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Assessment of Rubberwood Value-Added in Malaysia's Wooden Furniture Industry

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ABSTRACT

The Malaysia's wood-based industry has the potential to contribute significantly to the national income earning through value-added products such as furniture, mouldings, and panel products. Rubberwood has been considered an important raw material for such products particularly the wooden furniture. The Forest Research Institute Malaysia (FRIM) has conducted a study on wooden furniture manufacturers in 2007. This paper uses input-output method and existing data and statistics from previous study on 381 furniture manufacturers to assess value-added from rubberwood in furniture industry and factors that affect value added productivity. The estimates include total primary input for the furniture sector, expected tax revenue from imported and domestic commodities and, total value to obtain value added contributed by the furniture sector to the Malaysian economy. The result shows that, furniture sector generated about RM 47.94 billion total value added for the Malaysian economy. The study identified that classification of manufacturers; type of furniture produced and location of the company are significant factors in value-added productivity.

Keywords: wood-based industry, rubberwood, furniture, input-output analysis, value-added

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Any remaining errors or omissions rest solely with the author(s) of this paper.

BACKGROUND

Rubberwood sawntimber is the primary raw material in furniture manufacturing in Malaysia, making up about 80% of the wooden furniture export (Mohd. Ariff, 2005). After the launching of the second Industrial Master Plan (IMP) (Industrial Master Plan; 1996-2005), Malaysia turned the 10th largest exporter of furniture with over 60 export destinations Furthermore, export of rubberwood furniture has increased from RM 3.7 billion in 2003 to RM 5.3 billion in the year 2007 (Malaysian Timber Industrial Board, 2007). Apart from direct contribution to the economy , rubberwood furniture industry also creates value-added and spill-over effect. The objective of this paper is to assess the value-added gained from rubberwood furniture industry using existing data and results from previous study.

MALAYSIAN TIMBER INDUSTRY

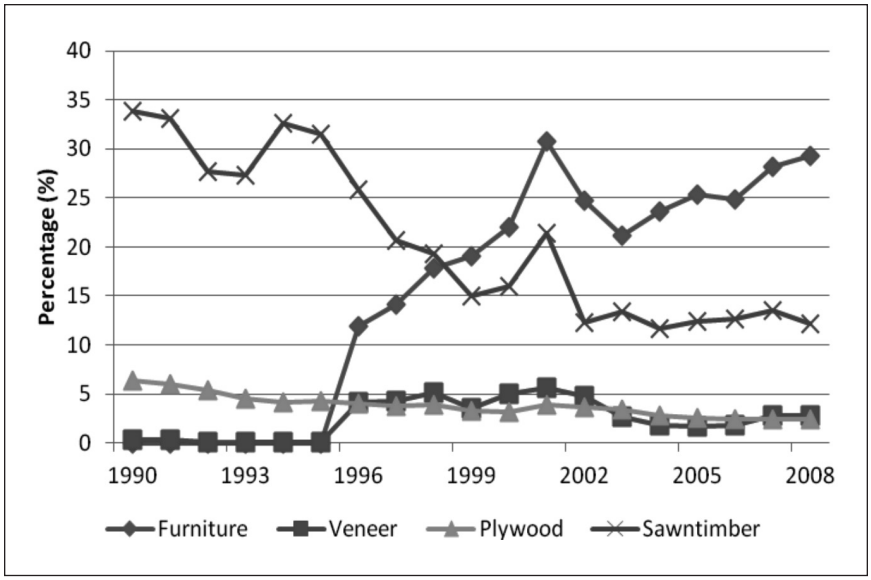
Malaysia has been a major timber producer since the 1970s. The Malaysian timber industry has grown from being a producer of logs to one of primary and higher value-added products such as sawlogs, sawntimber, plywood, veneer, furniture, builder's joinery and carpentry (BJC) and, wooden furniture products. In 2002, Malaysia was the fourth largest world supplier of tropical sawlogs, contributing 4.3 percent (5.1 million m^3) of the world's supply (119.7million m^3) (Ministry of Plantation Industries and Commodities Malaysia , 2009). Malaysia's commitment to achieving sustainable forest management (SFM), led to declining supply to 4.9 million m^3, ranking Malaysia as the fifth largest supplier in the world in 2007 (Noor Aini, 2011). In terms of sawntimber production, Malaysia ranked ninth and tenth in world production from 2002 to 2006 contributing from 1.9 percent to 2.5 percent respectively (Ministry of Plantation Industries and Commodities Malaysia, 2009). Malaysia's rank as sawntimber supplier dropped from the 10th to the 12th in 2007,, following the harvesting reduction in the SFM. (Noor Aini, 2011).

For plywood supply, Malaysia maintained her position as the second largest supplier to the world from 2002 to 2007. In 2002 and 2003, Malaysia supplied about 17.4 percent and 18.2 percent of plywood respectively. In 2004, the percentage declined and slightly recovered in 2005 at 17.6 percent and 17.9 percent respectively. However, 2006 and 2007 both saw declining percentages of supply from Malaysia at about 17.2 percent and 16.1 percent respectively. The lower percentages were due to increase in world demand (especially from China). Nevertheless, in actual volume, there were increases. In 2003, Malaysia ranked 12th for the world supplier of furniture with contribution of 2.4 percent (USD1.5 billion) relative to the world's total value (USD61.9 billion). From 2002 to 2007, Malaysia supplied

about USD1.4 billion to USD2.5 billion to the world market. However, after 2004 Malaysia experienced declining percentages in world furniture export relative to China. Since then, China has emerged as the major player in the world furniture market reducing the comparative advantage of other producers (Noor Aini, 2011).

In Malaysia, logs come from various sources such as permanent reserved forests (PRF), state lands demarcated for development and alienated lands. In the effort of managing the natural forest in a sustainable manner, areas opened for logging has been decreasing steadily since the 1990s. In the period of 1990-2007, logging area for Sabah, Sarawak and Peninsular Malaysia has decreased by 30 percent, 38 percent and 67 percent respectively (Abdul Rahim and Mohd Shahwahid, 2012, Abdul Rahim, Mohd Shahwahid, Mad Nasir and Awang Noor, 2012 and Ahmad Fauzi, Lim, Norini and Rohana, 2008). The increasing world demand for palm oil and palm oil products, coupled with the attractive prices of palm oil has converted the areas logged into oil palm plantations. This has been supported by the fact that , more than 90,000 hectares (almost 88.8 percent) of the total area opened for logging activities were converted into palm oil plantations in 2002 (Ministry of Plantation Industries and Commodities Malaysia, 2009). The continuing declines then are best explained by the commitment of Malaysia to sustainable forest management starting from 1994 when the National Committee on Sustainable Forest Management was established (Abdul Rahim, Zariyawati and Mohd Shahwahid, 2009). The reduction of allowable cutting rate has affected the supply of raw materials. Ismariah and Abdul Rahman (2007) opined that in the short term, primary timber industry will be affected due to the dwindling supply of raw materials. However, it is believed that forest plantations and log imports would compensate for the shortage of log supply in Malaysia. Log export shows a declining trend following government policy on log export ban to encourage secondary and tertiary processing industry ─ primary to value-added products. This was greatly stimulated by the implementation of the First and Second Industrial Master Plan (IMP) meant for the manufacturing sector including the forest-based industries (Ahmad Fauzi *et al*., 2008).

Figure 1 indicates that Malaysia has made significant progress in the export of wooden furniture compared with exports of other major timber products. It is remarkable that the export values of wooden furniture escalated rapidly after 1997. This was likely due to the growing interest in rubberwood-based furniture products as a result of the government policies in promoting value-added products and the changing policies on forest management. Rapid development of the furniture industry in Malaysia with the focus on export orientation indirectly increased the production capability and product quality (Ismariah *et al*., 2003).



Source: Maskayu Bulletin, (various issues)

Figure 1 Contribution of wooden furniture in total wood export relative to others (1990-2009)

THE IMPORTANCE OF RUBBERWOOD FOR FURNITURE INDUSTRY

The Malaysian government played an important role in the rapid development of the rubberwood processing industry and the acceptance of rubberwood as a popular timber by the traditional timber importing countries (Hong, 1995). Without exception, research played a vital role in assisting the development for rubberwood processing technologies. R&D into the basic properties and characteristics of the wood and its behavior during sawing, drying, preservative treatment and machining has been conducted to assess its technical and economic feasibility to substitute timber species from the natural forest (Hong, 1995).

Apart from sawntimber, rubberwood logs are used in plywood, particleboard, and medium density fibreboard as well as wood-cement board manufacturing. The potential utilization of rubberwood is very broad. The properties and versatility of this wood for a wide spectrum of end-uses are encouraging diversification in both the range of products being manufactured and the markets being approached (United Nations and Conference on Trade and Development, 1993).

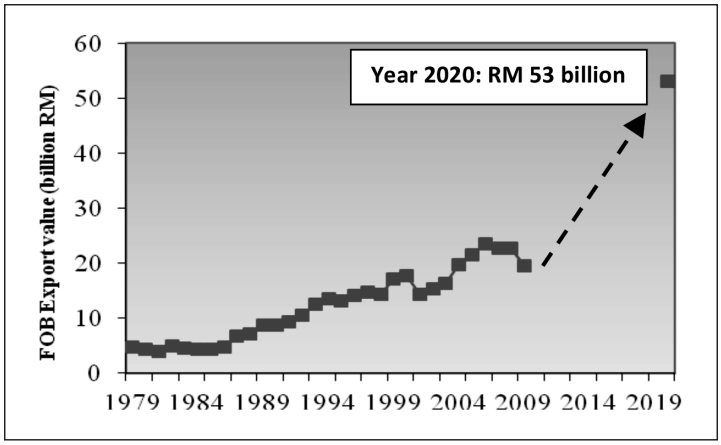
It is assumed that 80 percent of rubberwood sawntimber is mainly used by the furniture industry. Among the qualities possessed by the rubberwood are its durability and its dense grain character which easily controlled in the kiln drying process. Rubberwood popularity as raw material in wood based industry is not supported with its availability. Hence there are conflicts in the supply to meet the demand. Many studies have been directed to compare the status of log consumption and log availability from plantations sources.

Norini, et al.(2009a) claimed that, the total availability of rubberwood logs during the periods 2011 and 2015 ranged between 3.08 million and 8.51 million m^3. In turn, during the same period the quantity available for conversion into sawntimber ranged between 472 thousand m^3 and 1.3 million m^3 considering wood quality from smallhodings and estate sources. In another study, factors that influenced availability of rubberwood sawntimber were area of rubber replanting , price of rubberwood log, latex price and previous production of rubberwood sawntimber. Noor Hazmira, 2011),

NATIONAL TIMBER POLICY'S (NATIP) MISSION FOR VALUE-ADDED INDUSTRY

In tandem with the rapid development of furniture industry, the Malaysia's wood-based industry is expected to contribute substantially to national income earning through value-added products. During the Second Industrial Master Plan (1996-2005), the total export value of wood-based products increased by an average annual rate of 5.7 % from RM 12.8 billion (1996) to RM 21 billion (2006). The significant increase is evidenced in panel products. Based on that remarkable growth, Third Industrial Master Plan (2006-2020) outlined that exports of wood-based industry are targeted to rise at an annual rate of 6.4 % to reach RM 53 billion by 2020 (Figure 2).

To support domestic production of value-added products, Malaysia has imposed a total ban on the export of rubberwood sawntimber from 1st January 1999 to 22nd December 2000. Later, the ban was elevated and exportation through quota system was allowed. As a result less than 40 percent of the rubberwood total stocks are allowed to be exported and controlled through the imposition of export levy in 2005 (Malaysian Timber Council, 2005).



Source: Roda *et al*. (2011)

Figure 2 Total export of wood products from Malaysia, 1979-2020 (billion RM)

METHODOLOGY USED IN ASSESSING THE VALUE ADDED

Generally, input-output analysis is used to calculate sectoral value-added in the economy referring to Gross Domestic Products (Zakariah and Sabaruddin, 1994; Fok, 2003). The approach sums up all the value added by every producer in the economy in the course of producing goods and service. Value added also can be calculated by summing up compensation of employee and operating surplus of a particular activity in an industry using input output table (Department of Statistics). This paper uses input-output table 2005 to estimate the value added of furniture industry. The analytical phase of input-output work is based on two piers − set of accounting equations, one for each industry and another set of equations, at least one for each industry (Carl, 1955). It is a theory of production based on particular type of production function involving quantities of inputs and outputs in production processes.

RUBBERWOOD VALUE-ADDED IN WOODEN FURNITURE INDUSTRY

Value added in this study is best defined as an extra value created by the economic activity in companies that use rubberwood as an input. Norini, et. al(2009b) defined value added as the profit generated in the economy according to the sector since other materials from other sectors such as special glues, metals and screws are needed to produce a complete set of furniture.

Malaysia had produced 432,022.73 m^3 of rubberwood sawntimber equivalent to RM 625,611,218.73 and most of them are being used for furniture in Malaysia (Ahmad Fauzi *et al*., 2008). Input-output analysis is used to calculate these value added. The study calculated total primary input for the furniture sector, expected taxes revenue that government gain from collecting taxes from imported and domestic commodities. The grand total will give the value added generated by the furniture sector to the Malaysian economy.

The results show that, furniture sector created about RM 47.94 billion total value added for the Malaysian economy; RM 22.4 billion from the total initial effect, RM 9.3 billion from the total first-round (direct) effect, RM 5 billion from the total industrial effect and RM 11.2 billion from the total consumption-induced effect. The total flow-on effect has been estimated at RM 25.5 billion. The study concluded that generally, the furniture sector obtain about RM 1.96 in the form of value-added for every RM 1 tax they paid, which implies that the furniture sector is very viable and is a good business (Norini *et al*., 2009b).

Same study also found that classification of manufacturers, type of furniture produced and location of the company is significant in computing the value-added productivity. Value-added productivity by classification of manufacturers shows that medium and large enterprises are more productive in term of value-added per employee and large enterprises are the most productive in using their capital.

CONCLUSION

The rubber industry can no longer be viewed as a supplier of natural latex, instead the development of furniture industry shed the lights for the rubberwood which previously considered as a waste to the planters. It is highlighted that rubberwood becoming preferable raw material input by the furniture manufacturers due to its physical characteristics. In fact, the favorable color and qualities of rubberwood make it a perfect substitution for Ramin. As rubber plantation is managed in sustainable manner, the acceptance of rubberwood as sustainable and environmentally friendly timber to some extend contributed to its universal appeal. In addition, the contribution of the furniture industry to the Malaysian economy cannot be denied. Some large international companies such as IKEA have been sourcing rubberwood products from Malaysia since early 1990s for worldwide distribution. Rubberwood furniture industry as a whole is an industry that has bright prospect and excellent contributor towards Malaysian economy since it creates not only tax revenue to the government and job opportunities but also help the villagers (especially the rubberwood planters) to generate more income.

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