

Structural Comparison of Small and Medium Enterprises in Malaysia and Thailand

Chakrin Utit^{a*}, Mohd Yusof Saari^{a,b}, Muhammad Daaniyall Abd Rahman^{a,b} and Umi Zakiah Norazman^b

^aFaculty of Economics and Management, Universiti Putra Malaysia, Malaysia

^bInstitute of Agricultural and Food Policy Studies, Universiti Putra Malaysia, Malaysia

* Corresponding author: uchakrin@gmail.com

Abstract

There is a growing concern globally on the importance of small and medium enterprises (SMEs) on the economic growth in developing countries. Composition of SMEs in developing countries is large, but the contribution to value added is found to be relatively lower than non-SMEs. Empirical evidences indicate that weak linkages or low level of interdependencies between SMEs and non-SMEs is crucial in explaining the low performance of SMEs. This paper attempts to compare the structures of SMEs in Malaysia and Thailand to assess the existence of this issue. For both economies, SMEs represent more than 98% of their total number of establishments in 2015 and have emerged as a highly vibrant and dynamic driver for the economic growth. For empirical analysis, we run two SME input-output (SME-IO) tables that split sectors into SMEs and non-SMEs in both countries. We have constructed SME-IO for Malaysia, and for Thailand, the database is developed by the Office of SMEs Promotion of Thailand (OSMEP). Using the databases, novel empirical applications are applied. Results from the analysis suggest that the production structures in both countries are facing the weak linkages issue.

Keywords: Input-output analysis, SMEs, linkages, structural comparison

JEL codes: D57, L11

1. INTRODUCTION

Globally, there is a growing concerns on the importance of small and medium enterprises (SMEs) on the economic growth particularly in developing countries. The increasing attention on SMEs is mainly attributed by their large composition from the total number of establishment and their contribution to employment opportunities. On average, it is estimated that 95% of the total establishments across the world are SMEs and they are responsible for the majority of employment creation (Ayyagari et. al., 2007 and 2011). Among the members of the Association of Southeast Asian Nations (ASEAN), SMEs make up more than 89.0% of establishments and provide more than 52.0% of employment opportunities (ERIA, 2014).

In Malaysia and Thailand, SMEs have emerged as a highly vibrant and dynamic driver of growth. Based on the current statistics, SMEs are found to account 98.5% (907,065 establishments) of total establishments in Malaysia in 2015 (Department of Statistics Malaysia, 2017), while it represent 99.7% (2,765,966 establishments) of the establishments in Thailand in the same year (The Office of SMEs Promotion, 2018). As a result from their tremendous size in the economy, they are capable of generating 64.7% of employment in Malaysia and 80.3% for Thailand.

Despite their sizable share, the economic pie of SMEs in Malaysia and Thailand are notably low in comparison to large firms or non-SMEs. In total, they only account for 42.7% and 39.6% of the total national value added in 2015. Most of the value added generated in these countries come from non-SMEs that only represent 1.5% of the Malaysian establishments and 0.3% of Thai establishments. By comparison to another developing country such as China, their SMEs are responsible for creating more than 60.0% of the national value added in 2012 (Gao and Banerji, 2015).

Based on the comparison between the size of SMEs and their relative contribution on value added in Malaysia and Thailand, numbers of questions can be raised as to why SMEs are not performing well in these countries. One of the most widely discussed factor is the weak linkages between SMEs and non-SMEs. Hussain (2000) stressed that this issue has become a barrier to the SME operators in facing an ever-growing, competitive and globalised economic arena.

Further review on the existing literatures shows that the same issue has garnered the interest of researchers from different part of the world. Among the list of studies conducted in Asia are the studies by Cho (1997), Rehman (2016) and Canare et. al. (2017), Oceania (Rothkegel et. al., 2006), Africa (Hussain, 2000; Ndemo and Smallbone, 2015), America (Alvarez and Barney, 2001) and Europe (Sulej et. al., 2001). In some of these studies, the linkages issue is viewed from the perspective of partnership and alliances between SMEs and non-SMEs.

To assess the existence of the weak linkages issue between SMEs and non-SMEs in Malaysia and Thailand, this paper is prepared to compare the structure of SMEs in both countries. For empirical analysis, an extended input-output table for SMEs is developed for Malaysia. For the case of Thailand, the database is obtained from the Office of SMEs Promotion (OSMEP) (n.d.). Throughout this study the databases will be termed as SME input-output table (SME-IO). Using the databases, novel empirical applications are applied.

In relation to policy purposes, this paper provides two main contributions. First, it develops a new database for SMEs in Malaysia that is based on the national input-output table. The development of SME-IO is based on the work of Utit et. al. (2016). Second, it compares the SMEs structure between two developing countries in Southeast Asian region. Through structural comparison, we are able to identify whether Malaysia and Thailand are facing the issue of weak linkages in the course of developing their SMEs.

This paper is structured into five sections. Section 2 discusses the framework of SME-IO in Malaysia and Thailand. Section 3 details the methodological approach. Section 4 presents the main findings from our analysis, and Section 5 provides the concluding remarks.

2. FRAMEWORK OF SME INPUT-OUTPUT TABLE

2.1 Framework of SME Input-Output Table

The first SME-IO for Malaysia is developed for 2010 base year and is pioneered by Utit et. al. (2016). This database covers 176 sectors that include 58 sectors for each small, medium and large size, and two of the sectors are classified as the rest of sectors (RoS). In this case, RoS classification refers to the sectors that are unable to be segregated into the three sizes. There are two types of sectors that fall under this limitation. First, sectors that have less number of players such as Crude Oil and Natural Gas and second is the public sectors. The main reason behind this limitation is the confidentiality policy that has prevented the Department of Statistics Malaysia from releasing the related industrial micro data. Thus, the estimation process does not include the stated sectors.

In contrast to Malaysia, Thailand has developed two SME-IO. Their first SME-IO is developed for 2005 base year and the second for 2010 by the Office of SMEs Promotion (2016). In total, the database covers 360 sectors that include 180 sectors for each group of SMEs and non-SMEs. However, only the aggregated version of Thai SME-IO is available for public and it consists of only 58 sectors for both SMEs and non-SMEs. Aside from this limitation, research articles regarding the development and empirical applications of Thai SME-IO is extremely lacking since these databases are only used for the production of white papers to inform ministries and government agencies on the performance and issues faced by SMEs. As of the present days, only the 2005 version is accessible by public, while the 2010 version is yet to be released.

For the discussion on the difference between the SME-IO in Malaysia and Thailand, Table 2.1 and Table 2.2 present their simplified framework. For additional information on the definition of SMEs used in both countries, Appendix 2.1 gives the details.

Table 2.1 Simplified SME-IO framework for Malaysia, 2010

		Intermediate demand				Final demand	Total output
		S	Md	L	R		
Intermediate input (Z)	Small (S)	\mathbf{z}^{SS}	\mathbf{z}^{SMd}	\mathbf{z}^{SL}	\mathbf{z}^{SR}	\mathbf{f}^S	\mathbf{x}^S
	Medium (Md)	\mathbf{z}^{MdS}	\mathbf{z}^{MdMd}	\mathbf{z}^{MdL}	\mathbf{z}^{MdR}	\mathbf{f}^{Md}	\mathbf{x}^{Md}
	Large (L)	\mathbf{z}^{LS}	\mathbf{z}^{LMd}	\mathbf{z}^{LL}	\mathbf{z}^{LR}	\mathbf{f}^L	\mathbf{x}^L
	Rest of Sectors (R)	\mathbf{z}^{RS}	\mathbf{z}^{RMd}	\mathbf{z}^{RL}	\mathbf{z}^{RR}	\mathbf{f}^R	\mathbf{x}^R
Import (m)		\mathbf{m}^S	\mathbf{m}^{Md}	\mathbf{m}^L	\mathbf{m}^R		
Indirect tax (t)		\mathbf{t}^S	\mathbf{t}^{Md}	\mathbf{t}^L	\mathbf{t}^R		
Value added (v)		\mathbf{v}^S	\mathbf{v}^{Md}	\mathbf{v}^L	\mathbf{v}^R		
Total input (x')		\mathbf{x}'^S	\mathbf{x}'^{Md}	\mathbf{x}'^L	\mathbf{x}'^R		

Source: Utit et. al. (2016)

Table 2.2 Simplified SME-IO framework for Thailand, 2005

		Intermediate demand		Final demand	Total output	Total Import
		S	N			
Intermediate input (Z)	SMEs (S)	\mathbf{z}^{SS}	\mathbf{z}^{SN}	\mathbf{f}^S	\mathbf{x}^S	(\mathbf{m}^S)
	Non-SMEs (N)	\mathbf{z}^{NS}	\mathbf{z}^{NN}	\mathbf{f}^N	\mathbf{x}^N	(\mathbf{m}^N)
Indirect tax (t)		\mathbf{t}^S	\mathbf{t}^N			
Value added (v)		\mathbf{v}^S	\mathbf{v}^N			
Total input (x')		\mathbf{x}'^S	\mathbf{x}'^N			

Note: The use of parentheses () indicate negative values

Source: Based on author's illustration

Based on these frameworks, there are two distinct characteristics between the database produced for Malaysia and Thailand. First, the development of SME-IO for Malaysia involves the segregation of an aggregated sector in national input-output table 2010 into small, medium and large sectoral groups. For Thailand, the expansion of their national input-output table only captures SMEs and Non-SMEs which are essentially large firms.

Second, import component is treated differently in Malaysia and Thailand. The compilation of national input-output table in Malaysia separates the intermediate input component into two parts, domestically sourced input and imported input. Thailand on the other hand does not separate import from their total intermediate input requirement. Thus, the development of SME-IO in each country follows the assumption used in the process of compiling their national input-output table.

2.2 Development of SME Input-Output Table

To better understand how SME-IO can be developed, this section is separated into two parts. Section 2.2.1 discusses the development of a refined SME-IO for Malaysia. Based on the work of Utit et. al. (2016), the SME-IO is refined to add more segregated information especially to include the information for micro size sectors. Section 2.2.2 details the re-estimation of SME-IO for Thailand to separate the proportion of imports, and trade and transport margin from its production matrix.

2.2.1 Development of SME Input-Output Table for Malaysia

The development of SME-IO for Malaysia follows the work of Utit et. al. (2016) and is facilitated by the availability of industrial micro data that are accessible from the national Economic Census (Department of Statistics Malaysia, 2012). The major difference between the newly developed SME-IO as compared to previous work of Utit et. al. (2016) lies on the introduction of new group of sectors which is the micro size sectors. Initially, the past version of SME-IO combines the micro size sectors with the small size sectors. Thus, the new version of the database provide a better coverage of SMEs in Malaysia.

The estimation of the SME-IO involves four main stages. First, the estimation process starts with the segregation of the total output for broad economic sectors from the national input-output table into micro, small and medium size groups. This process is conducted by using the output weightage from the industrial micro data. For large size sectors, their output are estimated based on the difference between the output from the national database and estimated output of micro, small and medium size sectors. The use of output weightage in the segregation activity is supported by the role of the national statistics office that has classified every variables in industrial micro data into micro, small, medium and large groups.

In the following stage, we estimate the amount of SMEs output that are consumed by final demand components. Due to data unavailability, the estimation process is conducted by utilising the output proportion. In this case, it is assumed that output deliveries to final demand components are influenced by the size of sectors. This assumption is backed by the study of Pagano (2003) which had proven that there is a robust relationship between the level of output with the sectoral sizes in the economy. In detailed, output proportion is used to estimate the amount of SMEs output delivered to total final demand, exports, gross fixed capital formation, government consumption and private consumption. For the change in inventories, it is estimated based on the difference between the total final demand and the rest of its components.

Following from final demand components, we estimate the primary input components that include value added, imports and indirect tax. For the estimation of value added, we use the value added weightage from the industrial micro data. The weightage are applied to segregate the total amount of value added from each sector into the groups of micro, small and medium size. Then, value added for large size sectors are estimated based on the difference between total national value added and SMEs value added. Next, the procedures for the estimation of imports and indirect tax is based on

the utilisation of output weightage. This assumes that the amount of imported input required and indirect tax paid are determined by the output sizes.

Finally, the last components that we estimate are the total intermediate demand and intermediate input for each micro, small, medium and large size sectors. The components are residually estimated based on the difference between total output and total final demand for intermediate demand, and the difference between total input and total primary input for intermediate input. Then, the production matrix is estimated using the RAS technique. However, before this technique can be applied, the national input-output structure is decomposed into the structure of micro, small, medium and large size sectors using the proportion of intermediate demand and intermediate input for all sectoral sizes. In total, the estimated SME-IO covers 405 sectors. Each group of sectoral sizes have 93 sectors and 33 sectors are classified as RoS due to the confidentiality issue.

2.2.2 Re-estimation of SME Input-Output Table for Thailand

The discussion in section 2.1 has clearly defined that the SME-IO for Thailand does not share the same framework with Malaysia. For such reason, the Thai database needs to be re-estimated to serve the purpose of this paper. Re-estimation process is made possible through the availability of national input-output table of Thailand, domestic input-output matrix and import matrix. These information are obtained from Office of the National Economic and Social Development (n.d).

Similar to the development process of SME-IO for Malaysia, the re-estimation of SME-IO for Thailand also involve four different stages. The first stage starts with the segregation of the total output from the national input-output table into SMEs and non-SMEs. This process is conducted by using the output weightage for SMEs and non-SMEs from the existing SME-IO of Thailand. However, the segregation process cannot separate the group of SMEs into micro, small and medium size sectors as the current SME-IO does not include this type of segregation.

Next, we attempt to estimate the amount of output from SMEs and non-SMEs that are delivered to final demand components. In this stage, the weightage for each of the demand components are retrieved from the current SME-IO to provide the proportion of SMEs non-SMEs. For example, the total final demand for the new SME-IO is estimated by multiplying the final demand from the national database with the related weightage from the SME database developed by OSMEP.

The same procedures as the estimation of final demand components are applied for the estimation of primary input components such as value added and indirect tax. For imports, the current SME-IO have combined this information with the amount of domestic input in the production matrix. To separate these two components, the information from import matrix is used to provide the total amount of import by sectors. Then, the import amount is expanded into the import by SMEs and non-SMEs sectors using the output weightage.

In the final stage, total intermediate demand and total intermediate input are residually estimated through the differences between total output and total final demand, and

total input and total primary input. For the expansion of the national production matrix into SMEs and non-SMEs, the same process as detailed for the case of Malaysian SME-IO is applied. As the summary, the re-estimated SME-IO for Thailand covers the same list of sectors as the existing SME-IO with the only difference for the treatment of imports.

2.3 Harmonisation of SME Input-Output Table

The discussion in section 2.1 and section 2.2 shows that both of SME-IO does not share the same sectoral coverage. For the purpose of this paper, the differences between the two databases are bridged through harmonisation process. The process involves two main research activities. First, the list of sectors covered in both countries are mapped for comparability purposes. The mapping process intends to match the sectors available in Malaysia and Thailand. In this case, several sectors in SME-IO Malaysia are aggregated to match the number of sectors in Thailand. For Thailand, sectors that are available in their SMEs and non-SMEs groups, but are classified as RoS in Malaysia, are grouped as RoS. Second, the list of micro, small and medium size sectors in Malaysia are aggregated into SMEs. The aggregation process into SMEs is performed since the database developed by OSMEP does not separate the sectors into micro, small and medium size.

As the consequences from the harmonisation process, the framework of both of the databases and the list of sectors available are now standardised. The new simplified framework of the SME-IO is given in Table 2.3. Table 2.4 presents the number of sectors covered in each broad sector and full list is given in Appendix 2.2.

Table 2.3 Harmonised SME-IO framework for Malaysia and Thailand

		Intermediate demand			Final demand	Total output
		S	N	R		
Intermediate input (Z)	SMEs (S)	\mathbf{z}^{SS}	\mathbf{z}^{SN}	\mathbf{z}^{SR}	\mathbf{f}^S	\mathbf{x}^S
	Non-SMEs (N)	\mathbf{z}^{NS}	\mathbf{z}^{NN}	\mathbf{z}^{NR}	\mathbf{f}^N	\mathbf{x}^N
	Rest of Sectors (R)	\mathbf{z}^{RS}	\mathbf{z}^{RN}	\mathbf{z}^{RR}	\mathbf{f}^R	\mathbf{x}^R
Import (m)		\mathbf{m}^S	\mathbf{m}^N	\mathbf{m}^R		
Indirect tax (t)		\mathbf{t}^S	\mathbf{t}^N	\mathbf{t}^R		
Value added (v)		\mathbf{v}^S	\mathbf{v}^N	\mathbf{v}^R		
Total input (x')		\mathbf{x}'^S	\mathbf{x}'^N	\mathbf{x}'^R		

Table 2.4 Number of sectors covered in SME-IO for Malaysia and Thailand

Size	Sector ^a					Total
	AGR	MIN	MAN	CON	SER	
Panel A. Malaysia						
SMEs	5	3	22	1	7	38
Non-SMEs	5	3	22	1	7	38
Rest of Sectors	1					1
Panel B. Thailand						
SMEs	5	3	22	1	7	38
Non-SMEs	5	3	22	1	7	38
Rest of Sectors	1					1

Note: AGR = Agriculture, Forestry & Fishery; MIN = Mining & Quarrying; MAN = Manufacturing; CON = Construction; SER = Services

2.4 Data Sources

To achieve the objective of this paper, data from five main sources are utilised. It includes the data from the Department of Statistics of Malaysia, the Office of SMEs Promotion and Office of the National Economic and Social Development of Thailand.

For the development of SME-IO for Malaysia, data are obtained from two sources. The first data source is from the national input-output table Malaysia 2010. Input-output table in Malaysia is published by the Department of Statistics Malaysia (2014) and consists of 124 sectors. This table is used as the benchmark data for the development of SME-IO. Second data source is obtained from the Economic Census. This data is supplied by the Department of Statistics Malaysia (2012) in the form of industrial micro data. The data consists of the segregated information for micro, small, medium and large size sectors in Malaysia. Among the variable listed in this data are income, expenditure, stocks, assets, employment, salary and wages, sales, output, revenue, value added and number of establishments by sectoral sizes.

The re-estimation of SME-IO for Thailand also requires extensive data from various sources. The first data is obtained from the Thai SME-IO that is developed by the Office of SMEs Promotion of Thailand (n.d.) for 2005 base year. To facilitate the re-estimation process, Office of the National Economic and Social Development (n.d.) has the second and third data sources. The data include the domestic input-output matrix 2005 and import matrix 2005. Domestic input-output matrix is the subset of the national input-output table of Thailand and it is used to provide the proportion of domestically sourced inputs. Meanwhile, import matrix 2005 details the amount of imports by sectors in the national input-output table of Thailand and it provides the basis for the separation into the imports by SMEs and non-SMEs sectors.

3. METHODOLOGY

Before exploring into the list of analysis undertaken, we will discuss the interlinkages aspect between SME-IO and the national input-output table. This interlinkages will provide the basis for the modelling process. Based on the harmonised framework of SME-IO for Malaysia and Thailand as presented in Table 2.3, the interlinkages can be shown by the following accounting identities.

for intermediate demand,

$$\mathbf{Z} = \mathbf{Z}^S + \mathbf{Z}^N + \mathbf{Z}^R$$

$$\mathbf{Z}^S = \mathbf{Z}^{SS} + \mathbf{Z}^{SN} + \mathbf{Z}^{SR}; \mathbf{Z}^N = \mathbf{Z}^{NS} + \mathbf{Z}^{NN} + \mathbf{Z}^{NR}; \mathbf{Z}^R = \mathbf{Z}^{RS} + \mathbf{Z}^{RN} + \mathbf{Z}^{RR}$$

for import,

$$\mathbf{m} = \mathbf{m}^S + \mathbf{m}^N + \mathbf{m}^R$$

for indirect tax,

$$\mathbf{t} = \mathbf{t}^S + \mathbf{t}^N + \mathbf{t}^R$$

for value added,

$$\mathbf{v} = \mathbf{v}^S + \mathbf{v}^N + \mathbf{v}^R$$

for final demand,

$$\mathbf{f} = \mathbf{f}^S + \mathbf{f}^N + \mathbf{f}^R$$

for output

$$\mathbf{x} = \mathbf{x}^S + \mathbf{x}^N + \mathbf{x}^R$$

Based on the accounting identities, it explains that the total summation of the components in SME-IO mirrors the national input-output table. As such, we may use the standard input-output model to analyse the database for Malaysia and Thailand. For the application of the models, two main analysis are conducted. The analysis includes structural comparison analysis for both production and output structure, and multiplier analysis.

Structural comparison analysis is conducted to assess two important information from the databases. The first part is to observe the production structure of SMEs and the linkages between SMEs and non-SMEs in the economy. This analysis will answer the question of whether Malaysia and Thailand are also facing the weak linkages issue that are being experienced by SMEs in other countries. In addition to input structure analysis, the second part will look specifically at the output structure. Through this analysis, we are able to identify the role of SMEs and non-SMEs sectors in supporting the growth of production sectors and satisfying the demand of final consumers. Both of the analysis does not involve any special modelling technique as they are based on simple descriptive analysis.

The next analysis is the multiplier analysis. Two types of multipliers are analysed in this paper which include output and value added multiplier. These multipliers are calculated for SMEs, non-SMEs and average national (without distinction between sizes). The results from this analysis are then compared to analyse their magnitude. Based on the accounting identities between SME-IO and national input-output table, we may start modelling for the multiplier analysis using the following equation.

$$\mathbf{x} = \mathbf{Ax} + \mathbf{f} \tag{1}$$

where, \mathbf{x} represent the vector of output, \mathbf{A} ($\mathbf{A} = \mathbf{Z}\hat{\mathbf{x}}^{-1}$) is known as the input-output coefficient. The input-output coefficients show the amounts of inputs that a sector

purchased from other sectors per unit of its own output. Solving for \mathbf{x} , we obtain total production delivered to final demand:

$$\mathbf{x} = (\mathbf{I} - \mathbf{A})^{-1}\mathbf{f} \quad (2)$$

where \mathbf{I} is the identity matrix, and $(\mathbf{I} - \mathbf{A})^{-1}$ is known as the Leontief inverse matrix. The Leontief inverse matrix represents the total production every sector must generate in order to satisfy its final demand. In other words, the coefficients are the amount by which sector i must change its production level to satisfy an increase of one unit in the final demand from sector j . Thus, each element of the Leontief inverse matrix contains the total requirement of an industry to meet its final demand. We can also translate the total requirement amount into output multiplier.

Now, let us expand the standard input-output model in equation (2) to capture the value added multiplier. Introducing a vector of value added coefficient \mathbf{h} , which is derived by dividing the amount of value added \mathbf{v} of the j th sector by total input to that sector x_j . In matrix notation, \mathbf{h} becomes:

$$\mathbf{h} = \mathbf{v}\mathbf{x}^{-1} \quad (3)$$

Each element of value added coefficient indicates value added per unit of output produced by each sector. By post-multiplying the diagonalised value added coefficient, $\hat{\mathbf{h}}$ with the Leontief inverse matrix, we obtain the value added multiplier.

4. RESULTS AND DISCUSSION

4.1 Overview of SMEs Economic Contributions

SMEs are often cited as the backbone of developing countries. Despite their smaller economic contribution as compared to non-SMEs, they are still significantly important as the source of growth. Table 4.1 presents the contribution of SMEs on output, value added and imports in Malaysia and Thailand.

Based on Table 4.1, there are three major observation that can be highlighted. First, without any doubt, the contribution of SMEs in both countries are considerably low for both output and value added. However, it is worth to be noted that the contribution level is primarily determined by the size of the firms itself. Commonly, larger firms tend to have higher efficiency and productivity rate due to the employment of cutting-edge technology in their production activities.

Second, despite their smaller economic contribution, SMEs in Malaysia and Thailand are found to have larger value added content in their output. In general, value added content is partly determined by the role of imports. However, looking at the current employment statistics by SMEs as described in Section 1, we may conclude that employment factor is more influential in determining the value added content.

Third, imports content in output are seen to increase along with the size of firm. For the case of SMEs in Malaysia and Thailand, their import contents are recorded at 15.4%, while it constitutes a quarter of output for non-SMEs which are predominantly

large firms. Nevertheless, larger import content does not signify the weak point of any firms, but it rather shows that the firms are highly integrated with the global value chain.

To better describe the differences between SMEs in Malaysia and Thailand, section 4.2 compares and discusses their structures. As the continuation, section 4.3 presents the multiplier impacts of SMEs in both countries.

Table 4.1 Contribution of SMEs on output, value added and imports in Malaysia and Thailand

	Malaysia						Thailand					
	Output		Value Added		Imports		Output		Value Added		Imports	
	RM Bil	%	RM Bil	%	RM Bil	%	Bil Baht	%	Bil Baht	%	Bil Baht	%
Panel A. SMEs												
Agriculture, Forestry & Logging	55.28	2.66	32.86	4.06	5.36	1.33	-	-	-	-	-	-
Mining & Quarrying	5.43	0.26	3.75	0.46	0.46	0.11	33.56	0.18	17.70	0.23	0.85	0.02
Manufacturing	247.98	11.96	43.22	5.34	55.12	13.68	2,592.80	14.01	555.03	7.13	789.12	20.28
Construction	19.77	0.95	6.34	0.78	3.73	0.92	474.83	2.57	92.67	1.19	104.03	2.67
Services	321.68	15.51	167.78	20.74	35.40	8.78	3,282.99	17.73	2,104.86	27.05	86.81	2.23
Total SMEs	650.13	31.34	253.94	31.39	100.07	24.83	6,384.18	34.49	2,770.26	35.59	980.81	25.21
Panel B. Non-SMEs												
Agriculture, Forestry & Logging	68.59	3.31	42.80	5.29	5.81	1.44	1,106.28	5.98	675.46	8.68	64.35	1.65
Mining & Quarrying	101.76	4.91	85.02	10.51	5.89	1.46	274.98	1.49	189.22	2.43	4.31	0.11
Manufacturing	557.26	26.87	124.28	15.36	199.47	49.49	6,029.77	32.57	1,533.44	19.70	2,500.87	64.27
Construction	71.08	3.43	21.50	2.66	12.12	3.01	170.61	0.92	57.40	0.74	36.20	0.93
Services	181.67	8.76	78.82	9.74	27.25	6.76	2,052.84	11.09	1,000.45	12.85	162.67	4.18
Total Non-SMEs	980.35	47.26	352.42	43.57	250.53	62.16	9,634.49	52.05	3,455.96	44.41	2,768.39	71.15
Panel C. Rest of Sectors												
Rest of Sectors	443.69	21.39	202.53	25.04	52.45	13.01	2,492.79	13.47	1,556.58	20.00	141.89	3.65
Total Economy	2,074.17	100.00	808.89	100.00	403.06	100.00	18,511.46	100.00	7,782.80	100.00	3,891.10	100.00

4.2 Structural Comparison of SMEs in Malaysia and Thailand

Structural comparison analysis is conducted with the aims to compare the structure of SMEs in Malaysia and Thailand. Section 4.2.1 presents the results from the analysis on the production structure of SMEs. Next, section 4.2.2 discusses the results for the analysis on the output structure. Based on this analysis, we are able to observe the destination of output from SMEs and non-SMEs in the economy.

4.2.1 Production Structure of SMEs

Information for the interdependency between SMEs and non-SMEs in the process of acquiring inputs for production activities can be analysed through their production or input structure. In general, there are three types of input required during the production activities. The first type of input is the intermediate inputs from the domestic market, second is the intermediate inputs from imported sources and third are the factors of production. Through this analysis, the factors of production is represented by the value added. Table 4.2 presents the outcomes from the analysis. The outcome presented in this section are summarised for the total SMEs and non-SMEs. Full results are given in Appendix 4.1 and Appendix 4.2.

Table 4.2. Production structure comparison between SMEs and non-SMEs in Malaysia and Thailand

	Malaysia		Thailand	
	RM Billion	%	Billion Baht	%
Panel A. SMEs				
SMEs	161.40	24.83	758.61	11.88
Non-SMEs	94.72	14.57	1,476.57	23.13
Rest of Sectors	40.00	6.15	397.9	6.23
Imports	100.07	15.39	980.8	15.36
Value Added	253.94	39.06	2,770.3	43.39
Total Input	650.13	100.00	6,384.2	100.00
Panel B. Non-SMEs				
SMEs	99.39	10.14	950.18	9.86
Non-SMEs	234.46	23.92	2,154.22	22.36
Rest of Sectors	43.56	4.44	305.73	3.17
Imports	250.53	25.56	2,768.39	28.73
Value Added	352.42	35.95	3,455.96	35.87
Total Input	980.35	100.00	9,634.49	100.00

Observation on the results confirms that SMEs in Malaysia and Thailand are both having the weak linkages issue. In specific, this argument is made based on the observation on the economic transactions between SMEs and non-SMEs in both countries. In Malaysia, the results give a clear indication that SMEs purchased a total of 24.83% of intermediate input from its own cluster and 14.57% from non-SMEs. Meanwhile, non-SMEs only purchased 10.14% of its input from SMEs and the other 23.92% are purchased from its peers. The same situation can be seen in Thailand,

where SMEs purchased 11.88% of inputs from it group of sectors and 23.13% from non-SMEs. For non-SMEs, they are found to acquire 9.86% of their input from SMEs and 22.36% among their group.

Based on the percentage of input purchases by SMEs and non-SMEs, we may observe that SMEs are highly dependent on non-SMEs for the provision of inputs, but non-SMEs are more dependent to their peers. This finding is well noted by Utit et. al. (2016) and the same outcome is reported by the Office of SMEs Promotion (2016). To explain the loose connection between SMEs and non-SMEs, there are two explanations that seems fit. First, SMEs in Malaysia and Thailand tend to have lower technological capabilities (Intarakumnerd and Goto, 2016). Thus it makes their business operation to become more labour intensive. The dependency on labour make the business to become less productive and it resulted in the lack of capability to fulfil the ever-increasing demand from non-SMEs. Another explanation is related to the dependency of non-SMEs on import. In total, non-SMEs in Malaysia and Thailand purchased about one-fourth of their inputs through import market.

In summary, weak linkages is not a new issue for SMEs and it needs to be addressed carefully. This paper confirms that weak linkages is a common issue for SMEs in Malaysia and Thailand. The study by Canare et. al. (2017) also found that the same problem is surrounding the SMEs in the Philippines.

4.2.2 Output Structure of SMEs

Information on the flows of output from SMEs into the production sectors and final consumers can be analysed by exploring the output structure. Generally, output is demanded by local consumers and foreign consumer. For local consumers, the consumption activities are explained by the intermediate demand, private consumption, government consumption and investment. For foreign demand, it is explained by exports. Table 4.3 presents the result from the analysis.

Table 4.3. Input structure comparison between SMEs and non-SMEs in Malaysia and Thailand

	Malaysia		Thailand	
	RM Billion	%	Billion Baht	%
Panel A. SMEs				
SMEs	161.40	24.83	758.61	11.88
Non-SMEs	99.39	15.29	950.18	14.88
Rest of Sectors (RoS)	59.84	9.20	205.07	3.21
Private Consumption	122.59	18.86	1,703.92	26.69
Government Consumption	0.20	0.03	51.42	0.81
Investment	32.02	4.93	910.72	14.27
Exports	174.68	26.87	1,804.25	28.26
Total Output	650.13	100.00	6,384.18	100.00
Panel B. Non-SMEs				
SMEs	94.72	9.66	1,476.57	15.33

	Malaysia		Thailand	
	RM Billion	%	Billion Baht	%
Non-SMEs	234.46	23.92	2,154.22	22.36
Rest of Sectors (RoS)	50.03	5.10	324.81	3.37
Private Consumption	106.22	10.84	1,727.01	17.93
Government Consumption	0.35	0.04	83.70	0.87
Investment	71.27	7.27	680.74	7.07
Exports	423.29	43.18	3,187.44	33.08
Total Output	980.35	100.00	9,634.49	100.00

Based on the findings presented in Table 4.3, it is shown that 49.32% of the total output produced by SMEs in Malaysia are consumed as intermediate input by SMEs, non-SMEs and RoS. The second largest consumer of SMEs output is the component of private consumption with 18.86%. For exports, 26.87% of the total SMEs output from Malaysia are able to penetrate global market.

In comparison to Malaysia, only 29.98% of the output from SMEs in Thailand are consumed as intermediate input. The large difference between the amount of SMEs output flows into the production activities in Malaysia and Thailand is explained by the role of private consumption and investment. In terms of export, the performance of Thai SMEs is slightly better than Malaysia with only 1.39 percentage point difference.

Through output structure comparison, it can be seen that SMEs in Malaysia are more integrated with the domestic production sectors as almost half of its output are utilised as intermediate inputs. On the other hand, SMEs in Thailand are more integrated with their final consumers. Thus, it shows that the nature of business for SMEs in Malaysia is more towards supporting the growth of other sectors, while Thai SMEs are more towards serving final consumers.

4.3 Sectoral Multiplier Impacts Among SMEs

Discussion in section 4.2 clearly defined the issue of weak linkages that surround SMEs in Malaysia and Thailand. Despite this issue, SMEs are still important to support the national growth. In specific, we may assess the multiplier impacts of SMEs to verify its economic potential. The discussion in this section are based on two types of multipliers which include output and value added multiplier. Table 4.4 presents the multipliers for SMEs, non-SMEs and average national.

Based on Table 4.4, Processing and Preserving of Foods sector is found as the common SME sector in Malaysia and Thailand that exhibit the largest output multiplier impact. In fact, their impact is larger than non-SMEs and average national. In Malaysia, the sector is capable of producing RM2.73 of output for every Ringgit increase in final demand. For Thailand, the increase in 1 Baht of final demand for the product from this sector will generate 2.26 Baht of output in the economy.

The result for the top-5 SMEs with the largest output multiplier in Malaysia include Processing and Preserving of Foods (2.73), Wood Products (2.40), Basic Chemicals

(2.11), Forestry (2.10) and Petroleum Refinery (2.09). For Thailand, the list of SMEs include Processing and Preserving of Foods (2.26), Grain Mills (2.22), Business Services (2.12), Textile Products (2.10) and Restaurants and Hotels (1.96).

Economically, the use of only output multiplier for observing the potential impact of a sector is insufficient. Another important economic multiplier is the value added multiplier. It provides more useful information on the economic contribution of a sector as compared to the output measure in which it includes imports that contain foreign countries' shares and involvement. Moreover, it is not necessarily sectors with high outputs will also have substantial value added returns (Oosterhaven and Stelder, 2002).

The result for SMEs in Malaysia and Thailand shows that Real Estate sector become the common sector with the largest value added multiplier impact. In total, the sector is capable of producing RM0.87 and 0.97 Baht of value added in each country for every monetary unit increase in the demand of their output. In comparison to non-SMEs and average national impacts for both countries, SMEs impacts are considerably large.

The list of top-5 SMEs with the largest value added multiplier in Malaysia are Rubber (0.89), Metal Ore Mining (0.87), Crops (0.87), Real Estate (0.87) and Other Mining and Quarrying (0.85). While for Thailand, the identified SMEs are Real Estate (0.97), Wholesale and Retail Trade (0.95), Tobacco Products (0.91), Crude Oil Mining (0.87) and Restaurants and Hotels (0.83).

The result informs that SMEs does has great potential to support the national growth. Thus future economic planning needs to consider the role of SMEs especially when the government wants to find the new source of growth.

Table 4.4 Output and value-added multiplier of SMEs, non-SMEs and average national sectors in Malaysia and Thailand

Num.	Sector	Output Multiplier						Value Added Multiplier					
		Malaysia			Thailand			Malaysia			Thailand		
		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
1	Crops	1.28	1.32	1.30	-	1.43	1.43	0.87	0.87	0.87	-	0.84	0.84
2	Rubber	1.55	1.48	1.51	-	1.16	1.16	0.89	0.90	0.89	-	0.93	0.93
3	Livestock	1.86	1.62	1.76	-	1.96	1.96	0.69	0.74	0.71	-	0.79	0.79
4	Forestry	2.10	2.12	2.12	-	1.32	1.32	0.77	0.76	0.76	-	0.93	0.93
5	Fishery	1.87	1.76	1.85	-	1.60	1.60	0.73	0.74	0.73	-	0.76	0.76
6	Crude Oil Mining	1.66	1.18	1.18	1.49	1.48	1.48	0.82	0.91	0.91	0.87	0.87	0.87
7	Metal Ore Mining	1.28	1.37	1.36	1.74	1.39	1.47	0.87	0.85	0.85	0.76	0.85	0.83
8	Other Mining & Quarrying	1.34	1.23	1.30	1.75	1.34	1.54	0.85	0.87	0.86	0.73	0.86	0.80
9	Processing & Preserving of Foods	2.73	2.43	2.61	2.26	2.06	2.11	0.79	0.78	0.79	0.71	0.72	0.72
10	Grain Mills	1.90	1.56	1.84	2.22	2.08	2.20	0.72	0.76	0.73	0.82	0.84	0.82
11	Animal Feeds	1.85	2.02	1.88	1.67	1.61	1.63	0.53	0.50	0.52	0.47	0.47	0.47
12	Tobacco Products	1.35	1.35	1.34	1.45	1.23	1.23	0.78	0.79	0.79	0.91	0.94	0.94
13	Textile Products	1.49	1.78	1.67	2.10	1.91	1.99	0.65	0.58	0.61	0.70	0.71	0.70
14	Leather Products & Footwear	1.71	1.78	1.74	1.70	1.67	1.69	0.71	0.68	0.70	0.67	0.67	0.67
15	Wood Products	2.40	2.50	2.46	1.80	1.62	1.73	0.74	0.69	0.71	0.75	0.77	0.76
16	Paper and Paper Products	2.05	2.06	2.06	1.69	1.42	1.50	0.64	0.63	0.63	0.55	0.59	0.58
17	Printing	1.71	1.71	1.71	1.65	1.63	1.64	0.65	0.63	0.64	0.60	0.61	0.60
18	Petroleum Refinery	2.09	1.69	1.71	1.01	1.10	1.10	0.65	0.73	0.73	0.26	0.22	0.22
19	Basic Chemicals	2.11	1.91	1.98	1.51	1.50	1.51	0.63	0.65	0.64	0.58	0.58	0.58
20	Other Chemical Products	1.95	1.93	1.94	1.69	1.58	1.64	0.54	0.53	0.53	0.60	0.62	0.61
21	Tyres	1.98	1.89	1.93	1.90	1.85	1.86	0.49	0.49	0.49	0.76	0.76	0.76
22	Plastics Products	1.87	1.92	1.90	1.86	1.79	1.82	0.47	0.45	0.46	0.56	0.57	0.57
23	Non-Metallic Products	1.82	1.87	1.86	1.95	1.80	1.84	0.59	0.56	0.57	0.66	0.69	0.68
24	Iron & Steel Products	1.90	1.87	1.88	1.95	1.74	1.82	0.44	0.45	0.45	0.46	0.51	0.49
25	Basic Precious & Non-Ferrous Metals	1.47	1.52	1.50	1.43	1.14	1.33	0.31	0.30	0.31	0.41	0.47	0.43
26	Fabricated Metal Products	1.70	1.73	1.71	1.53	1.26	1.38	0.50	0.47	0.49	0.40	0.46	0.44
27	Industrial Machinery	1.53	1.69	1.64	1.65	1.48	1.56	0.50	0.45	0.46	0.46	0.51	0.48

Num.	Sector	Output Multiplier						Value Added Multiplier					
		Malaysia			Thailand			Malaysia			Thailand		
		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
28	Other Machineries	1.35	1.35	1.35	1.45	1.36	1.38	0.43	0.40	0.40	0.32	0.35	0.34
29	Motor Vehicles and Repairing	1.71	1.76	1.76	1.48	1.57	1.55	0.47	0.38	0.39	0.46	0.44	0.44
30	Other Manufacturing	1.77	1.48	1.59	1.57	1.37	1.45	0.61	0.53	0.56	0.46	0.49	0.48
31	Electricity & Gas	1.37	1.60	1.56	1.87	1.73	1.73	0.71	0.66	0.67	0.74	0.76	0.76
32	Construction	1.84	1.96	1.93	1.91	1.70	1.86	0.66	0.66	0.66	0.63	0.67	0.64
33	Wholesale & Retail Trade	1.55	1.58	1.56	1.32	1.15	1.30	0.80	0.77	0.80	0.95	0.97	0.95
34	Restaurants & Hotels	1.92	1.94	1.93	1.96	1.83	1.90	0.79	0.79	0.79	0.83	0.84	0.84
35	Transportation	1.87	1.89	1.88	1.90	1.75	1.82	0.70	0.66	0.67	0.60	0.65	0.63
36	Real Estate	1.82	1.79	1.82	1.25	1.13	1.23	0.87	0.85	0.86	0.97	0.98	0.97
37	Business Services	1.85	1.83	1.84	2.12	1.54	2.06	0.82	0.80	0.82	0.79	0.89	0.80
38	Other Services	1.59	1.72	1.63	1.81	1.51	1.70	0.84	0.79	0.83	0.76	0.82	0.78

Note:

- a. (1) = SMEs; (2) = Non-SMEs; (3) Average National
- b. Shaded figures represent the top-5 SMEs sectors with the largest multiplier impact and their comparison to non-SMEs and average national

5. CONCLUDING REMARKS

This paper compares the structures of SMEs in Malaysia and Thailand. To achieve this objective, SME-IO for Malaysia is developed and refined based on the work of Utit et. al (2016). For Thailand, the dataset is re-estimated to harmonise its framework with Malaysia for comparison purposes. There are four major findings that can be summarised.

First, the descriptive analysis on the contribution of SMEs in Malaysia and Thailand informed that value added content is higher in SMEs as compared to non-SMEs. Generally, value added content is primarily determined by import content and employment level of SMEs. For both countries, employment level is seen to be more influential. Based on this outcome, it shows that SMEs has the potential to be utilised as an economic tools for developing domestic economy through the expansion of domestic labour market as it has labour-intensive nature.

Second, production structures comparison indicate that weak linkages become a common issue in the process of developing SMEs in Malaysia and Thailand. This issue stem from the loose connection between SMEs and non-SMEs. In detailed, SMEs are found to be more dependent on non-SMEs when it comes to input purchases, but non-SMEs are found to depend more on its cluster and import. Thus, there is an urgent need for the government to bridge this differences to ensure that the benefits from future growth planning can be shared equally between SMEs and non-SMEs.

Third, the analysis on the output structures reveals that SMEs in Malaysia are more integrated with the domestic production sectors as almost half of its output are utilised as intermediate inputs. On the other hand, SMEs in Thailand are more integrated with their final consumers. These outcomes shows that the nature of business for SMEs in Malaysia is more towards supporting the growth of other sectors, while Thai SMEs are more towards serving final consumers.

Fourth, the outcome from the multiplier analysis indicate that SMEs has the same potential as non-SMEs and average national to generate economic output and value added. In fact, some sectors such as Processing and Preserving of Foods, and Real Estate are found to be the common sectors in Malaysia and Thailand with the largest output and value added multiplier impact, respectively. Additionally, the multipliers also provides the indication for SMEs sectors that can be promoted as new source of growth drivers.

In spite of the usefulness of this paper, the results need to be interpreted carefully as they are bounded by the assumptions used in the development of SME-IO. Moreover, there is no standard definition for SMEs between Malaysia and Thailand. The difference presents another factor to why the results are highly sensitive. One way to improve the estimation is to have a close collaboration with the authorities that govern the development of SMEs in Malaysia and Thailand in future SMEs research.

REFERENCES

- Alvarez, S. A., and Barney, J. B. (2001). How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Perspectives*. 15(1), 139-148.
- Ayyagari M., Beck T. & Demirguc-Kunt A. (2007) Small and medium enterprises across the globe, *Small Business Economics*. 29, 415–434.
- Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2011). *Small vs. young firms across the world: contribution to employment, job creation, and growth*. The World Bank.
- Canare, T., Francisco, J. P., and Price, N. A. (2017). *An empirical analysis of SME and large business linkages: Evidence from the Philippines*. RSN-PCC Working Paper, 17-007.
- Cho, M. R. (1997). Large-small firm networks: a foundation of the new globalizing economy in South Korea. *Environment and Planning*, 29(6), 1091-1108.
- Department of Statistics Malaysia (2012). *Economic Census 2011*. Department of Statistics Malaysia: Putrajaya.
- Department of Statistics Malaysia (2014). *Malaysia Input-Output Table 2010*. Department of Statistics Malaysia: Putrajaya.
- Department of Statistics Malaysia (2017). *Economic Census 2016*. Profile of Small and Medium Enterprise. Department of Statistics Malaysia: Putrajaya.
- ERIA (Economic Research Institute for ASEAN and East Asia). 2014. *ASEAN SME Policy Index 2014: Towards Competitive and Innovative ASEAN SMEs*. ERIA Research Project Report 2012, No. 8.
- Hussain, M. N. (2000). *Linkages between SMEs and large industries for increased markets and trade: an African perspective*. Economic Research Papers, African Development Bank.
- Intarakumnerd, P., & Goto, A. (2016). *Technology and innovation policies for small and medium-sized enterprises in East Asia*. ADBI Working Paper Series. Asian Development Bank Institute.
- Ndemo, E. B., and Smallbone, D. (2015). Linkage dynamics between small and large firms in Kenya. *DBA Africa Management Review*, 5(1).
- Office of the National Economic and Social Development. (n.d.). *Input-Output Table 2005*. Retrieved from https://www.nesdb.go.th/nesdb_en/ewt_news.php?nid=4311&filename=index.

- Oosterhaven, J. and Stelder, D. (2002). Net multipliers avoid exaggerating impacts: with a bi-regional illustration for the Dutch transportation sector. *Journal of Regional Science*, 42, 553-543.
- Pagano, P. (2003). Firm size distribution and growth. *The Scandinavian Journal of Economics*, 105(2), 255-274.
- Gao, Q., & Banerji, S. (2015). The growth appraisal system for Chinese SMEs. *Journal of Chinese Economic and Business Studies*, 13(2), 175-193.
- Rehman, N. U. (2016). Network alliances and firms' performance: a panel data analysis of Pakistani SMEs. *Eurasian Business Review*, 6(1), 37-52.
- Rothkegel, S., Erakovic, L., Shepherd, D., and Shepherd, D. (2006). Strategic alliances between SMEs and large firms: an exploration of the dynamic process. *Management Revue*, 50-71.
- Sulej, J. C., Stewart, V., and Keogh, W. (2001). Taking risk in joint ventures: whose throw of the dice?. *Strategic Change*, 10(5), 285-295.
- SME Corporation Malaysia. (2013). *Guideline on New SME Definition*. SME Corporation Malaysia: Kuala Lumpur.
- The Office of SMEs Promotion. (n.d). *Thailand Small and Medium Enterprises Input Output Table in 2005*. Retrieved from <https://www.sme.go.th/th/search.php?q=i%2Fo>.
- The Office of SMEs Promotion. (2002). *SME Definition*. Retrieved from http://www.sme.go.th/upload/mod_download/%E0%B8%99%E0%B8%B4%E0%B8%A2%E0%B8%B2%E0%B8%A1%20SMEs.pdf.
- The Office of SMEs Promotion. (2016). *White Paper on Small and Medium Enterprises of Thailand in 2015*. Retrieved from <https://www.sme.go.th/en/download.php?modulekey=94>.
- The Office of SMEs Promotion. (2018). Executive Summary. *White Paper on Small and Medium Enterprises. 2017*. Retrieved from http://www.industry.go.th/psd/index.php/2016-05-02-05-17-59/item/download/4061_06092e25c38dc85a170c6bde4a26ddfe.
- Utiti, C., Saari, M.Y., Hamid, N.A. and Maji, K.I. (2016). *Exploring drivers for small and medium-sized sectors using a new macroeconomic model*. Paper presented in the 24th International Input-Output Conference, Seoul, Korea.

APPENDIX

Appendix 2.1 Definition of SMEs in Malaysia and Thailand

Country	Sector	Firm Size	Criterion for SMEs Definition ^a	
			Criterion 1	Criterion 2
Malaysia ^b	Manufacturing	Micro	Less than 5 employees	Less than RM300,000
		Small	Between 5 and 75 employees	Between RM300,000 and less than RM15 million
		Medium	Between 75 and 200 employees	Between RM15 million and less than RM50 million
	Rest of Sectors	Micro	Less than 5 employees	Less than RM300,000
		Small	Between 5 and 30 employees	Between RM300,000 and less than RM3 million
		Medium	Between 30 and 75 employees	Between RM3 million and less than RM20 million
Thailand ^c	Manufacturing	Small	50 employees or less	50 million Baht or less
		Medium	Between 51 and 200 employees	Between 50 million Baht and 200 million Baht
	Services	Small	50 employees or less	50 million Baht or less
		Medium	Between 51 and 200 employees	Between 50 million Baht and 200 million Baht
	Wholesale	Small	25 employees or less	50 million Baht or less
		Medium	Between 26 and 50 employees	Between 50 million Baht and 100 million Baht
	Retail	Small	15 employees or less	30 million Baht or less
		Medium	Between 16 and 30 employees	Between 30 million Baht and 60 million Baht

Note:

- a. Criterion 1 = Number of Employees; Criterion 2 (Malaysia) = Annual Sales Turnover; Criterion 2 (Thailand) = Fixed Assets (Excluding Land)
- b. Rest of Sectors classification in Malaysia is applicable to agriculture, mining and quarrying, construction and services sector
- c. Agricultural-based SMEs are not available in Thailand

Source: SME Corporation Malaysia, 2013 and the Office of SMEs Promotion, 2002

Appendix 2.2 List of sectors in SME-IO

Num.	Sector
1	Crops
2	Rubber
3	Livestock
4	Forestry
5	Fishery
6	Crude Oil Mining
7	Metal Ore Mining
8	Other Mining & Quarrying
9	Processing & Preserving of Foods
10	Grain Mills
11	Animal Feeds
12	Tobacco Products
13	Textile Products
14	Leather Products & Footwear
15	Wood Products
16	Paper and Paper Products
17	Printing
18	Petroleum Refinery
19	Basic Chemicals
20	Other Chemical Products

Num.	Sector
21	Tyres
22	Plastics Products
23	Non-Metallic Products
24	Iron & Steel Products
25	Basic Precious & Non-Ferrous Metals
26	Fabricated Metal Products
27	Industrial Machinery
28	Other Machineries
29	Motor Vehicles and Repairing
30	Other Manufacturing
31	Electricity & Gas
32	Construction
33	Wholesale & Retail Trade
34	Restaurants & Hotels
35	Transportation
36	Real Estate
37	Business Services
38	Other Services
RoS	Rest of Sectors

Appendix 4.1 Production structure of SMEs and non-SMEs in Malaysia

		AGR		MIN		MAN		CON		SER	
		RM billion	%								
Panel A. SMEs											
SMEs	AGR	1.6	2.8	-	-	12.4	5.0	0.0	0.0	2.9	0.9
	MIN	0.0	0.0	0.0	0.4	0.5	0.2	0.6	2.8	0.1	0.0
	MAN	2.9	5.3	0.2	3.8	40.6	16.4	1.6	8.3	10.3	3.2
	CON	0.1	0.2	0.0	0.0	0.2	0.1	0.1	0.7	0.2	0.1
	SER	4.4	7.9	0.6	10.7	28.2	11.4	2.6	13.3	51.3	15.9
Non-SMEs	AGR	1.6	2.8	-	-	20.6	8.3	0.0	0.0	1.4	0.4
	MIN	0.0	0.0	0.0	0.3	1.6	0.7	0.4	1.9	0.1	0.0
	MAN	1.9	3.4	0.2	3.5	29.1	11.7	1.8	9.3	8.7	2.7
	CON	0.2	0.3	0.0	0.2	0.3	0.1	0.5	2.3	0.3	0.1
	SER	1.3	2.3	0.2	3.2	8.9	3.6	0.7	3.7	15.1	4.7
Rest of Sectors		3.2	5.8	0.0	0.4	7.2	2.9	1.4	6.9	28.2	8.8
Imports		5.4	9.7	0.5	8.5	55.1	22.2	3.7	18.9	35.4	11.0
Value Added		32.9	59.5	3.7	69.1	43.2	17.4	6.3	32.1	167.8	52.2
Total Input		55.3	100.0	5.4	100.0	248.0	100.0	19.8	100.0	321.7	100.0
Panel B. Non-SMEs											
SMEs	AGR	1.5	2.2	-	-	12.6	2.3	0.0	0.0	0.6	0.3
	MIN	0.0	0.0	0.0	0.0	0.8	0.1	0.7	0.9	0.2	0.1
	MAN	1.8	2.6	1.0	1.0	30.4	5.4	4.6	6.5	5.9	3.2
	CON	0.2	0.3	0.2	0.2	1.2	0.2	1.3	1.8	0.2	0.1
	SER	1.6	2.4	0.8	0.8	19.2	3.4	2.6	3.6	12.1	6.6
Non-SMEs	AGR	4.0	5.8	-	-	24.4	4.4	0.0	0.0	0.8	0.4
	MIN	0.0	0.0	1.1	1.1	54.4	9.8	0.4	0.6	0.2	0.1
	MAN	4.8	6.9	4.5	4.4	53.0	9.5	11.2	15.7	25.2	13.9
	CON	0.3	0.4	0.7	0.7	1.9	0.3	5.0	7.0	0.5	0.3
	SER	1.1	1.6	1.3	1.3	18.8	3.4	1.2	1.8	19.9	10.9
Rest of Sectors		4.7	6.8	1.2	1.2	17.0	3.1	10.4	14.7	10.2	5.6
Imports		5.8	8.5	5.9	5.8	199.5	35.8	12.1	17.0	27.3	15.0
Value Added		42.8	62.4	85.0	83.5	124.3	22.3	21.5	30.2	78.8	43.4
Total Input		68.6	100.0	101.8	100.0	557.3	100.0	71.1	100.0	181.7	100.0

Note: AGR = Agriculture, Forestry & Fishing; MIN = Mining & Quarrying; MAN = Manufacturing; CON = Construction; SER = Services

Appendix 4.2 Production structure of SMEs and non-SMEs in Thailand

		AGR		MIN		MAN		CON		SER	
		Billion Baht	%								
Panel A. SMEs											
SMEs	AGR	-	-	-	-	-	-	-	-	-	-
	MIN	-	-	0.0	0.1	4.9	0.2	12.6	2.7	0.0	0.0
	MAN	-	-	2.0	5.8	173.9	6.7	18.9	4.0	84.8	2.6
	CON	-	-	0.1	0.2	1.2	0.0	0.2	0.0	2.7	0.1
	SER	-	-	2.6	7.7	201.5	7.8	57.4	12.1	195.7	6.0
Non-SMEs	AGR	-	-	0.1	0.2	268.6	10.4	1.4	0.3	40.3	1.2
	MIN	-	-	0.4	1.3	13.9	0.5	13.8	2.9	0.1	0.0
	MAN	-	-	6.4	19.2	375.3	14.5	52.6	11.1	261.0	7.9
	CON	-	-	0.0	0.1	0.5	0.0	0.1	0.0	1.2	0.0
	SER	-	-	2.5	7.6	137.6	5.3	41.6	8.8	259.1	7.9
ROS		-	-	0.9	2.6	71.1	2.7	79.5	16.8	246.4	7.5
Imports		-	-	0.8	2.5	789.1	30.4	104.0	21.9	86.8	2.6
Value Added		-	-	17.7	52.7	555.0	21.4	92.7	19.5	2,104.9	64.1
Total Input		-	-	33.6	100.0	2,592.8	100.0	474.8	100.0	3,283.0	100.0
Panel B. Non-SMEs											
SMEs	AGR	-	-	-	-	-	-	-	-	-	-
	MIN	0.1	0.0	0.5	0.2	7.5	0.1	3.7	2.2	6.3	0.3
	MAN	45.8	4.1	4.1	1.5	278.3	4.6	5.1	3.0	51.2	2.5
	CON	0.4	0.0	0.1	0.0	2.4	0.0	0.1	0.0	1.3	0.1
	SER	57.7	5.2	27.9	10.2	343.6	5.7	15.8	9.2	98.4	4.8
Non-SMEs	AGR	83.8	7.6	0.0	0.0	279.5	4.6	0.4	0.2	28.6	1.4
	MIN	0.1	0.0	10.4	3.8	31.7	0.5	4.0	2.4	136.7	6.7
	MAN	105.0	9.5	27.8	10.1	709.2	11.8	14.2	8.3	245.0	11.9
	CON	0.2	0.0	0.1	0.0	1.0	0.0	0.0	0.0	0.6	0.0
	SER	18.5	1.7	9.0	3.3	220.9	3.7	11.7	6.9	216.0	10.5
ROS		54.9	5.0	1.7	0.6	121.3	2.0	22.1	13.0	105.7	5.1
Imports		64.4	5.8	4.3	1.6	2,500.9	41.5	36.2	21.2	162.7	7.9
Value Added		675.5	61.1	189.2	68.8	1,533.4	25.4	57.4	33.6	1,000.5	48.7
Total Input		1,106.3	100.0	275.0	100.0	6,029.8	100.0	170.6	100.0	2,052.8	100.0

Note: AGR = Agriculture, Forestry & Fishing; MIN = Mining & Quarrying; MAN = Manufacturing; CON = Construction; SER = Services