



Weak Interlinkages Between SMEs and Non-SMEs in Malaysia and Thailand: What Do We Know So Far?

CHAKRIN UTIT^{a*}, MOHD ALZAIERY ABDUL^{b,c} AND M. YUSOF SAARI^{a,c}

^a*School of Business and Economics, Universiti Putra Malaysia, Malaysia*

^b*Institute of Tropical Agriculture and Food Security, Universiti Putra Malaysia, Malaysia*

^c*EIS-UPMCS Centre for Future Labour Market Studies, Menara PERKESO Putrajaya, Malaysia*

ABSTRACT

Small and medium enterprises (SMEs) are undeniably the backbone of many developing economies, considering their sizeable share of business establishments and contribution to employment creation. Nevertheless, they have fallen short of policymakers' expectations because of the weak interlinkage issue that limits their ability to create wealth. The issue stems from SMEs' excessive reliance on non-SMEs as their primary input sources, while non-SMEs are more dependent on their cluster and imports. This paper seeks to assess the magnitude of the issue in Malaysia and Thailand by comparing the productive structures of SMEs in both economies using the cascaded input-output modelling technique. The findings validated the weak interlinkage issue in Malaysia and Thailand, with the latter suffering from it to a greater extent. Overall, SMEs remain integral to the growth drivers of developing economies. Therefore, development policies should continue to support them by considering their value-added multiplier impacts. Considering all facts and figures, strengthening existing linkage programmes and establishing an SME content requirement policy are this study's two recommendations for improving the interlinkage situation.

JEL Classification: C67, D57, L11

Keywords: SMEs, weak interlinkages, input-output modelling, structural comparison, multiplier impacts

Article history:

Received: 2 October 2021

Accepted: 22 March 2022

* Corresponding author: Email: chakrin_utit@upm.edu.my

INTRODUCTION

Weak interlinkages between small and medium enterprises (SMEs) and non-SMEs (essentially large firms) have been at the forefront of policy discussions since the 1990s. It has been regarded as a long-standing structural issue for many economies (Cho, 1997; Canare et al., 2017; Rothkegel et al., 2006; Hussain, 2000; Ndemo and Smallbone, 2015; Alvarez and Barney, 2001; Sulej et al., 2001). The issue stems from SMEs' excessive reliance on non-SMEs as their primary input sources, while the latter are more dependent on their cluster and imports (Utiti et al., 2021). Even with much policy emphasis, the issue is still evident in the current economic setting.

The impacts of the weak interlinkage issue can be traced mainly through the contribution of SMEs to major macroeconomic indicators, such as the gross domestic product (GDP, including value-added). Although representing an average of 95% of the total companies globally (Ayyagari et al., 2007), SMEs' impact on value-added has been considerably smaller, particularly among the group of developing economies. In the cases of Malaysia and Thailand, SMEs accounted for 98.5% (907,065 companies) and 99.7% (2,765,966 companies) of each country's total companies in 2015. However, they were only able to create 42.7% and 39.6% of each country's contribution to value-added, respectively (DOSM, 2017; OSMEP, 2018; OECD/ERIA, 2018). The statistics show that most of the value-added in these economies has been generated by non-SME companies, representing only a small fraction of the total business establishments.

Despite their weak contribution to creating wealth, SMEs are still regarded as major sources of growth due to their labour market impacts (other than their sizable shares from the total number of companies). SMEs in Malaysia and Thailand were responsible for 64.7% and 80.3% of employment creation in 2015, respectively. Nevertheless, the massive contribution to employment partly explains their low contribution to value-added as it links to the labour-intensive nature of small and medium-sized businesses (Robbins et al., 2000; Cowling, 2003; Cowling et al., 2015; Abdullah, 2019). In short, labour-intensive economic segments are exposed to problems related to efficiency and productivity (due to low technological adoption), thus, reducing their capability in creating value-added.

While many empirical works have discussed the issues concerning SME development, their potential cannot be ignored. Economies such as Japan and the European Union have provided solid evidence for the potential of SMEs in driving economic growth (SMEA, n.d.; European Commission, 2019). For example, the Japanese government emphasised SMEs as a tool for economic reconstruction (1945-1954) immediately after World War II. Various SME-based policies were then utilised to develop Japan into one of the world's leading economic powers. Similarly, by empowering SMEs through adopting a standard policy framework, the Small Business Act in the European Union assisted the region in recovering from the 2008 Financial Crisis.

This paper sought to assess the magnitude of the weak interlinkage issue in Malaysia and Thailand by comparing the productive structures of SMEs in both economies. In its empirical analysis, the paper utilised the cascaded input-output modelling technique for SMEs. Generally applied at the national level, the modelling technique was cascaded by modelling the respective SME input-output tables for Malaysia and Thailand¹. The application of the input-output modelling approach in this study is supported by the model's capability in conducting economic-wide analyses, especially in SME studies (see USITC, 2010; Tang et al., 2016; Khazanah Research Institute, 2018; SME Corporation Malaysia, 2018; Chong et al., 2019).

Note that this research work offered two novelty aspects. First, concerning scientific knowledge, this paper has explored and quantified the depth of the weak interlinkage issue in two neighbouring economies, which has long affected their SMEs' contribution to growth. This effort was motivated by the evidence-based requirement in policy analysis. Second, it has recommended relevant policy measures that have the potential to improve the situation. Reviews of the existing literature have shown that many studies have focused on the causes and effects of the weak interlinkage issue. Still, only a few have discussed ways forward for correcting it.

The presentation of this paper is structured into six sections. Section 2 presents the literature gaps to justify the contribution of this research to the existing literature. Section 3 discusses the framework of SME input-output tables. Section 4 explains the methodological approach used in this research. Section 5 presents the main findings obtained from the study, and Section 6 provides the concluding remarks and policy recommendations.

¹ The SME input-output tables for Malaysia and Thailand were obtained from the works of Utiti et al. (2016) and NESDB (n.d.).

CONTRIBUTION TO THE LITERATURE

Reviews on existing literature provide two main research gaps. First, the heterogeneous SMEs' definitions in different economies lead to difficulty in assessing their productive structures. This situation often resulted in many SMEs' analyses failing to observe the real strength of SMEs in one country compared to others. Second, the research frameworks of existing studies primarily focused on a single country analysis, thus limiting the discussion of how the weak interlinkage issue might impact different economies. Building upon these gaps, this paper provides empirical contributions to the literature by addressing them.

Empirically, a rich body of literature discussing various aspects of SMEs is available. Nevertheless, most of the discussions are hindered by the heterogeneous nature of SMEs' definitions. Xie et al. (2010) and Edinburgh Group (2012) concurred that defining what constitutes SMEs is exceptionally challenging as there is no standard definition available. According to the International Finance Corporation (2014) of the World Bank Group, currently, there are 267 definitions of SMEs being used by various institutions in 155 countries. In most cases, the number of employees is the most common criterion used to define SMEs (Ayyagari et al., 2003).

However, the use of the same criteria in a group of countries still does not confirm that their definitions are uniform since different cut-off ranges are used across countries (Ayyagari et al., 2003). For example, a medium firm's cut-off range for the number of employees in one country is between 100-250 employees, but in another country, it is between 100-300 employees. The differences resulting in SMEs studies are mostly conducted on a single country basis as bridging the definitions for different countries involves extensive research work.

The productive structures of SMEs are also unique, depending on the structural features in different economies. In general, SMEs rely more on domestic intermediate inputs in the production process and have high value-added intensity (Tang et al., 2016; Chong et al., 2019). Meanwhile, non-SMEs have a high share of imported intermediate inputs in their input-mix structures and lower value-added intensity. In this case, firms or sectors with high import content tend to have lower value-added because imports are considered leakages to the domestic economy as they are not produced domestically (Hassan et al., 2018).

As a consequence of the structural differences, SMEs are exposed to several issues. SMEs are often beset by problems related to efficiency and productivity (Canare et al., 2017). Past literature has identified the causes of the problems, which include financial access (Beck and Demirguc-Kunt, 2006; Chittithaworn et al., 2011; Harvie et al., 2013), technological access (Lee and Runge, 2001), market access (Rogerson, 2013), production capacity (OECD, 2008) and lack of entrepreneurship skills (Wiklund and Shepherd, 2005; Wiklund et al., 2009).

Above all, the most severe issue commonly diagnosed is the weak interlinkage issue. Hussain (2000) stressed that the issue had become a barrier to SMEs operators in facing an ever-growing, competitive and globalised economic arena. Although the issue has garnered the interest of researchers from different parts of the world, the existing studies mainly focused on single country analysis due to the extensive research work required to harmonise the SMEs classifications and the lack of relevant datasets to facilitate the research process (Cho, 1997; Canare et al., 2017; Rothkegel et al., 2006; Hussain, 2000; Ndemo and Smallbone, 2015; Alvarez and Barney, 2001; Sulej et al., 2001).

The following sections outline the process of addressing the identified research gaps, focusing on SMEs in two neighbouring economies, Malaysia and Thailand.

FRAMEWORK OF SME INPUT-OUTPUT TABLES

The growing importance of SMEs as an economic development tool has led policymakers and researchers to integrate various facts and figures into their policy formulation processes. Among the notable studies that have expanded the input-output modelling horizon to cover SMEs include the works by Tang et al. (2016) and Chong et al. (2019). For instance, Tang et al. (2016) expanded the national input-output table for China to accommodate SME and state-owned enterprises (SOEs) components to assess their interactions and economic consequences. Meanwhile, Chong et al. (2019) integrated business size elements in the Netherlands' supply

and use tables (SUTs)² to evaluate the role of SMEs in the Dutch economy. In Malaysia, related research works were pioneered by Utit et al., (2016), who examined the growth impacts of different business sizes. While Malaysia's chapter on SME input-output has been considered academic work, Thailand has started to utilise such a model in policy planning since 2005 (OSMEP, 2016).

The framework of SME Input-Output Tables

Before delving into technical details, it is essential to examine the layout of the SME input-output datasets for Malaysia and Thailand. The tables depicted the flow of goods and services sold (demand) and bought (supply) in the economies over a calendar year. Specifically, it demonstrates the interlinkages between sectors of different sizes and their relationships with final customers. Tables 1 and 2 give the simplified SME input-output framework for both economies.

Table 1 Simplified SME-IO framework for Malaysia

| | | Intermediate demand | | | | Final demand | Total output |
|------------------------|-------------|---|----|---|---|---------------------|---------------------|
| | | S | Md | L | R | | |
| Intermediate input (Z) | Small (S) | Z (intermediate demand required among sectors) | | | | f (final demand) | x (total output) |
| | Medium (Md) | | | | | | |
| | Large (L) | | | | | | |
| | Others (R) | | | | | | |
| Import (m) | | | | | | | |
| Indirect tax (t) | | V | | | | | |
| Value-added (v) | | (primary inputs) | | | | | |
| Total input (x') | | | | | | | |

Source: Utit et al., 2016)

Table 2 Simplified SME-IO framework for Thailand

| | | Intermediate demand | | Final demand | Total output | Total Import |
|------------------------|--------------|--|---|---------------------|---------------------|-----------------------|
| | | S | N | | | |
| Intermediate input (Z) | SMEs (S) | Z (intermediate demand required among sectors plus imports) | | f (final demand) | x (total output) | m (-) less imports |
| | Non-SMEs (N) | | | | | |
| Indirect tax (t) | | V | | | | |
| Value-added (v) | | (primary inputs, excluding imported intermediate inputs) | | | | |
| Total input (x') | | | | | | |

Source: Based on the author's illustration

The SME input-output table for Malaysia was developed for the 2010 base year, covering 176 sectors with separations into small, medium, large, and others³. In contrast, Thailand developed two sets of tables, the first for the 2005 base year and the second for 2010. The datasets covered 360 sectors with only two categories of separation: SMEs and non-SMEs. Other than the level of detail for sectoral segregation, another distinct characteristic between the datasets produced for Malaysia and Thailand is related to the treatment of imports. The compilation of the dataset for Malaysia separated the intermediate input component into two parts: domestic intermediate inputs and imported intermediate inputs. Meanwhile, the components were aggregated in the case of Thailand.

The datasets were then harmonised through a two-step process to bridge the differences. The process started by mapping the list of sectors available in both datasets. Several sectors in Malaysia's input-output table were aggregated to match the sectoral grouping in Thailand's tables and vice-versa. Next, Malaysia's small and medium-sized sectors list was grouped into SMEs, following Thailand's size categorisation. The standardised framework and the number of matched sectors resulting from the harmonisation process are given in Tables 3 and 4.

² The SUTs describe how products (goods and services) are brought into an economy (either as a result of domestic production or imports from other countries) in the supply table, and how those same products (intermediate consumption; final consumption by household, non-profit institutions serving households, and general government; gross capital formation; and exports) are used in the use table.

³ "Others" classification refers to the sectors that cannot be segregated into small, medium and large categories. Two types of sectors fall under this limitation. The first is sectors with fewer players, such as Crude Oil and Natural Gas, and the second is the public sector. The main reason behind this limitation is the confidentiality policy that has prevented the Department of Statistics Malaysia from releasing the related industrial microdata.

Table 3 Standardised SME input-output table framework for Malaysia and Thailand

| | | Intermediate demand | | | Final demand | Total output |
|---------------------------|--------------|---|---|---|---------------------|---------------------|
| | | S | N | R | | |
| Intermediate input (Z) | SMEs (S) | Z (intermediate demand required among sectors) | | | f (final demand) | x (total output) |
| | Non-SMEs (N) | | | | | |
| | Others (R) | | | | | |
| Import (m) | | | | | | |
| Indirect tax (t) | | V | | | | |
| Value added (v) | | (primary inputs) | | | | |
| Total input (x') | | | | | | |

Source: Based on the author's illustration

Table 4 Number of matched sectors in the SME input-output tables for Malaysia and Thailand

| Size | Sector | | | | | Total |
|----------|--------|-----|-----|-----|-----|-------|
| | AGR | MIN | MAN | CON | SER | |
| SMEs | 5 | 3 | 22 | 1 | 7 | 38 |
| Non-SMEs | 5 | 3 | 22 | 1 | 7 | 38 |
| Others | | | 1 | | | 1 |

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

It is important to note here that the harmonisation process does not explicitly map the definitions of SMEs in Malaysia and Thailand because of the differences in the way SMEs are categorised in each country. For example, the definition for SMEs in Malaysia only involves two sectoral groupings (manufacturing and non-manufacturing), while Thailand detailed the definition into four sectoral groupings (manufacturing, services, wholesale and retail). Appendix 1 defines SMEs in Malaysia and Thailand.

METHODOLOGY

Based on Table 3, the standardised SME input-output table framework components were separated into three quadrants. The first quadrant explains the intra- and intersectoral transactions, represented by the matrix Z . Each element of z_{ij} indicates the amount of commodity from sector i used by sector j . In the second quadrant, vector f represents the final demand components—private consumption (c), investment (i), government consumption (g) and export (e). Finally, in the third quadrant, vector V gives the primary input components—imports (m), indirect tax paid to the government (t) and value-added (v). Vector x' is the total input, which equals the total output represented by vector x . Overall, the rows represent the amount of output that each sector sells as intermediate inputs and to final consumers. Meanwhile, the columns indicate the sectoral consumption of intermediate inputs and imports, the payment of taxes, and value-added creation (labour and capital).

The following equation defines a demand-driven model (also known as the Leontief model) that depicts the link between; output, intermediate inputs, and final demand, as shown in Table 3.

$$\begin{aligned} x &= Zi + (c + i + g + e) \\ x &= Zi + f \end{aligned} \quad (1)$$

where x is total output, Z denotes intermediate deliveries, i is a column vector of sector n , and f is the final demand vector with its components as previously described. As a result, Equation (1) states that total output equals the sum of intermediate inputs plus final demand.

Intermediate inputs are represented as endogenous variables in the model, whereas final demands are treated as exogenous variables. Equation (1) can be modified as follows to create a standard Leontief input-output model:

$$\begin{aligned} x &= Ax + (c + i + g + e) \\ x &= Ax + f \end{aligned} \quad (2)$$

where A is the input-output coefficient matrix, which depicts the amount of input a sector buys from other sectors per output unit. By adopting an n -sector economy with an intersectoral transaction matrix (Z) and sectoral total output vector (x), the input-output coefficient matrix can be expanded as follows:

$$A = Z\hat{x}^{-1} \quad (3)$$

where \hat{x} is the diagonalised matrix of x reflecting the intermediate purchases of sector j from sector i . Equation (2) can be represented as follows:

$$\begin{aligned} x &= (I - A)^{-1}f \\ x &= Lf \end{aligned} \quad (4)$$

where I is the identity matrix and $(I - A)^{-1}$ is the Leontief inverse matrix or multiplier matrix. The elements in this matrix reflect the total output impacts for any sector j to meet each unit of final demand.

Structural Analysis and Multiplier Model

Two main analyses were conducted to assess the magnitude of the weak interlinkage issue in Malaysia and Thailand, involving structural comparison analysis and multiplier impacts. While the first analysis dealt directly with the data in the standardised input-output tables through descriptive analysis, the multiplier model was developed based on the Leontief inverse matrix.

Structural comparison analysis was conducted to assess two important aspects of input-output flows in an economy: the production and output structures of SMEs. Observing the production structure was intended to understand the input mix or the ingredients in the production activities of SMEs and examine the interlinkage between SMEs and non-SMEs in the economy. This analysis was essential in proving the existence and quantifying the depth of the weak interlinkage issue in Malaysia and Thailand. In contrast, output structure was observed to assess the roles of SMEs in the economy. Specifically, the analysis informed whether SMEs were growth drivers (taking roles as intermediate input suppliers in the value chain) or final product producers.

In development planning, multiplier impact is a general indicator used by policymakers to assess the potential of economic sectors. In this study, the prospect of SMEs impacting growth was evaluated from the perspective of value-added multipliers. Value-added became the main indicator in this study's assessment since its changes directly explain the movement of GDP.

The modelling process for value-added multipliers started with expanding the standard input-output model in Equation (4). Introducing a vector of value-added coefficient h , which was derived by dividing the amount of value-added v of the j th sector by total input to sector x_j . In matrix notation, h becomes:

$$h = vx^{-1} \quad (5)$$

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

Besides input-output, the multiplier model can also be developed using the econometric approach. However, as this research considers the overall interactions in the economic system, the input-output modelling technique was employed. The utilisation of this approach is in line with the general equilibrium concept (as opposed to the econometric approach, which is based on the partial equilibrium concept), which stresses that equilibrium prices and quantities are assumed to have resulted from the economy-wide interactions. Additionally, the weak interlinkage issue that can only be assessed through the intra- and intersectoral transactions in the input-output table further justified the utilisation of this approach.

Data Sources

The primary datasets used in this paper were the SME input-output tables for Malaysia and Thailand (Utit et al., 2016; NESDB, n.d.). The dataset for Malaysia was available for the base year 2010 and Thailand for 2005. Although Thailand has developed datasets for 2005 and 2010, only the former was available for public access. One might argue that using these datasets exposed this study to a time-lag issue. However, evidence from past studies has indicated that only marginal changes have taken place in these economies. In Malaysia, structural changes were found to take more than ten years due to the lack of economic diversification (see Khazanah Research Institute, 2018). Meanwhile, in Thailand, Sen (2016) asserted that the absence of widespread land

reforms due to the high prevalence of tenancy farming in some parts of the country, especially Central Thailand, has impeded the pace of structural transformation.

RESULTS AND DISCUSSION

This paper assessed the magnitude of the weak interlinkage issue in Malaysia and Thailand by cascading the input-output modelling technique for SMEs. Specifically, the structural comparison analysis and value-added multiplier model developed in the methodological section were applied to the standardised SME input-output tables. The results from the analyses have been structured into two subsections. The first subsection provides the outcomes for the structural comparison analysis. Next, the discussion continues in the second subsection covering the sectoral value-added multiplier impacts among SMEs.

Structural Comparison

This subsection discusses the structural differences between SMEs in Malaysia and Thailand, with the specific attention given to their production and output structures.

Concerning the production structure, the composition of inputs in production activities in both economies was assessed to observe the intra- and intersectoral transactions between SMEs, non-SMEs and others, and primary inputs requirements—imports and value-added. In this assessment, value-added was treated as part of the primary inputs as the indicator represents the payment of salaries and wages to labour and capital expenditures. Note that the total input requirement sums up to 100%, implying the fixed input assumption in the input-output analysis. Table 5 details the findings of the production structure analysis.

Table 5 Production structures of SMEs and non-SMEs in Malaysia and Thailand (percentage, %)

| Component | SMEs | | Non-SMEs | |
|--------------------|---------------|---------------|---------------|---------------|
| | Malaysia | Thailand | Malaysia | Thailand |
| SMEs | 24.83 | 11.88 | 10.14 | 9.86 |
| Non-SMEs | 14.57 | 23.13 | 23.92 | 22.36 |
| Others | 6.15 | 6.23 | 4.44 | 3.17 |
| Imports | 15.39 | 15.36 | 25.56 | 28.73 |
| Value-added | 39.06 | 43.39 | 35.95 | 35.87 |
| Total Input | 100.00 | 100.00 | 100.00 | 100.00 |

Source: Based on the author's estimation

The findings confirmed the existence of the weak interlinkage issue in Malaysia and Thailand. Specifically, SMEs in both economies depended on non-SMEs as input suppliers, but the latter relied more on their clusters (non-SMEs producers) and imports. For example, 14.6% and 23.1% of inputs in SMEs production in Malaysia and Thailand were sourced from non-SMEs. In contrast, non-SMEs only acquired 10.1% and 9.9% of intermediate inputs from SMEs. The imbalance transactions, particularly for non-SMEs, were contributed by the significant shares of inputs sourced from their group of sectors and imports. Between the two economies, the magnitude of weak interlinkage was more extensive in Thailand due to the larger gap in input flows between SMEs and non-SMEs (23.1% vs 9.9%) compared to Malaysia (14.6% vs 10.1%).

Empirical evidence has shown that SMEs' productivity levels mainly explain this situation, evidenced by the OECD asserting that smaller firms are far less productive than their larger counterparts (OECD, 2021). Further, low technological absorption and the labour-intensive nature of SMEs in these two Southeast Asian countries have also partly contributed to the productivity situation (Intarakumnerd and Goto, 2016). Therefore, elucidating the weak supply chain from SMEs to non-SMEs.

As it is evident that non-SMEs are less dependent on SMEs as input suppliers, the outcomes from the output structure analysis quantified the flow of excess production of SMEs, thus determining their roles in the economy. While it is clear that the intra- and intersectoral flows were flagged as the intermediate demands, flows to; private consumption, government consumption, investment and export components were captured as final demands. Table 6 presents the findings of the output structure analysis.

Table 6 Output structures of SMEs and non-SMEs in Malaysia and Thailand (percentage, %)

| Component | SMEs | | Non-SMEs | |
|---------------------------|---------------|---------------|---------------|---------------|
| | Malaysia | Thailand | Malaysia | Thailand |
| Total intermediate demand | 49.32 | 29.97 | 38.68 | 41.06 |
| Total final demand | 50.69 | 70.03 | 61.33 | 58.95 |
| • Private consumption | 18.86 | 26.69 | 10.84 | 17.93 |
| • Government consumption | 0.03 | 0.81 | 0.04 | 0.87 |
| • Investment | 4.93 | 14.27 | 7.27 | 7.07 |
| • Exports | 26.87 | 28.26 | 43.18 | 33.08 |
| Total Output | 100.00 | 100.00 | 100.00 | 100.00 |

Source: Based on the author's estimation

The findings show a larger outflow of SMEs' output to final consumers. Nevertheless, the composition of intermediate and end-use products was almost balanced in Malaysia at 49.3% and 50.7%, compared to Thailand (30.0% vs 70.0%). Linking this observation to the findings in Table 5, the situation in Thailand was driven primarily by the extensive gap in input flows between SMEs and non-SMEs (which also reflects the magnitude of the weak interlinkage issue). Overall, SMEs in Malaysia were more integrated with the domestic production sectors as almost half of their output flowed back into the economy for further processing. These findings also offered a clear signal for SMEs in Malaysia concerning their potential to become growth drivers (by supporting the production of other economic sectors through the supply of intermediate inputs). On the other hand, Thai SMEs were more integrated with final consumers.

Value-Added Multiplier Impacts

The discussion in the previous subsection provided evidence concerning the issue of weak interlinkages surrounding SMEs in Malaysia and Thailand. Nevertheless, SMEs remain an integral part of development policies because of their sizable share and contribution to employment creation. In development planning, decisions to promote growth in any economic segment depend on the potential outcomes for macroeconomic indicators, such as value-added. Therefore, this subsection is structured to discuss the sectoral value-added multiplier impacts to identify the high-performing SMEs in both economies. Table 7 details the value-added multiplier impacts for 38 SMEs, non-SMEs, and average national sectors.

Besides having large multiplier impacts, another important consideration in promoting sectoral growth is the base effect. Size does matter in development planning because it determines the achievement of short- and medium-term policy targets. For example, the Twelfth Malaysia Plan (12MP) aimed to improve the contribution of SMEs to GDP by 45% at the end of the plan period (EPU, 2021). Malaysia's SMEs in sectors involving the Processing & preserving of foods, Wholesale & retail trade, Restaurants & hotels, Real estate and Business services should be promoted as growth drivers since they recorded the largest SMEs number in the economy. Similarly, in Thailand, considering their strength in agricultural production, downstream sectors that are directly linked to agriculture can be promoted as growth drivers. The sectors include; Processing & preserving of foods, Grain mills, Wholesale & retail trade, Restaurants & hotels and Business services.

Table 7 Sectoral value-added multiplier impacts of SMEs and non-SMEs in Malaysia and Thailand

| Sector | Malaysia | | | Thailand | | |
|--|----------|----------|------------------|----------|----------|------------------|
| | SMEs | Non-SMEs | Average National | SMEs | Non-SMEs | Average National |
| 1 Crops | 0.87 | 0.87 | 0.87 | - | 0.84 | 0.84 |
| 2 Rubber | 0.89 | 0.90 | 0.89 | - | 0.93 | 0.93 |
| 3 Livestock | 0.69 | 0.74 | 0.71 | - | 0.79 | 0.79 |
| 4 Forestry | 0.77 | 0.76 | 0.76 | - | 0.93 | 0.93 |
| 5 Fishery | 0.73 | 0.74 | 0.73 | - | 0.76 | 0.76 |
| 6 Crude Oil Mining | 0.82 | 0.91 | 0.91 | 0.87 | 0.87 | 0.87 |
| 7 Metal Ore Mining | 0.87 | 0.85 | 0.85 | 0.76 | 0.85 | 0.83 |
| 8 Other Mining & Quarrying | 0.85 | 0.87 | 0.86 | 0.73 | 0.86 | 0.80 |
| 9 Processing & Preserving of Foods | 0.79 | 0.78 | 0.79 | 0.71 | 0.72 | 0.72 |
| 10 Grain Mills | 0.72 | 0.76 | 0.73 | 0.82 | 0.84 | 0.82 |
| 11 Animal Feeds | 0.53 | 0.50 | 0.52 | 0.47 | 0.47 | 0.47 |
| 12 Tobacco Products | 0.78 | 0.79 | 0.79 | 0.91 | 0.94 | 0.94 |
| 13 Textile Products | 0.65 | 0.58 | 0.61 | 0.70 | 0.71 | 0.70 |
| 14 Leather Products & Footwear | 0.71 | 0.68 | 0.70 | 0.67 | 0.67 | 0.67 |
| 15 Wood Products | 0.74 | 0.69 | 0.71 | 0.75 | 0.77 | 0.76 |
| 16 Paper and Paper Products | 0.64 | 0.63 | 0.63 | 0.55 | 0.59 | 0.58 |
| 17 Printing | 0.65 | 0.63 | 0.64 | 0.60 | 0.61 | 0.60 |
| 18 Petroleum Refinery | 0.65 | 0.73 | 0.73 | 0.26 | 0.22 | 0.22 |
| 19 Basic Chemicals | 0.63 | 0.65 | 0.64 | 0.58 | 0.58 | 0.58 |
| 20 Other Chemical Products | 0.54 | 0.53 | 0.53 | 0.60 | 0.62 | 0.61 |
| 21 Tyres | 0.49 | 0.49 | 0.49 | 0.76 | 0.76 | 0.76 |
| 22 Plastics Products | 0.47 | 0.45 | 0.46 | 0.56 | 0.57 | 0.57 |
| 23 Non-Metallic Products | 0.59 | 0.56 | 0.57 | 0.66 | 0.69 | 0.68 |
| 24 Iron & Steel Products | 0.44 | 0.45 | 0.45 | 0.46 | 0.51 | 0.49 |
| 25 Basic Precious & Non-Ferrous Metals | 0.31 | 0.30 | 0.31 | 0.41 | 0.47 | 0.43 |
| 26 Fabricated Metal Products | 0.50 | 0.47 | 0.49 | 0.40 | 0.46 | 0.44 |
| 27 Industrial Machinery | 0.50 | 0.45 | 0.46 | 0.46 | 0.51 | 0.48 |
| 28 Other Machineries | 0.43 | 0.40 | 0.40 | 0.32 | 0.35 | 0.34 |
| 29 Motor Vehicles and Repairing | 0.47 | 0.38 | 0.39 | 0.46 | 0.44 | 0.44 |
| 30 Other Manufacturing | 0.61 | 0.53 | 0.56 | 0.46 | 0.49 | 0.48 |
| 31 Electricity & Gas | 0.71 | 0.66 | 0.67 | 0.74 | 0.76 | 0.76 |
| 32 Construction | 0.66 | 0.66 | 0.66 | 0.63 | 0.67 | 0.64 |
| 33 Wholesale & Retail Trade | 0.80 | 0.77 | 0.80 | 0.95 | 0.97 | 0.95 |
| 34 Restaurants & Hotels | 0.79 | 0.79 | 0.79 | 0.83 | 0.84 | 0.84 |
| 35 Transportation | 0.70 | 0.66 | 0.67 | 0.60 | 0.65 | 0.63 |
| 36 Real Estate | 0.87 | 0.85 | 0.86 | 0.97 | 0.98 | 0.97 |
| 37 Business Services | 0.82 | 0.80 | 0.82 | 0.79 | 0.89 | 0.80 |
| 38 Other Services | 0.84 | 0.79 | 0.83 | 0.76 | 0.82 | 0.78 |

Source: Estimated based on Equation (5)

CONCLUSION AND POLICY RECOMMENDATIONS

This paper explored the long-standing structural issue of weak interlinkages underlying SME development in Malaysia and Thailand and quantified their magnitude based on the cascaded input-output modelling technique. The findings validated the issue's existence in both economies, with Thailand recording it to a greater extent. As the issue leaves SMEs with gaps in their supply chain to non-SMEs, a sizeable share of SMEs' output is marketed for end-use, thus making it more integrated with final consumers. Nevertheless, the situation in Malaysia is more balanced, with vast potential for SMEs to grow as an ancillary economic segment. SMEs remain integral growth drivers for developing economies, such as Malaysia and Thailand, due to their size and employment impacts. Therefore, development policies should continue to support them by considering their value-added multiplier impacts.

Based on the provided facts and figures from the structural comparison and multiplier analysis, two policy recommendations are proposed: strengthening existing linkage programmes and establishing a content requirement policy.

In practice, policymakers have pushed for the adoption of various linkage programmes to improve intersectoral transactions between SMEs and non-SMEs. In Malaysia, the business linkage (BLing) program and SME mentoring are among the existing programmes focusing on improving integration and promoting systematic and smart partnerships between SMEs and non-SMEs (SME Corporation Malaysia, 2018). Meanwhile, Thailand advocates for subcontracting activities, particularly in high-value processing and manufacturing (Punyasavatsut, 2008). However, these programmes need to be strengthened to improve their effectiveness by encouraging the involvement of government-linked companies (GLCs). The participation of GLCs is essential because it helps break the linear value chain between SMEs and non-SMEs.

Implementing a content requirement policy in non-SME production should also be considered. This suggestion would encourage non-SMEs to divert their input sources, especially from abroad, to local SMEs. Certain thresholds for SMEs content in non-SME products could be introduced to support this policy initiative. However, it should be made non-compulsory to avoid violating the General Agreement on Tariffs and Trade for unfairly treating imported products compared to domestic products (see WTO, n.d.). As a measure to improve the compliance rate of non-SMEs, tax incentives could be introduced as part of the policy framework.

Despite the relevance of the findings offered in this paper, there remain areas for improvement. First, the current research has not considered the level of productivity that becomes an important determinant for the degree of interlinkage. Second, the discussions in this paper have been limited to the situation in the domestic markets. Therefore, improvement in these areas should be the primary focus of future studies. Additionally, a global value chain analysis might offer new insights for measures to improve the interlinkages situation between SMEs and non-SMEs.

REFERENCES

- Abdullah, M. A., 2019. Small and medium enterprises in Malaysia: Policy issues and challenges. Routledge.
- Alvarez, S. A. and Barney, J. B., 2001. How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Perspectives*, 15(1), pp.139-148.
- Ayyagari M., Beck T. and Demircug-Kunt A., 2007. Small and medium enterprises across the globe. *Small Business Economics*, 29(4), pp.415-434.
- Ayyagari, M., Demircug-Kunt, A. and Beck, T., 2003. Small and medium enterprises across the globe: A new database. *The World Bank*.
- Beck, T. and Demircug-Kunt, A., 2006. Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11), pp.2931-2943.
- 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*.
- Chittithaworn, C., Islam, M. A., Keawchana, T. and Yusuf, D. H. M., 2011. Factors affecting business success of small & medium enterprises (SMEs) in Thailand. *Asian Social Science*, 7(5), pp.180-190.
- Cho, M. R., 1997. Large-small firm networks: a foundation of the new globalizing economy in South Korea. *Environment and Planning*, 29(6), pp.1091-1108.
- Chong, S., Hoekstra, R., Lemmers, O., Van Beveren, I., Van Den Berg, M., Van Der Wal, R. and Verbiest, P., 2019. The role of small and medium-sized enterprises in the Dutch economy: an analysis using an extended supply and use table. *Journal of Economic Structures*, 8(1), pp.1-24.
- Cowling, M., 2003. Productivity and corporate governance in smaller firms. *Small Business Economics*, 20(4), pp.335-344.
- Cowling, M., Liu, W., Ledger, A. and Zhang, N., 2015. What really happens to small and medium-sized enterprises in a global economic recession? UK evidence on sales and job dynamics. *International Small Business Journal*, 33(5), pp.488-513.
- Department of Statistics Malaysia., 2017. *Economic Census 2016: Profile of Small and Medium Enterprises*, Department of Statistics Malaysia, Putrajaya.
- Economic Planning Unit., 2021. *Twelfth Malaysia Plan, 2021-2025: A Prosperous, Inclusive, Sustainable Malaysia*, Economic Planning Unit, Putrajaya.
- Edinburgh Group., 2012. *Growing the global economy through SMEs*. available at: http://www.edinburghgroup.org/media/2776/edinburgh_group_research_growing_the_global_economy_through_smes.pdf.
- European Commission., 2019. *Annual Report on European SMEs 2018/2019*. available at: <https://ec.europa.eu/docsroom/documents/38365/attachments/2/translations/en/renditions/native>
- Harvie, C., Narjoko, D. and Oum, S., 2013. Small and medium enterprises access to finance: Evidence from selected Asian economies. *ERIA Discussion Paper Series*, 23.

- Hassan, A., Saari, M. Y., Hamid, N. A., Utit, C. and Maji, I. K., 2018. A Heuristic Approach to Measure Contribution of Foreign Trade to Growth. *Malaysian Journal of Economic Studies*, 55(1), pp.115-131.
- 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. and Goto, A., 2016. Technology and innovation policies for small and medium-sized enterprises in East Asia. *ADB Working Paper Series*, Asian Development Bank Institute.
- International Finance Corporation., 2014. *MSME Country Indicators 2014: Towards a Better Understanding of Micro, Small, and Medium Enterprises*. available at: <https://www.smefinanceforum.org/sites/default/files/analysis%20note.pdf>
- Khazanah Research Institute., 2018. *Structure of the Malaysian Economy: An Input-Output Analysis*, Khazanah Research Institute, Kuala Lumpur.
- Lee, J. and Runge, J., 2001. Adoption of information technology in small business: Testing drivers of adoption for entrepreneurs. *Journal of Computer Information Systems*, 42(1), pp.44-57.
- Ndemo, E. B. and Smallbone, D., 2015. Linkage dynamics between small and large firms in Kenya. *DBA Africa Management Review*, 5(1), pp.38-59.
- NESDB., n.d. *Input-Output Table 2005*. available at https://www.nesdb.go.th/nesdb_en/ewt_news.php?nid=4311&filename=index
- OECD., 2008. *Enhancing the Role of SMEs in Global Value Chains*. available at: https://read.oecdilibrary.org/industry-and-services/enhancing-the-role-of-smes-in-globalvalue-chains_9789264051034-en#page3
- OECD., 2021. *Promoting the Productivity of SMEs in ASEAN Countries*. available at: <https://www.oecd.org/industry/ind/promoting-productivity-of-SMEs-in-ASEAN-countries.pdf>
- OECD/ERIA., 2018. *SME Policy Index: ASEAN 2018: Boosting Competitiveness and Inclusive Growth*. available at: <https://www.oecd-ilibrary.org/docserver/9789264305328-en.pdf?expires=1616640150&id=id&accname=guest&checksum=0BD33D240A9F7E0D49CEAE5E9B468B39>
- OSMEP., 2002. *SME Definition*. available at: 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
- OSMEP., 2016. *SMEs White Paper 2015*. available at: <https://www.sme.go.th/en/download.php?modulekey=94>
- OSMEP., 2018. *Executive Summary. White Paper on Small and Medium Enterprises 2017*. available at: http://www.industry.go.th/psd/index.php/2016-05-02-05-17-59/item/download/4061_06092e25c38dc85a170c6bde4a26ddfe
- Punyasavatsut, C., 2008. SMEs in the Thai manufacturing industry: Linking with MNEs. SMEs in Asia and Globalization, *Eria Research Project*, 5, pp.288-321.
- Robbins, D. K., Pantuosco, L. J., Parker, D. F. and Fuller, B. K., 2000. An empirical assessment of the contribution of small business employment to US State economic performance. *Small Business Economics*, 15(4), pp.293-302.
- Rogerson, C. M., 2013. Improving market access opportunities for urban small, medium and micro-enterprises in South Africa. *Urbani Izziv*, 24(2), pp.133-143.
- 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*, 17(1), pp.50-71.
- Sen, K., 2016. The determinants of structural transformation in Asia: A review of the literature. *ADB Economics Working Paper Series no.478*.
- SME Corporation Malaysia., 2013. *Guideline on New SME Definition*, SME Corporation Malaysia, Kuala Lumpur.
- SME Corporation Malaysia., 2018. *SME Input-Output Table: Analysis and Impact*, SME Corporation Malaysia, Kuala Lumpur.
- SMEA., n.d. *Japan's SME Policies in Relation to the Country's Economic Development*. available at: https://www.chusho.meti.go.jp/sme_english/outline/01/01.html
- Sulej, J. C., Stewart, V. and Keogh, W., 2001. Taking risk in joint ventures: whose throw of the dice?. *Strategic Change*, 10(5), pp.285-295.

- Tang, H., Wang, F., and Wang, Z., 2016. Extending the Input-Output Table Based on Firm-level Data. *CESifo working paper no. 5811*.
- USITC., 2010. *Small and medium-sized enterprises: characteristics and performance*, United States International Trade Commission, Washington, D. C.
- Utit, 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 at the 24th International Input-Output Conference, 4-8 July 2016, Seoul, South Korea.
- Utit, C., Shah, N. R. N. R., Saari, M. Y., Maji, I. K. and Songsingchai, P., 2021. Reforming Economy in Post-COVID-19 Periods by Improving the Inter-linkages Between SMEs and Large Firms. *International Journal of Economics & Management*, 15(2), pp.205-217.
- Wiklund, J. and Shepherd, D., 2005. Entrepreneurial orientation and small business performance: a configurational approach. *Journal of Business Venturing*, 20(1), pp.71-91.
- Wiklund, J., Patzelt, H. and Shepherd, D. A., 2009. Building an integrative model of small business growth. *Small Business Economics*, 32(4), pp.351-374.
- World Trade Organization (WTO)., n.d. *Article III: National Treatment on Internal Taxation and Regulation*. available at: https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art3_e.pdf
- Xie, X. M., Zeng, S. X. and Tam, C. M., 2010. Overcoming barriers to innovation in SMEs in China: A perspective-based cooperation network. *Innovation: Organization & Management*, 12(3), pp.298-310.