Discerning the Supply Chain of Bumiputera Entrepreneurs in the Malaysian Wood Products and Furniture Industry: Status, Challenges, and Remedial Measures

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Supply chain management has been identified as the major constraint on the growth of Bumiputera entrepreneurs in the Malaysian wood products and furniture sector. Therefore, a study to examine the characteristics of supply chain among Bumiputera entrepreneurs in the wood industry registered with the Malaysian Timber Industry Board was conducted. The results revealed that most of the respondents were micro- and small-sized enterprises, with a sales focus on the domestic and contract-market. They were predominantly wooden furniture manufacturers, who had a relatively low level of knowledge about supply chain management. The respondents also indicated that their major challenges include lack of finances, small volume of production, and the lack of government support. The factor analysis and regression analysis conducted revealed that for Bumiputera entrepreneurs to gain better supply chain management they need to improve their frequency of engagement, trust, culture, and maturity with their supply chain actors and partners. The results of this study are unique, as it implies that policymakers should take heed of improving supply chain management, to reverse the flagging fortune of Bumiputera entrepreneurs in the Malaysian wood products and furniture sector.

INTRODUCTION

The term 'supply chain' (SC) refers to a network of production and distribution that incorporates all functions from the procurement of the raw materials, processing the raw materials into finished products, and finally distributing it in the market and to customers (Ab Latib *et al.* 2022). In essence, SC involves many direct and indirect stages not only at the manufacturing end, but also carrying through activities such as warehousing, retailing, and satisfying customers (Benita 1997). In general, SC is part and parcel of the business process, and has two major objectives: (1) establishing a relationship between suppliers and customers as it impacts the efficiency of the overall business process, and (2) achieving effectiveness and efficiency throughout the SC. Therefore, building collaborative relationships are necessary to improve the business efficiency in the SC (Jha *et al.* 2022).

The subject of SC has received research attention since the mid-1990s, and most studies evaluating SC from different points of view incorporate concepts introduced at that

point (Chopra and Meindl 2001). As highlighted by Simatupang and Sridharan (2005a), the success of any SC model depends on the level of collaboration and cooperation between the various partners, through information sharing, joint decision making, and sharing the benefits, with the sole aim of satisfying the customers. This requires the partners to share their resources, capacities, and abilities to fulfil the customers' need, which must be built on a reciprocal relationship to ensure sustainability.

The relationships in SC are mostly active vertically or horizontally. Vertical relations cover all the relations within the enterprises, between components in different classes. By contrast, horizontal relations are within the same class. A vertical relation completely connects the first provider in many ways to the final customer. These relations occur when central factors increase influence on other factors in many different classes. Vertical alignment is always directed at both the relationship between the manufacturer and the first supplier and between the manufacturers and the final customer (Ganeshan and Harrison 1995; Li *et al.* 2016; Kumar *et al.* 2017). In the furniture sector vertical relationships in SC are more common compared to horizontal relationships. This is due to the nature of the business, which is predominated by SMEs. Unlike other manufacturing sectors, such as electrical and electronics, the SC within the wood products and furniture sectors is less complicated, having fewer players. The relationship among players in the SC is often based on trust and cultural factors (Ratnasingam 2018).

The interaction in SC can be typically categorized into three main types, namely transaction, collaboration, and relationship (Caridi *et al.* 2012). Transaction relates to the exchange or transfer of goods, services, or finance from one partner to the other, often negotiated on the basis of price (Hugos 2018). Collaboration is working together or cooperating with a partner for mutual benefit, while relationship often takes the form of a union of two entities into one entity for overall growth and mutual benefit of both partners (Hugos 2018).

The success of SC in many industrial sectors throughout the world has been extensively studied, and consistently identified many interrelated contributory factors that lead to the SC's effectiveness and efficiency (Harland 1996; Larsson *et al.* 2016; Li *et al.* 2016). The eight factors affecting the SC's success are:

(1) Trust (T): A positive belief, attitude, or expectation of one partner concerning the likelihood of action or outcome of the other partner will be satisfactory (Hadaya and Cassivi 2007; Dalalah *et al.* 2022).

(2) Power (P): In a SC the cooperating partners must consider each other's size, impact, and status. If one partner is larger in size, with higher impact, it will yield more power in that relationship, hence, it may lead to the smaller partner to undertake unfavourable activities for the benefit of the more powerful partner (Suong 2012).

(3) Maturity (M): Matured SC interaction reduces uncertainty of improved business performance and is the best route to follow to achieve competitive advantage (Garcia and Hora 2017).

(4) Frequency (F): Frequency refers to how often a transaction occurs. More transactions suggest greater engagement with each other, which leads to a closer relationship (Handfield 2004a).

(5) Distance (D): This refers to the geographical distance, cultural distance, and organizational gap between in the SC (Handfield 2004b).

(6) Culture (C): Reflects the shared values and belief that help the partners in the SC understand organizational functioning process and provide behavioural norms. Differences in organizational, social level, or value system could create differences in opinion or conflicts of interest (Handfield 2004a; Suong 2012).

(7) Strategy (S): This factor is important for partners to effectively implement production planning and scheduling of new product development, inventory replenishment, promotions, and advertisement. Without such a strategy, the effectiveness of the SC will be adversely affected (Handfield and Bechtel 2002; Suong 2012).

(8) Policies (P): Government policies may exert direct influences through formal and informal measures, which will significantly affect the SC (Harland 1996).

Against this background, it is obvious that the success of SC in industrial sectors must be developed, fostered, and managed to be effective and efficient, to ensure the overall competitiveness of the industrial sector. In this context, the recent COVID-19 pandemic has revealed the importance of SCs and disruptions in SCs have caused major problems to economies around the world, especially with regard to price increases and supply constraints (Doustmohammadi and Babazadeh 2020; Ratnasingam *et al.* 2020; Sachan *et al.* 2023).

Overview of the Malaysian Furniture Industry in Malaysia

In the Malaysian context, the furniture manufacturing industry is predominated by micro-, small-, and medium-sized enterprises (MSMEs), which are defined as firms with annual sales that do not exceed RM 50 million or have less than 200 full-time employees on staff (SMECorp. 2020). Because furniture manufacturing is traditional and labour-intensive in nature, SMEs are the backbone of the furniture sector. The SMEs provide the needed flexibility in product design and volume production in the fashion sensitive global furniture market. According to Ratnasingam *et al.* (2021), SMEs represent 85% of all registered furniture manufacturing enterprises in the country and constitute the most important element of industrial development.
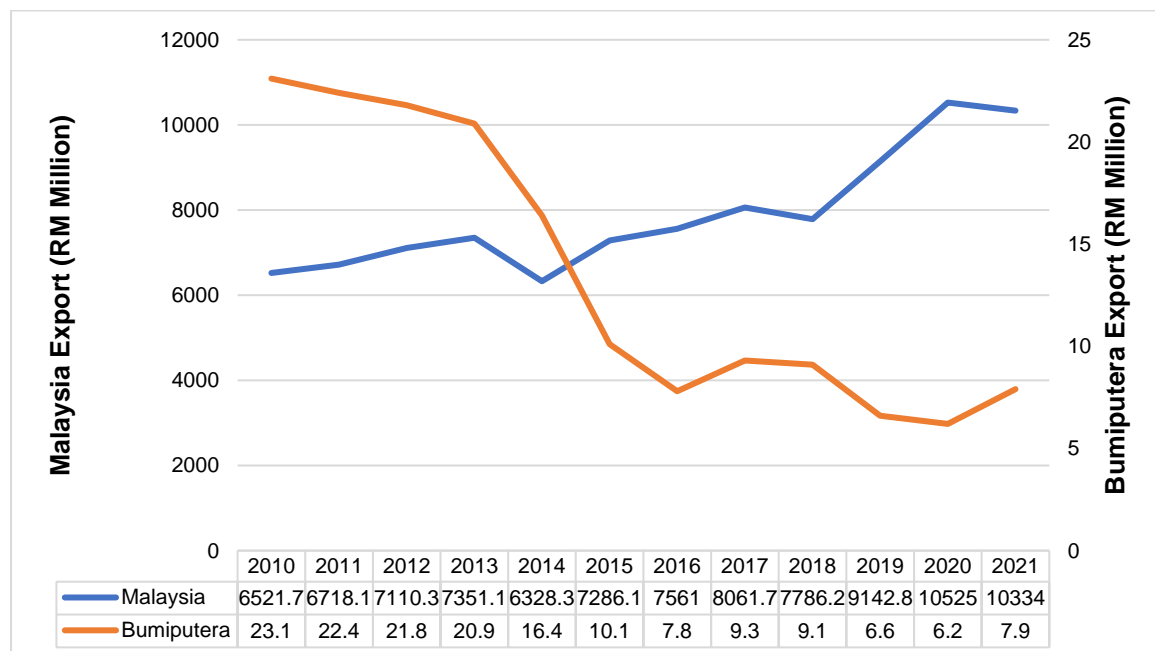

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Malaysia	6521.7	6718.1	7110.3	7351.1	6328.3	7286.1	7561	8061.7	7786.2	9142.8	10525	10334
Bumiputera	23.1	22.4	21.8	20.9	16.4	10.1	7.8	9.3	9.1	6.6	6.2	7.9

Fig. 1. Export performance of Bumiputera furniture entrepreneurs; Source: MARA (2022)

The Malaysian business environment is unique because of the existence of multi-ethnic groups that operate and behave in unique ways that best suit them (Ratnasingam

2015). A previous study by Gomez and Saravanamuttu (2013) has shown that certain ethnic groups have a strong hold on some economic sectors, but the disparity has been somewhat reduced due to government intervention since the formation of the New Economic Policy in the early 1970s. For the furniture manufacturing sector, approximately 94% of the existing furniture SMEs belong to the Chinese ethnic group, whereas the Malay ethnic group owns only 3% of the SMEs in the furniture industry (Ratnasingam 2018). Despite the affirmative government policies to assist Bumiputera (another broad term for the Malay-ethnic group) entrepreneurs in the furniture sector, their performance has not been up to mark (Fig. 1).

The exhaustive study by Ratnasingam (2018) has shown that the Bumiputera entrepreneurs in the furniture sector are faced with a three-prong weakness that retards their growth potential. Firstly, their control and management of the supply chain is weak, which severely affects their competitiveness. Secondly, their micro- and small-sized enterprises have limited capacity, and hence, they cannot tap major markets. Thirdly, their lack of financial and management expertise often leads to poor business judgements and low resilience. Although other factors also adversely affect the performance of Bumiputera entrepreneurs in the furniture sector, the above three factors warrant attention (Kelman 2018).

On this account, Bumiputera entrepreneurs' participation in the Malaysian wood products and furniture sector is limited and can be considered as insignificant compared to the non-Bumiputera portion (Ratnasingam 2018). Bumiputera entrepreneurs contribute less than 2.5% of the total production volume of wood products and furniture in the country. The lack of Bumiputera entrepreneurs within the support industries also negatively impacts the SC of Bumiputera furniture manufacturers. As a result, the inadequate volume, and limited financial strengths of Bumiputera entrepreneurs limits the opportunities for them to negotiate a better deal for supplies (Ratnasingam 2018), which in turn makes it difficult to map the SC among Bumiputera manufacturers.

Inevitably, Bumiputera manufacturers have limited production capacity and therefore are not able to participate in large production volumes, which restricts their ability to participate in the export market. Despite the many efforts and initiatives by the government to assist Bumiputera entrepreneurs to increase their equity in the wood products and furniture sectors, these initiatives have not resulted in positive outcomes. The main constraints faced by Bumiputera entrepreneurs are their limited production capacity and financial strength, which negatively impacts their SC management (Ratnasingam 2018). Bumiputera entrepreneurs are usually compelled to purchase supplies on cash terms from non-Bumiputera suppliers who have a stronghold on the SC. Consequently, cash flow management is a common issue faced by Bumiputera entrepreneurs, which limits their ability to acquire technology, skilled personnel, and other production inputs. In fact, it has been noted that the level of collaborations between Bumiputera and non-Bumiputera entrepreneurs are limited, which explains the restrictive environment in which Bumiputera entrepreneurs operate. Improvements in SC management are very important for Bumiputera entrepreneurs to grow in the highly competitive wood products and furniture sectors (Ratnasingam 2018).

Although there are plenty of studies on supply chain (SC) (Simatupang and Sridharan 2005a,b; Sanders 2020), those focused on the furniture sector, especially on Bumiputera furniture sector, are grossly limited (Ratnasingam 2015; Larsson *et al.* 2016; Li *et al.* 2016). The importance of SC management became obvious, since the onset of the COVID-19 pandemic, when approximately 37% of the total operating SMEs in the country reported a notable reduction in economic activities due to serious supply chain disruptions

(Ratnasingam *et al.* 2020; SME Corp. 2020). In this respect, research on the SC management among Bumiputera entrepreneurs in the furniture sector is indeed pressing, considering their status as the weaker furniture manufacturers in the country.

Supply Chain in the Malaysian Bumiputera Furniture Sector

Generally, the model of SC varies according to the industrial structure. Based on the previous report by Ratnasingam *et al.* (2021), the Bumiputera furniture supply chain in Malaysia is as shown in Fig. 2.
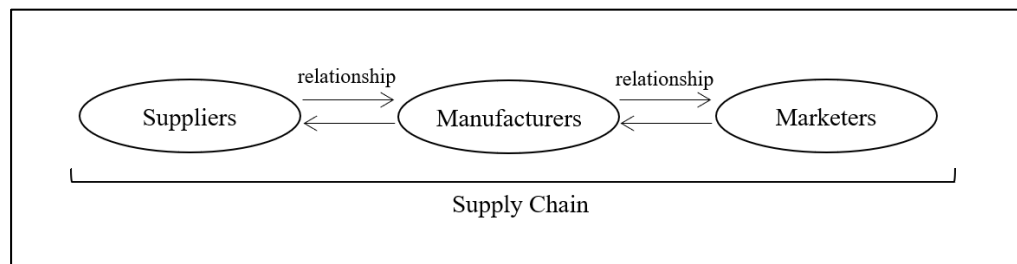
Fig. 2. General supply chain concept

The three major actors predominant in the Bumiputera furniture SC in Malaysia, include the material suppliers, manufacturers, and distributors. Further, these actors do not have a close connection (both vertical and horizontal) among them, which imparts obvious difficulties in achieving the same level of quality, specifications, and standards throughout the SC (Kumar *et al.* 2022). This reveals that the actors' activities in this SC are spontaneous and scattered; they prefer short-term interests, rather than long-term benefits (Paliwal *et al.* 2022). A closer analysis of the Bumiputera supply chain reveal that the connections between the three predominant actors are not direct, but often through intermediaries (Fig. 3), which affects the overall effectiveness and efficiency of the SC (Li *et al.* 2016; Paul *et al.* 2022).
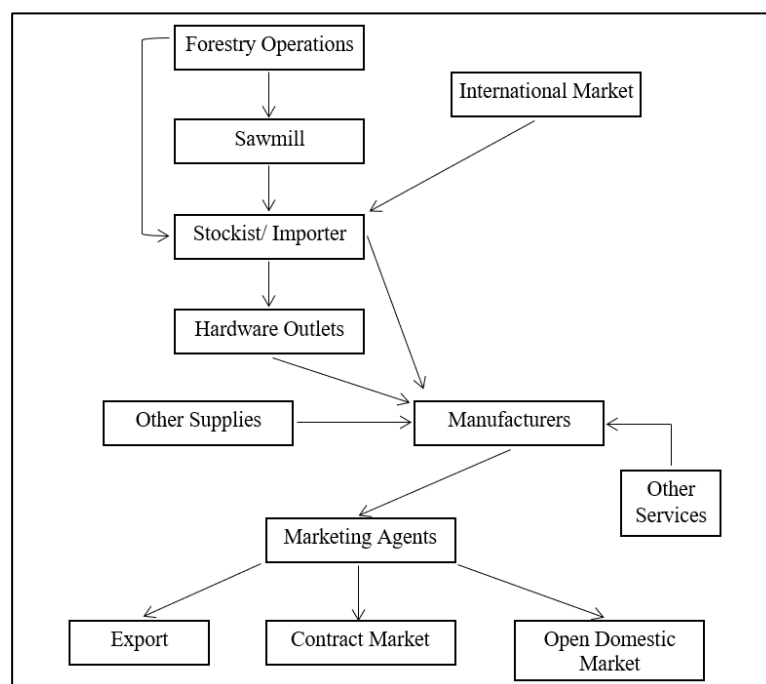
Fig. 3. Bumiputera Furniture Supply Chain in Malaysia

The presence of intermediaries, also known as 'economic rent seekers' compromises the value proposition of the SC. This inevitably leads to uncompetitive business practices that has adversely affected the overall performance of Bumiputera entrepreneurs, not only in the furniture sector, but also in other industrial sectors (Ratnasingam *et al.* 2021). This phenomenon has not been well researched, despite being acknowledged as widely practiced within the industry.

To address the challenges faced by Bumiputera entrepreneurs in SC management in the furniture sector in Malaysia, the question of the effectiveness of the existing SC management must be explored in detail. Therefore, to better understand the role and relations among these actors in the Bumiputera furniture SC, this research focused on evaluating the role of each actor in the SC, and the factors that contribute to the pre-existing conditions in the SC, and the main challenges faced. The results of this study will provide useful insights to policymakers and industry players to take the necessary remedial actions to reverse their fortunes and improve the overall performance of Bumiputera entrepreneurs in the furniture sector.

METHODOLOGY

Research Design

This research was conducted using two methods: (1) Qualitative research, using an online questionnaire survey, aimed at gathering relevant information about the background of the entrepreneurs, their existing supply chain model, level of complexities of the supply chain, and the major challenges faced with regard to their operation. (2) Quantitative research, with a focus to collect, analyse, and test the component scale of the various factors determining the effectiveness and efficiency of the SC among Bumiputera entrepreneurs (Dillman *et al.* 2014). The factors chosen were: (i) the degree of trust among partners; (ii) the power of partner; (iii) the degree of maturity in the relationship among partners; (iv) the frequency of transactions among partners; (v) the distance among partners; (vi) government policy; (vii) culture; and (viii) strategy of partners. These factors were scaled by 39 observation variables measured using the 5-point Likert scale, in which 1 denotes complete disagreement, while 5 reflects complete agreement. These factors were chosen after discussion with industry experts and academics, as well as consideration of previous studies (Larsson *et al.* 2016; Ratnasingam *et al.* 2020, 2022).

Sample Population

The population size for the study was the 485 registered Bumiputera entrepreneurs in the database, of the Bumiputera Development Division, of the Malaysian Timber Industry Board (MTIB). These potential respondents were initially contacted to obtain their consent to participate in the study, and 73 entrepreneurs responded positively. E-mail invitations containing a link to the online survey were sent to these respondents, and after three weeks, a total of two reminders were sent to those who had not responded. Apart from the online survey, 23 face-to-face interviews were also conducted at some of the respondents' offices.

Questionnaire Design

The survey was implemented using an online questionnaire designed using Google-Forms, which was distributed electronically *via* emails, and supplemented with a limited face-to-face interview using a printed questionnaire. The survey was conducted at the

respondents' offices. The first part of the questionnaire consisted of a combination of both open- and closed-ended types of questions and sub-divided into seven sections: (1) background of respondent, (2) types of products manufactured, (3) market for the product, (4) encounter problems with the supply chain (rated as yes or no), (5) knowledge of existing supply chain (rated as either poor, average, or good), (6) complexity of supply chain with regard to materials and services, and (7) challenges faced in their operation. In this study, the knowledge on supply chain is focused on assessing the respondents' understanding of the supply chain concept and its intricacies. The second part of the questionnaire required the respondents to evaluate the 8 factors affecting the effectiveness and efficiency of the SC, based on the 36 observation variables related to the 8 factors, rated using the 5-point Likert scale.

After necessary corrections and amendments were made, a pre-test survey was conducted among 20 randomly selected Bumiputera entrepreneurs to check for the questions' clarity and the timing of respondents answering the questions. Necessary corrections and amendments based on the outcomes of the pre-test survey were made accordingly before data collection.

Data Analysis

The descriptive data from the first part of the questionnaire were computed for continuous variables and the results presented are presented as graphical charts. To assess the level of knowledge of the supply chain concept among the respondents, the percentage of correct answers were ranked as good ($> 75\%$), average (46% to 74%), and poor ($< 45\%$). This provided an effective way to evaluate the level of knowledge and understanding of SC concepts among the respondents.

The data from the second part of the questionnaire was subjected to the reliability analysis to test the factors prior to the factor analysis (Creswell 2002). Observed variables with a Cronbach's alpha score of less than 0.5 were discarded, and the overall factor impact towards the success of the SC was determined. The reliability analysis results for the 8 factors were found to be at a good level (Cronbach alpha score of 0.74), which indicated that the data collected through this analysis achieved scale internal reliability for the next in-depth analysis (Dillman *et al.* 2014).

Then, the remaining factors were subjected to the factor analysis. The factor analysis was used to reduce the total number of observable variables for each factor to a manageable factor. Principal components analysis was used to extract factors that contribute to the success of the SC. These are factors with eigenvalue greater than 1. Varimax rotation is used to facilitate interpretation of the factor matrix, *i.e.*, reflect the loadings of each variable on the factor, by identifying its degree of representation of the factor. Sampling adequacy measurement tests are also examined *via* the Kaiser-Meyer-Olkin test to validate the use of factor analysis. (Creswell 2002). The data was analysed using the Statistical Package for Social Sciences (SPSS) version 25 software (IBM Corp., Armonk, NY, USA).

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RESULTS AND DISCUSSION

The results of this study are presented in two parts.

Part I: Respondent Characteristics

Based on the responses compiled and analysed from the questionnaire survey, most of the respondents were micro-enterprises (with less than 5 workers). Figure 4 reflects the distribution of the respondents based on their number of workers, which also corresponds with an earlier report by Ratnasingam (2018), who showed that the majority of the Bumiputera entrepreneurs in the wood products sector in the country are micro- and small-sized enterprises.
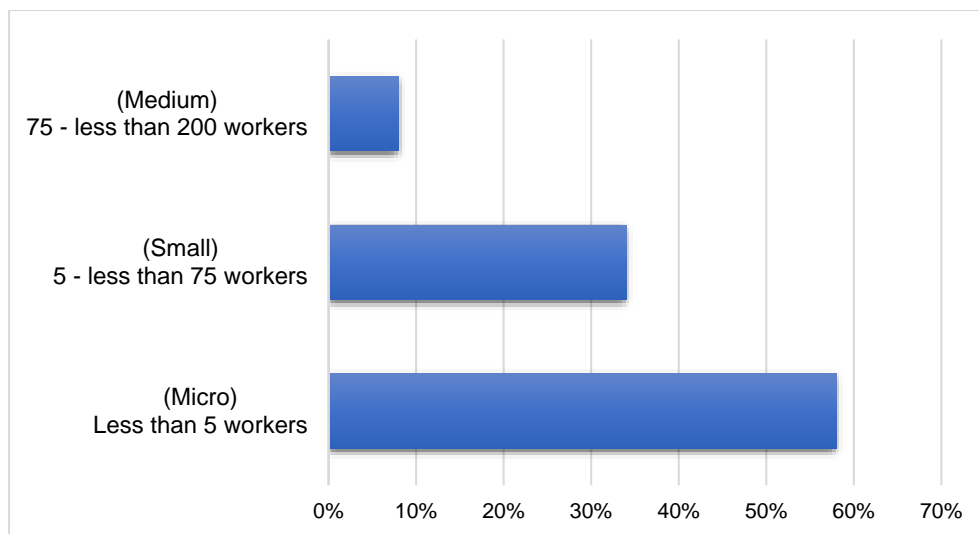

Fig. 4. Distribution of respondents by company size

In terms of the products manufactured, wooden furniture (including kitchen cabinet) was the highest (48%), followed by handicraft (17%), and carvings (6%). As shown in Fig. 5, it is apparent that Bumiputera entrepreneurs, generally, have a tendency to focus on wooden furniture as the preference for such furniture is large in the domestic market, and is generally preferred by the Bumiputera consumers at large (Ratnasingam 2018; Ratnasingam *et al.* 2021).
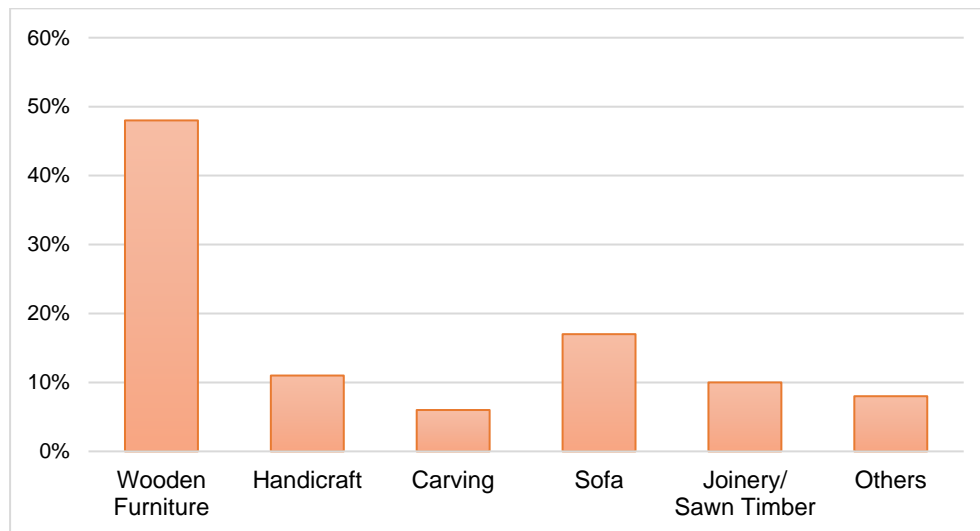
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Fig. 5. Types of wooden products produced

Most of the wood products manufactured by the respondents were for the domestic market, while a smaller proportion is also supplied through public procurement, for government agencies, *etc.* Figure 6 shows that the export proportion is the smallest, highlighting that export competitiveness of Bumiputera entrepreneurs in the wood products sector is limited (MTIB 2020).
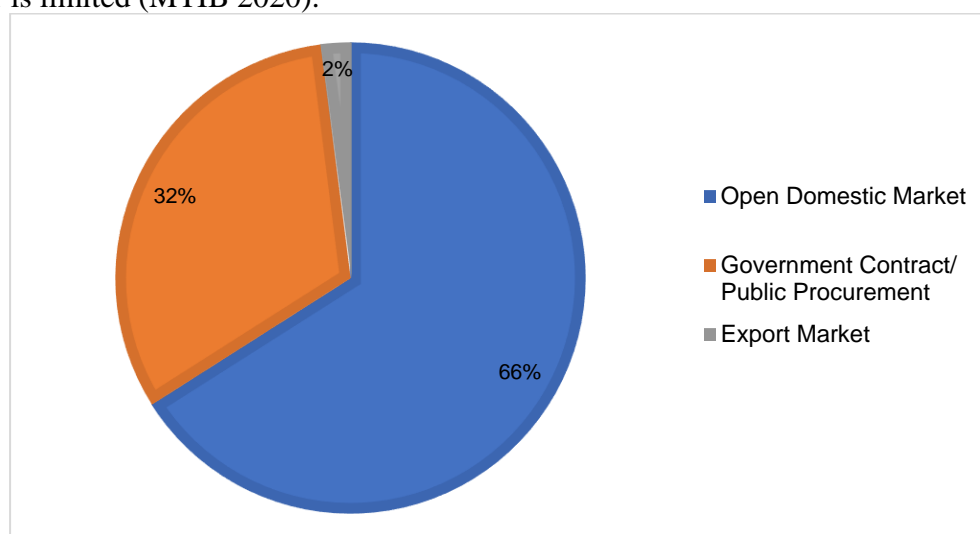

Fig. 6. Market for wood products from respondents

The results of the survey also highlighted that the majority of the respondents (79%) were faced with SC problems of varying degrees, related to sourcing of raw materials, supplies, and components. The remaining 21% of the respondents indicated that they have limited issues with their SC. This revelation is of particular importance suggesting that assistance to the Bumiputera entrepreneurs in the wood products industry to boost their competitiveness should pay close attention to strengthening their SC (Suong 2012).

This point is further alluded by the fact that only 14% have a good knowledge of SC management, while the majority do not have sufficient knowledge on SC management (Fig. 7). Without sufficient understanding of the importance of SC, effective management of the SC cannot be achieved, which leads to uncompetitive manufacturing environment.

As a result, the Bumiputera entrepreneurs appear to be at a disadvantage, due to their inadequacy in managing raw materials and supplies, which explains the below par competitiveness in the wood products sector (Ratnasingam 2018; Ratnasingam *et al.* 2021). The SC management is crucial for the competitiveness of any business enterprise, as it affects the pricing, delivery, quality, as well as the level of customer satisfaction, which is illustrated by many of the successful wood products retailers, such as IKEA (Suong 2011a,b).
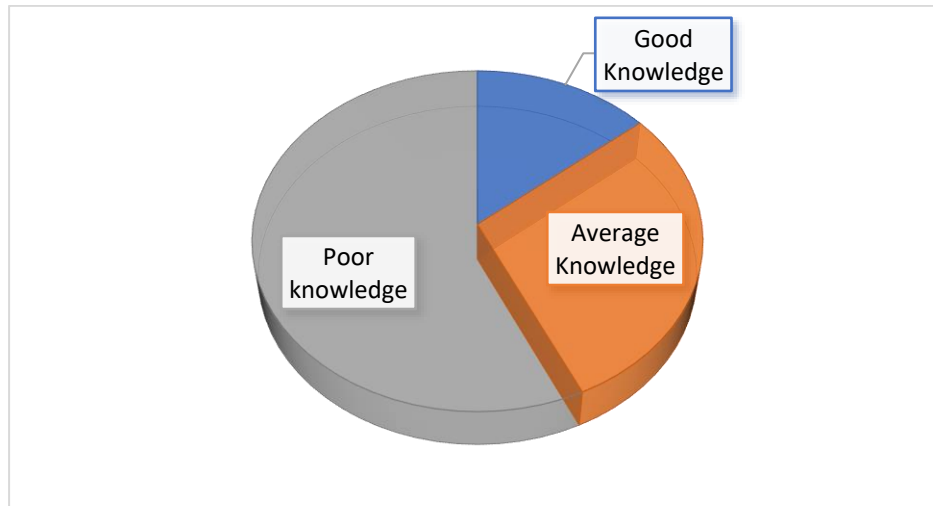

Fig. 7. Knowledge on supply chain

The respondents also indicated that the highest level of complexity in the supply chain is related to wood and wood-based materials supplies, while services are the least complex (Fig. 8). This may be attributed to the predominance of non-Bumiputera entrepreneurs, especially Chinese entrepreneurs, as actors within the supply chain, which inevitably, puts the Bumiputera entrepreneurs at some disadvantage, because of the size of their operations (Togar and Sridharan 2002; Suong 2013).
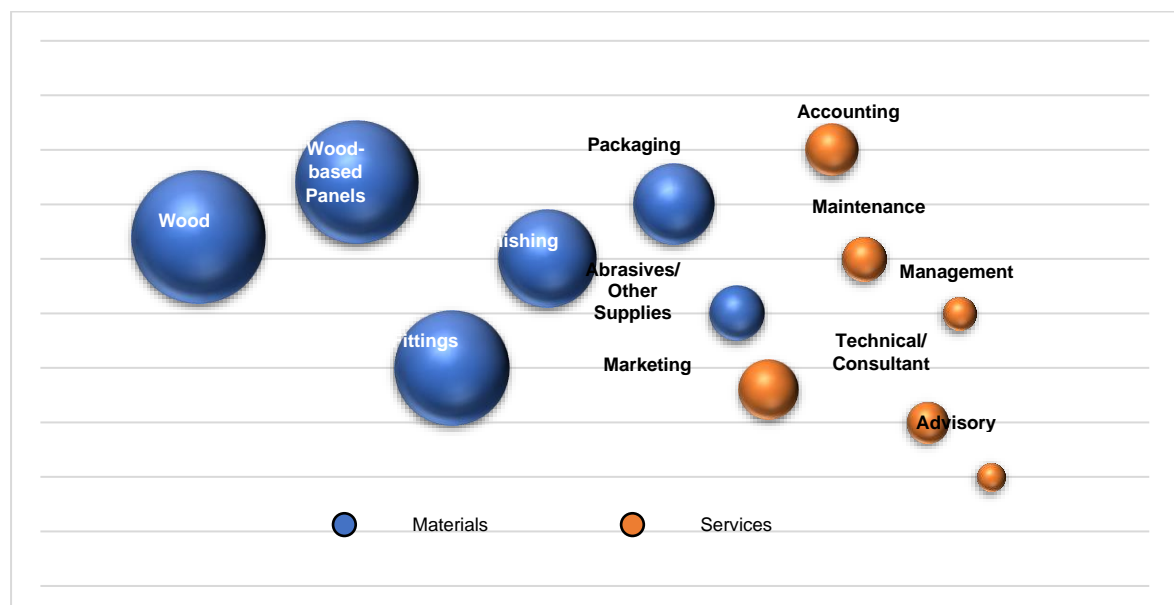

Fig. 8. Level of complexity in supply chain of materials and services

It is worth mentioning that the respondents highlighted lack of finances, small production volumes, and lack of government assistance as the three most important challenges faced regarding SC management (Fig. 9).
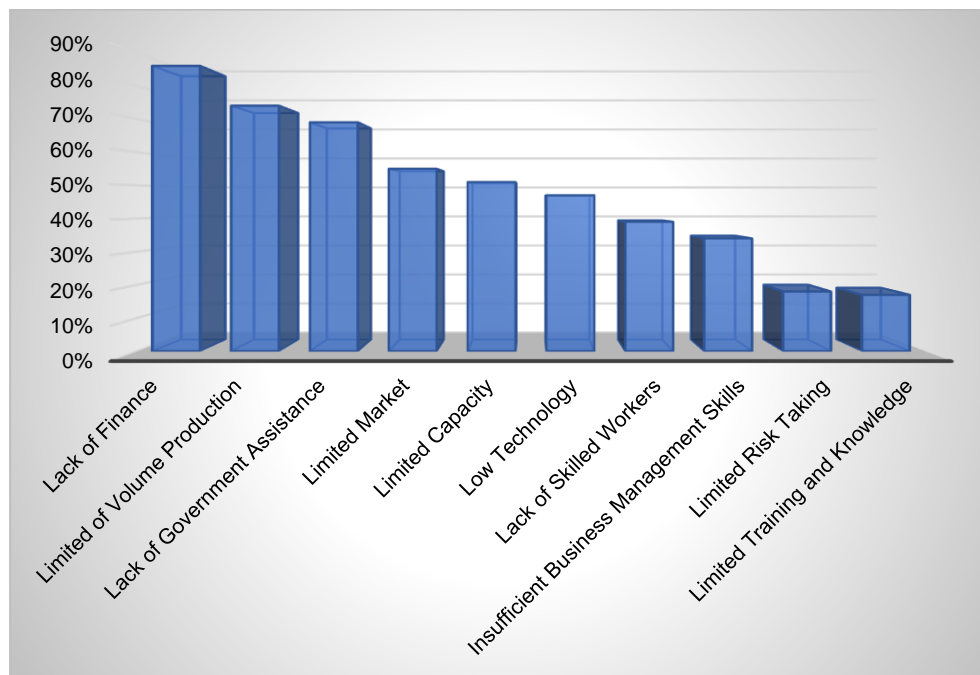

Fig. 9. Challenges faced in supply chain management

The respondents also indicated that they prefer to deal with Bumiputera partners, rather than non-Bumiputera partners, suggesting a level of unequal relationship between business partners of different ethnicities, as suggested by Ratnasingam (2018). These results appear to contravene the concept of free-market practices, as businesses are expected to build competitiveness using their resources to the best of their ability, while the government is tasked with providing a fair playing field for businesses to thrive (Robb *et al.* 2008).

Therefore, it is obvious that the Bumiputera entrepreneurs in the wood products industry lack the necessary level of competitiveness to thrive in the open market, hence, requiring government assistance to remain viable. In the context of this study, the problems related to SC management faced by the Bumiputera entrepreneurs in the wood products sector must be explored, and an evaluation of the facilitating factors that builds good SC management is warranted.

Part II: Factors Affecting Supply Chain Management among Bumiputera Entrepreneurs

The data obtained from the questionnaire survey was initially subjected to the sampling adequacy measurement completed using the Kaiser-Meyer-Olkin (KMO) method, which in turn validated the use of factor analysis. The factor analysis is a method used to reduce the total number of factors to a manageable number of factors. The factor matrix was interpreted using the Principal Component Analysis, and Varimax Rotation, which extracted the factors with Eigen value > 1. The results, the composition of the factors, with a degree of significance of < 0.05, and KMO = 0.769, the factors converge to 5 factors with total deviation of 67.9%.

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Table 1. Factor Analysis of the Supply Chain Construct

Variables	*T*	*P*	*M*	*F*	*D*	*C*	*S*	*P*
T1: Trust of enterprise based on financial strength	**0.570**	0.212	0.103	-0.301	0.019	0.389	0.271	0.396
T2: Trust of enterprise based on size	**0.501**	0.133	0.241	0.141	0.106	0.413	0.267	0.314
T3: Trust of enterprise based on business commitments	**0.692**	0.141	0.210	0.211	0.127	0.309	0.311	0.218
T4: Trust of enterprise based on reputation	**0.655**	0.301	0.301	0.271	0.203	0.411	0.361	0.269
T5: Trust of enterprise based on partners' shared information	**0.588**	0.211	0.328	0.211	0.219	0.370	0.318	0.313
T6: Trust of enterprise based on ability to flexibly respond to changing needs	**0.596**	-0.271	0.311	0.304	0.203	0.279	0.338	0.301
T7: Greater the trust on the enterprise, the greater is possibility of cooperation	**0.601**	0.317	0.219	0.317	0.101	0.366	0.359	0.388
P1: The large-sized enterprises, have greater power	0.289	*0.447*	0.311	0.219	0.289	0.011	0.126	0.018
P2: Enterprise that has large influence in the industry has more power than partners	0.301	*0.375*	0.014	0.163	0.301	0.018	0.214	0.128
P3: The higher the position of the enterprise in association, the more powerful the enterprise is	0.260	*0.360*	0.019	0.144	0.216	0.241	0.301	0.015
P4: The more power an enterprise has, the greater is its ability to cooperate with a partner	0.231	*0.336*	0.211	0.201	0.201	0.281	0.213	0.011
M1: Enterprise has ability to predict the needs of partners	0.114	0.216	**0.634**	0.313	0.201	0.368	0.218	-0.084
M2: Enterprise has ability to control their partners	0.301	0.219	**0.586**	0.209	0.215	-0.313	0.201	-0.059
M3: Contracts are only formality between enterprise and partners due to maturity in business	0.277	0.308	**0.605**	0.216	0.118	0.299	0.144	0.199
M4: The more matured the business is, the higher is the possibility of cooperation	0.201	0.320	**0.698**	0.309	0.204	0.337	0.198	0.201

F1: Enterprise and partners share a lot of similarity	0.201	0.308	0.021	**0.504**	0.011	0.213	0.281	0.011
F2: Enterprise and partner have an interdependent relationship of inputs - outputs in the industry	0.231	0.289	0.019	**0.681**	0.074	0.322	0.302	0.017
F3: Enterprise maintains regular transactions with partners whenever demand arises	0.285	0.251	0.301	**0.682**	0.107	0.301	0.344	0.410
F4: The more frequent the business transaction, the higher the possibility of cooperation	0.319	0.218	0.213	**0.719**	0.019	0.299	0.310	-0.366
D1: Enterprise often buys raw materials from local suppliers	0.091	0.218	0.301	0.349	0.354	0.201	0.299	0.344
D2: Enterprise often buys raw materials from foreign suppliers	0.094	0.277	0.289	0.328	0.367	0.019	0.319	0.301
D3: Enterprise focuses on distribution of the domestic market	0.021	0.283	0.313	0.302	0.323	0.228	0.346	0.289
D4: Enterprise focuses on export business	0.026	0.301	0.310	0.316	0.309	-0.214	0.189	0.336
D5: Geographic distance hinders the cooperation of enterprise with partner	0.018	0.210	0.366	0.341	0.345	0.015	0.133	0.328
C1: Enterprise has natural tendency to cooperate with partner	0.455	0.320	0.104	0.310	0.301	**0.560**	0.161	0.269
C2: Enterprise is willing to cooperate with partners to offer customers effective solutions	0.404	0.218	0.067	0.218	0.324	**0.589**	0.159	0.298
C3: Enterprise is aware of the benefits of cooperating with partners	0.418	0.265	0.041	0.339	0.349	**0.695**	0.148	0.229
C4: The higher cooperative culture of the enterprise, the higher is the possibility of cooperation with partners	0.399	0.311	0.028	0.361	0.310	**0.621**	0.199	0.216
S1: Companies are ready to make acquisitions or mergers to improve competitiveness	0.211	0.298	0.314	0.345	0.208	0.306	0.301	0.401
S2: Businesses aim to rationalize capital and production	0.261	0.259	0.308	0.301	0.199	0.291	0.445	0.389

S3: Businesses actively plan to introduce new products to the market	0.201	0.261	0.341	-0.261	0.168	0.218	0.312	0.367
S4: The more suitable the strategy, the higher possibility of cooperation is with partners	0.298	0.244	0.373	-0.299	0.154	0.229	-0.542	0.289
P1: Policy of the government on tariffs and quotas affects cooperation ability of enterprise with partners	0.233	0.301	0.281	0.319	0.211	0.341	0.236	**0.589**
P2: Affirmative policies improves the enterprise's ability to cooperate with partner	0.261	0.371	0.201	0.311	0.232	-0.390	0.255	**0.609**
P3: The government regulations on business partnership will help improve cooperation with partners	0.208	0.338	0.219	0.381	0.261	-0.388	0.261	**0.692**
P4: The more favourable the government regulations and policies are favouring Bumiputera entrepreneurs, the higher is the possibility of cooperation and *vice versa*	0.219	0.316	0.244	0.366	0.217	-0.341	0.296	**0.696**

Note: The cell entries are factor loadings, and the attributes were rated based on the 5-point Likert scale

From the results obtained, the factor loadings and the total deviation were found to satisfy the theoretical conditions, and these factors can be further analysed through the regression analysis.

Using the Pearson's correlation coefficient to analyse the correlation between the factors, *i.e.*, trust, maturity, frequency, culture, and policy. The results show that the correlations between factors and the SC concept were positive, except for policy, suggesting that government policy cannot assist in building successful SC in the wood products and furniture sector.

Table 2. Regression Analysis of the Factors

Model	Standardized Coefficients	t	Sig.
Trust	0.485	9.508	0.002
Maturity	0.238	7.525	0.003
Frequency	0.590	16.855	0.001
Culture	0.303	15.075	0.001

Note: Level of significance < 0.05

The results of the regression analysis (Table 2) showed that the factors have a positive impact on the statistical significance of supply chain in the Bumiputera wood products and furniture sector (Sig. < 0.05). The measure of impact from the strong to the weak of these factors are as follows: frequency (0.59), trust (0.485), culture (0.303), and maturity (0.238). The results provide useful insights into the necessary features for a successful SC in the Bumiputera wood products and furniture.

Implications for Bumiputera Entrepreneurs in the Wood Products and Furniture Sector

The success of Bumiputera entrepreneurs in the Malaysian wood products and furniture sectors should be addressed along the lines of improving their SC management (Whipple and Russell 2007). In this context, the entrepreneurs need to make a concerted effort to engage frequently with the actors and partners in the SC to build trust and maturity. In fact, a previous study by Ratnasingam (2018) showed that mistrust among Bumiputera entrepreneurs of their non-Bumiputera partners appears to be a major challenge in building a lasting business relationship. This calls for an open culture, of mutual respect, which is crucial as a foundation for forging a lasting business relationship, and so important to build a strong and resilient SC (Ratnasingam *et al.* 2023). If the Bumiputera entrepreneurs focus on developing the above aspects, their capacity to consolidate and increase its power on partners and actors, to attract the voluntary collaboration would be improved significantly (Zekić and Samaržija 2017), allowing the entrepreneurs to actively source, process, and sell their products. This is important to boost their control over the SC, which at this moment remains the biggest challenge faced to make progress with their business performance.

The economic efficiency of the Bumiputera entrepreneurs in the wood products and furniture sector must also be improved. This will proactively enhance the frequency of transactions among the actors and partners in the supply chain, which will inevitably reinforce the level of cooperation between entrepreneurs and partners (Suong 2013; Larsson *et al.* 2016). This conversely, will lead to greater business maturity, boosting trust and greater cooperation among the entrepreneurs and partners. In this respect, an effective participation of Bumiputera entrepreneurs in the existing SC in the wood products and furniture sectors, will not only improve efficiency but will also bring about positive spillover effects to the overall performance of the Bumiputera entrepreneurs in the sector.

Recommendations to Policymakers

The numerous initiatives of the government through the relevant agencies in the past appear to have not had the desired success in boosting the performance of Bumiputera entrepreneurs in the Malaysian wood products and furniture sector. Unfortunately, most of the initiatives focused on direct hand-outs, either in sales contract, equipment supply, technology acquisition, or even raw materials supply, which has not been sustainable in the long-term, and did not boost the capacity of the entrepreneurs (Ratnasingam 2018). In fact, this so-called 'hand-out' mentality has not only stifled their progress and ability to compete but has also resulted in poor outcomes for many of the initiatives undertaken by the government agencies. Similar approaches and the resulting non-optimal outcomes of vendor and entrepreneurship programs in countries, such as South Africa, are lessons that are worthy for consideration (Ratnasingam *et al.* 2021). In this context, initiatives that further strengthen the SC among Bumiputera entrepreneurs should be a worthwhile effort to be explored, which in turn will ensure greater success in the future.

The relevant trade association, especially the Bumiputera Furniture and Wood Products Entrepreneurs Association (PEKA), should also play a proactive role in gathering information relevant to SC management, and providing this information to their members, to boost their effectiveness in SC management. Additionally, PEKA should serve as a forum for enterprises to share information with each other, as well as to inculcate cooperation among each other. The association should also position itself as a bridge to serve members who may be distressed with the initiatives of the government agencies that appear a misfit to the overall target (Ratnasingam 2018). The suggested recommendations are worthy of serious consideration as previous efforts to improve the performance of Bumiputera entrepreneurs in the wood products and furniture sector has not produced the desired results. Without affirmative actions to improve the SC management among Bumiputera entrepreneurs in the wood products and furniture sectors, achieving the objective of increasing Bumiputera equity in the wood products and furniture sectors may be difficult.

CONCLUSIONS

1. The study reveals that supply chain challenge knowledge and its management is relatively poor among the predominantly micro- and small-sized Bumiputera wood products and furniture manufacturers in Malaysia.

2. Despite their predominance in the domestic and contract markets, the Bumiputera entrepreneurs are challenged by the lack of finances, small volume production, and perceived lack of government support to gain a stronghold over the supply chain.

3. The factor analysis conducted revealed that frequency, trust, culture, and maturity of these Bumiputera entrepreneurs must be improved if they are to gain and build successful supply chain to boost their growth performance in the sector.

4. The study also suggests that the Bumiputera entrepreneurs must make concerted efforts to improve on their engagement and relationship with the other partners and actors in the supply chain to grow their business.

5. In contrast, it is recommended that government agencies and related trade associations must also take proactive steps that boost supply chain management, which remain the single biggest challenge faced by the Bumiputera entrepreneurs to progress in the wood products and furniture sector.

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