$

Q = Vector of domestic product
I = Identity Matrix
A = Domestic input coefficient matrix
f = Vector of final demand
t = 2005, 2010

From equation (1), we can extend the model to examine other multiplier effect such as output multiplier, income multiplier and employment multiplier. For the purpose of this study, only the employment multiplier model is chosen, hence written as follows:

$$Q_t = L_t * (I-A)^{-1} * f_t \quad (2)$$

L_t = Vector of employment divided by Value Added[2]

L_t comprises of local employment (L_t^L) and foreign employment (L_t^F).

$$L_t = L^L + L_t^F \quad (3)$$

By substituting equation (3) for L_t in equation (2), thus the production induced by both categories of local and foreign employment is:

$$Q_t = (L_t^L + L_t^F) * (I-A)^{-1} * f_t \quad (4)$$

From equation (4), the production induced by local employment is written as:

$$Q_t^L = L_t^L * (I-A)^{-1} * f_t \quad (4a)$$

and the production induced by foreign employment is written as:

$$Q_t^F = L_t^F * (I-A)^{-1} * f_t \quad (4b)$$

Equation (4a) and (4b) enables us to analyse the contribution of local and foreign workers in the economy for both 2005 and 2010.

[2] As used by Dumaua (2010) to calculate the employment multiplier effect.

4. FINDINGS AND DISCUSSION

4.1 The Contribution of Local and Foreign Workers, 2005 & 2010

The contribution of local and foreign workers in the economy can be studied by looking at the employment multiplier effect. The employment multiplier effect can be interpreted as the number of jobs created in the Malaysian economy, resulted from an increase of RM1.0 million of output.

In 2005, local employment multiplier effect was larger compared to foreign employment multiplier effect in all five main sectors. Top three local employment multiplier effect were found in the Agriculture and Manufacturing sectors specifically in Paddy, Rubber Products and Builders' carpentry and joinery sectors. However in 2010, Agriculture sector recorded higher foreign employment multiplier effect compared to local employment multiplier effect. In 2010, foreign employment multiplier effect was larger compared to local employment multiplier effect in Agriculture and Manufacturing industry specifically in Oil Palm, Fruits, Flower Plants and Grain Mills.

4.2 The Contribution of Foreign Workers in Malaysia, 2005 & 2010

The employment multiplier provides the information on the contribution of foreign workers towards Malaysia's economy. By ranking the foreign employment multiplier effect, it can be seen the sectors of which foreign workers contributed most towards Malaysia's economic sectors. Table 4.1 presents the top five sectors that received the highest contribution from foreign workers in Malaysia in 2005 and 2010, sorted by its rank.

In 2005, the sector that ranked first was Other Agriculture sector with employment multiplier effect of 50.09. Most of the top 5 sectors were a mixed of agriculture and construction industries.

The same pattern appeared in 2010 where the contributions of foreign workers were recognized in both agriculture and construction industries, as well as in manufacturing industry. In 2010, the first ranked sector was Paddy with employment multiplier effect of 44.55. It shows that foreign workers contributed the most in Agriculture Industry in both 2005 and 2010.

Table 4.1: Top 5 Sectors Contributed by Foreign Workers, 2005 & 2010

Year	2005		2010	
Rank	**Economic activity**	**Foreign Employment Multiplier Effect**	**Economic activity**	**Foreign Employment Multiplier Effect**
1	Other Agriculture	50.09*	Paddy	44.55
2	Food Crops	36.57	Food Crops	23.2
3	Non Residential	22.73	Residential	22.42
4	Residential	19.29	Non Residential	20.98
5	Fruits	18.1	Wooden Products	20.75

*An increase in RM1.0 million of output will induce 50.09 jobs for Other Agriculture activity.

Apart from analysing which sector did foreign workers contributed most, the employment multiplier effect also provides the information on which sectors that foreign workers contributed least. Based on Table 4.2, in 2005 the sector that ranked 120th was Amusement and recreational services with employment multiplier effect of 0.38. The table portrayed that most of the bottom five sectors were in the services industry.

Meanwhile, for 2010, the sector that ranked 120th was Other Financial Institution with employment multiplier effect of 0.28. It can be seen that the sectors that received least contribution of foreign workers in 2010 were in the Services, Utilities and Mining industries in 2010. Thus, it can be concluded that foreign workers contributed the least in Services Industry in both 2005 and 2010.

Table 4.2: Bottom 5 Sectors Contributed by Foreign Workers, 2005 & 2010

Year	2005		2010	
Rank	**Economic activity**	**Foreign Employment Multiplier Effect**	**Economic activity**	**Foreign Employment Multiplier Effect**
120	Amusement and Recreational Services	0.38	Other Financial Institution	0.28
119	Research and Development	0.46	Insurance	0.31
118	Business Services	0.52	Electricity & Gas	0.33
117	Crude Oil and Natural gas	0.56	Crude Oil and Natural Gas	0.34
116	Insurance	0.73	Research and Development	0.34

4.3 Most rising contribution from foreign workers, 2005 to 2010

The sector that receives the highest contribution throughout 2005 to 2010 can be detected by taking the difference between foreign employment multiplier effect in 2005 and 2010. The contribution of Paddy sector drastically increased from 2005 to 2010 with the highest difference of employment multiplier effect 42.04, followed by Grain Mills sector with the difference of 16.85. The table below portrayed that most rising contribution from foreign workers varied in the Agriculture and Manufacturing industry. These initial findings are seen to be consistent with Fariastuti and Mohd (2013) that the share of migrant workers in plantations (agriculture) and manufacturing industry has increased from 2000 to 2010.

Table 4.3: Most rising contribution from foreign workers, 2005 to 2010

Rank	Economic activity	Foreign Workers Multiplier Effect		Sector Dependency
		2005	2010	
1	Paddy	2.51	44.55	42.04
2	Grain Mills	3.29	20.14	16.85
3	Wooden products	7.24	20.75	13.51
4	Electrical machinery & apparatus	2.89	13.47	10.58
5	Rubber Products	3.92	11.98	8.06

5. CONCLUSION

Although foreign workers in Malaysia ease the labour shortage problem in Malaysia, their presence is believed to contribute towards adverse social and economic effect. Nevertheless, the employment multiplier results in this paper suggested that the contribution of foreign workers was found relatively huge in agriculture, construction and manufacturing industry for 2005 and 2010. In both 2005 and 2010, agriculture industry remained as the top industry which received the highest contribution from foreign workers, presumably due to lack of interest of local workers to join the industry and lower wages offered.

In addition, although this study does not differentiate the contribution between expatriate and non-expatriate, the agriculture industry indicated larger foreign employment multiplier compared to professional (or white collar) sectors, which further suggest that foreign workers in Malaysia are non-expatriate.

These findings are valuable information for national analysts and planners who need to know in which sectors foreign employment are needed for further analysis and planning. Therefore, further studies should be conducted in the future to obtain an in-depth analysis on the contribution of foreign workers in Malaysia.

Although this paper disaggregates the importance of foreign and domestic workers in the economy, it does not separate the effect of skilled and unskilled foreign workers. The number of foreign workers in the informal sectors is also a concern. If that argument is taken into account, the results might be different.

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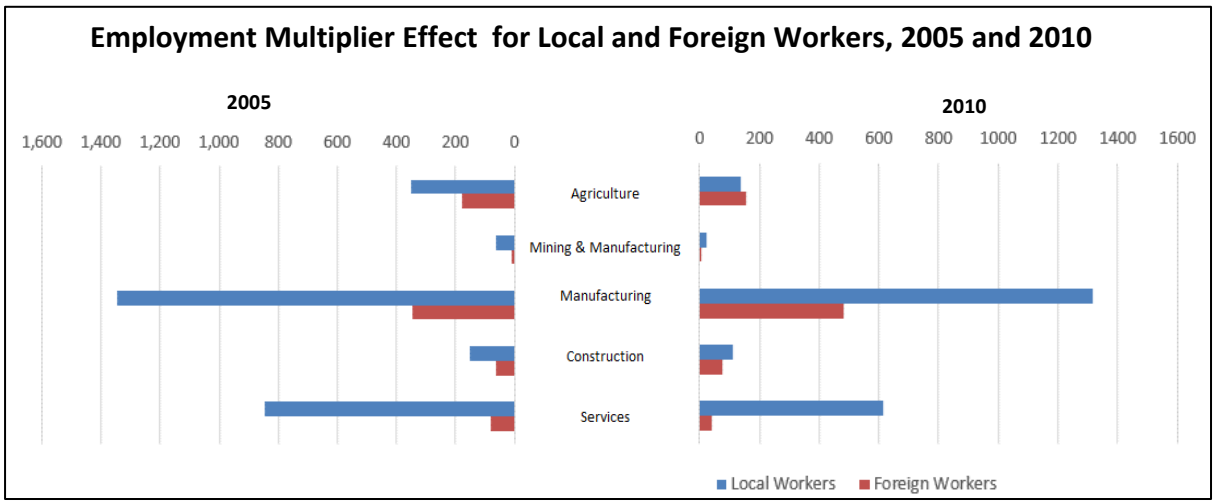
APPENDIX



Source: Department of Statistics Malaysia, DOSM. Economic Census 2005 and 2010.