# Comparative Advantage of Malaysian Wood Products in the European Market

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## Abstract

Malaysia is currently one of the world's top tropical timber producers. The Malaysian wood industry has grown tremendously since past decades. Besides producing wood products for the domestic markets, most of the wood products have been exported to other countries including Europe. We used the framework developed by Balassa (1965) to examine the comparative advantage of Malaysian timber products in the European market. The results implied that for the overall performance, Malaysian wood products have a noticeable advantage in the European market in comparison to other global producers. Among several Malaysian timber products, only five of them have a high comparative advantage. We discovered that the high comparative advantage products are the secondary processing products and "mechanized mass market products". While the revealed comparative advantage is very dependents of the quantity traded, a high quantity does not imply a high comparative advantage. We found that the factors such as abundant resources, communication and technology, production cost, and indeed demand pattern are essential in influencing the comparative advantage of the products.

Keywords: wood products, Malaysia, Europe, comparative advantage, Balassa approach

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## Introduction

Comparative advantage involves the concept of opportunity cost either in producing or exporting a particular good (Mohd Arif, 2008). According to Mohd Arif (2008), the comparative advantage of one country against others may reflect from the difference of the domestic cost and the world price. The higher the cost differential, the higher is the advantage for the country in producing that good. Some other factors such as abundant resources, technology, telecommunication, subsidized fuel and road development (including low transportation cost) could play their role in the comparative advantage. Additionally, Hunt and Morgan (1995) believed that the efficient use of existing resources and innovation in the production may lead to the comparative advantage of the products. Other factor such as the improvement in road infrastructure may reduce the trade costs and facilitate the movement of goods and services between places (Bhattacharyay, 2009). We assume that the demand pattern also plays an important role in influencing the comparative advantage of the products. Literature on the comparative advantage was extensive. However, only few study done on the comparative advantage of Malaysian exports. Some of related studies among Malaysian exports were comparative advantage on the manufacturing products (Amir, 2000; Mahani and Wai, 2008) as well as electrical and electronic products (Nik Maheran and Haslina, 2008). As far as we are concerned, there is no particular research has been done on the comparative advantage of Malaysian wood products as a whole.

## Malaysian wood products in the European market

Malaysia is one of the developing countries in Southeast Asia which experienced remarkable economic growth and industrialization in the past decade. Exports of the natural resources and related products as well as manufactured goods have contributed to the development of Malaysian economy. Besides that, with the fact that 60percent of Malaysia is covered with

natural forest, it is difficult to ignore that forest product industry plays an important role in further developing the economy. Malaysia is currently one of the world's top tropical timber producers. The Malaysian wood industry has grown tremendously since past decades. It provides a wide range of activities from sawmilling, secondary processing to tertiary processing. Malaysia is also the largest exporter of sawn timber and the second largest supplier of plywood as well as 10th largest exporter of furniture in the world. According to the International Tropical Timber Organization (2008), producer countries exported nearly 13 million $m^3$ of tropical logs worth $3.0 billion in 2007, with Malaysia being the largest exporter accounting almost 35percent of exported volume. The exports of Malaysian timber and related products in 2008 amounted to RM22.5 billion. Since many decades Europe has been a major market for export of wood products in Malaysia. The trends of the Malaysian wood products exported to the EU15 showed increasing trends since 1999-2006 (Figure 1). Malaysia's annual wood products export to the European Union (EU) currently stands in the region of RM2.8 billion (600 million euro). Furthermore, the biggest importers of Malaysian wood products are Germany, Italy, United Kingdom, France, Spain and Netherlands (United Nations Comtrade, 2009) (Figure 2). Hence, it will be interesting to measure the Malaysian export performance of wood products in those countries. Consequently, this work will analyze the comparative advantage of Malaysian wood products in the global market. This work was carried out to provide a current status of Malaysian wood products in the European market. Extensively, the comparative advantage of the Malaysian wood products will be assessed as well.

## Materials and methods

This work employed the Balassa approach to evaluate the comparative advantage of the Malaysian wood products. He suggested that the comparative advantage of a country or sector can be measured using observed trade patterns. He assumed that the true pattern of comparative advantage can be estimated from the post-trade data. Thus, he named it as Revealed Comparative Advantage (RCA). The RCA has a role to quantify the commodity specific degree of comparative advantage. The formula for the RCA is:

$$RCA_{jkt} = \frac{(X^{j}_{kt}/X^{j}_{Kt})}{(X^{W}_{kt}/X^{W}_{Kt})}$$

Referring to the formula, X is the export of a country for a particular good or commodity, j, k and t denote as a country, good or commodity and time period respectively. K denotes the total of all exports from country j or the world (W) respectively. If the index exhibits a value greater than one, the sector or product has a comparative advantage in the production of the goods and if the index less than one, it indicates a comparative disadvantage in the production of the products. This work analyzed the trade between two partners namely Malaysia and Europe. We chose 15 countries namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. The reason of choosing these 15 countries was based on their consistent good performance of import and export of wood products from Malaysia. For this work, we used the United Nation Commodity Trade Statistics data (UN Comtrade) to calculate the index of comparative advantage of the Malaysian export in timber products. Purposely, the UN Comtrade data was used to cross checking between the imported and exported value of the selected products. Besides, we used Harmonized System (HS) codes as it deals with a precise breakdown of the products' categories of the wood. We will refer this analysis to the

wood products (HS44-refer to all wood products) in the UN Comtrade data. The 8-years time span (1999-2006) has been employed for this work. We have evaluated twenty-one types of wood products classified under this HS code (UN Comtrade, 2009). However, seven categories of the wood products were out of analysis due to inconsistent of data in the UN Comtrade database. We assume the unavailability of data were caused by either the product was not exported or the data has not been recorded for that particular year. The remaining wood products will be discussed further in the result (Table 3)[1].

## Results and Discussion

Malaysian wood products has a high comparative advantage in the Europe in comparison to the other world producers (Figure 4). Figure 4 shows that Malaysia gained three times advantage (in average) in exporting the total of wood products to the market. Among all, five products have a high comparative advantage with the RCA index more than 3 (Figure 5). They consist of wooden mouldings, wood sawn, plywood, builder joinery and carpentry (BJC) and wood charcoal. This indicates that Malaysia has an advantage in exporting those five products in comparison to other exporters. Besides, the remaining products were grouped into two include the less comparative advantage and the comparative disadvantage products. The products with the RCA index between one and three will be referred as less comparative advantage and the products with RCA index less than one as comparative disadvantage. Figure 6 display that veneer has less comparative advantage in the market. Finally, the comparative disadvantage products are logs, densified wood, wooden cases, wooden ornaments, wooden articles, fuel wood, wooden tableware and wooden frames (Figure 7).

[1] Throughout the results and discussion, we will use short descriptions instead of the long descriptions of the products prescribed by the United Nations Commodity Trade Statistics. For the details, please refer Table 3.

**The high comparative advantage of mechanized mass market products**

Among several Malaysian wood products, five of them have a comparative advantage to be sold in the Europe in comparison with similar products produced in the rest of the world. The products are wood charcoal, wood sawn, wooden mouldings, plywood as well as builders' joinery and carpentry. All these products, except charcoal, were traded in large volume towards Europe. They are also produced with relatively standard mechanized processes. Those products (which have high volume traded and produced through a mechanized process) will be referred as mechanized mass market products (MMMP). Additionally, there is another product has a positive comparative advantage which is veneer and has RCA index between one and three. This product is directly and indirectly linked to the value chains products of plywood, veneered panel products, block board, lamin board, laminated veneer lumber (LVL) and overlaid panels. Furthermore, all these comparative advantage products (except charcoal), are being used for end products such as furniture, flooring, doors, building and transport. We note that the high comparative advantage products were traded in the uniform quality (standard size) and the MMMP. In addition, most of the high comparative advantage products are from value added commodity with a higher unit prices. Those products were not sold by species, instead it has been sold by specific use such as for construction industry, buildings, home improvements etc. Our results of analysis have been supported by the statistics from Malaysian Timber Industrial Board (MTIB) on the exports value of Malaysian wood products to the Europe. Figure 8 exhibits the export value of wood sawn from Semenanjung Malaysia to world. It showed that EU received the highest export value of wood sawn since many years. During 2004, Malaysia exported about 17,479 $m^3$ of Malaysian Timber Certification Council (MTCC)-certified timber to Europe which is higher about 207percent from 2003 (The International Tropical Timber Organization, 2006). Additionally, Figure 9 indicates the export value of plywood from Semenanjung Malaysia to EU from 2000 until 2006. The export trends

suggested that the exported value was increasing sharply during 2006. In fact, according to International Tropical Timber Organization (2006), Malaysian exporters received the EU's reduction of import duty on the plywood from 7 percent to 3.5 percent. That reduction gave Malaysia a competitive edge over Indonesia and Chinese plywood on which a 7 percent import duty was still levied on them. Recently, during 2008 the import of Malaysian plywood was increased by 14 percent compared to previous years with large boost in sales to Belgium, Netherlands and Italy. Furthermore, the statistics on the exported value of veneer and wooden mouldings from Malaysian Timber Industrial Board (MTIB) proved that EU received the highest value of exports in those products from Semenanjung Malaysia compared to other regions (Figures 10 and 11).

**The low comparative advantage of niche market products**

Meanwhile the remaining Malaysian wood products have a low comparative advantage to be sold in the market. Most of the products consist mainly into home interior accessories and represent small items, or objects sold on peculiar niche markets. We presume most of the European's wooden gifts and handicrafts were imported from China due to low labour cost. Moreover, laws and regulations are also contributed to a low comparative advantage for certain product in the market. For instance, the log is severely regulated in the Europe. Furthermore, Peninsular Malaysia also banned the export of this product. According to Food and Agriculture Organization (1997), export log of Malaysia declined starting from 1985 (from 65 percent in 1985 to 45 percent and declined to 18 percent in 1995) due to ban on log exports from Peninsular Malaysia. In addition, an import licence is required for the products of the subheading logs to enter the European market. The importers should also present a certificate of origin along with the application form required by the MTIB. Indeed, the wood imported under log should be inspected by the Malaysian Forestry Department as well.

Hence, we believe producing conditions of the logs for the European market could be better elsewhere than in the Malaysia. Thus, such reasons would explain why all these products have a low comparative advantage in the European market. In fact, the observation from the analysis explained that all these products were traded in low quantity and value. Some of these products are wooden frames for paintings, tableware and kitchenware, ornaments of wood and other related items.

**The special case for one niche market product**

We found that Malaysia has a high comparative advantage for the MMMP. However, the MMMP is not the only reason of a high comparative advantage. There are some other reasons that might contribute to the comparative advantage of the products. Alternatively, niche market product may result to the high comparative advantage as well. It raises another question. Why one niche market product has a good comparative advantage, while the other niche market products have a low comparative advantage? In the case of Malaysian charcoal, even though the traded volume of charcoal products was low, the traded value was high because of the peculiarity of its industrial uses. We assume that the price of charcoal is relatively high in comparison with other niche market products due to a specific charcoal such as palm kernel and coconut shell. We suspect that the ability to get these raw materials (abundant resources) with low production cost might contribute to the comparative advantage in the charcoal production. According to the Malaysian Palm Oil Board (2007), Malaysia experiencing steady increase in the production of the palm kernel from 1999 to 2007. In 1999, the production of palm kernel was 3.0 million tones, it increased to 3.3 million tones (2002), 3.7 million tones in 2004 and 4.1 million tones in 2006 (Malaysian Palm Oil Board, 2007). We presume with the abundant of resources in the country, it has been converted to value added product such as charcoal.

**Comparative advantage of Malaysian wood exports**

This work supports the idea of Uusivuori and Tervo (2002) that a country which has richer forest assets will have larger net exports of forest products. Furthermore, the country with a larger forest endowment exhibits the comparative advantages in their exports as in comparison to countries with lesser forest endowments. We presume that the availability of resources in a country may provide a source of a comparative advantage for that particular good or commodity. According to Reinhardt (2000), he believed that Malaysia have comparative advantage in abundant resources which resource-based products have important role in the country's export growth. Moreover, we believe that the development of Malaysian FSC[2]-certified combi-plywood, PEFC[3] endorsement of the Malaysian Timber Certification System (MTCS) and PEFC-certified sawn wood products may give advantages compared to other producers.

## Conclusion

This work examined the revealed comparative advantage of the Malaysian wood products in the European market. The analysis takes place on twenty-one types of exported Malaysian wood products to Europe. We found that Malaysia has the advantage in exporting the wood products to the market. Among all, Malaysia has a high comparative advantage in five products. The products are wooden mouldings, wood sawn, plywood, BJC, and wood charcoal. These products were traded in a high volume with the standard size and MMMP. Moreover, the comparative advantage of the products is a result of the volume or the quantity traded, but the quantity itself does not imply the comparative advantage of the product. The

[2] Forest Stewardship Council (FSC) is a certification system that provides standard-setting, trademark assurance and accreditation services to companies, organizations and communities interested in responsible forestry.

[3] Programme for the Endorsement of Forest Certification Schemes (PEFC) is an independent, non-profit, non-governmental organisation, founded in 1999 which promotes sustainably managed forests through independent third party certification.

factors such as abundant resources, communication and technology, production cost, and indeed, demand pattern also are essential in influencing the comparative advantage of the products. Above all, we expect a country's comparative advantage of these products varied over time due to changes in any of the factors of the comparative advantage.

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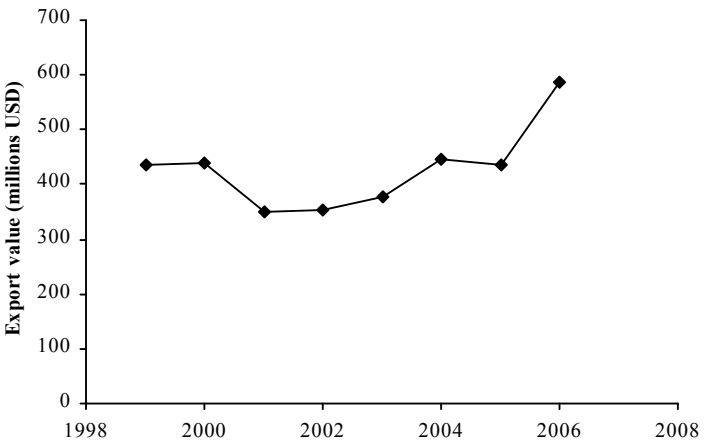
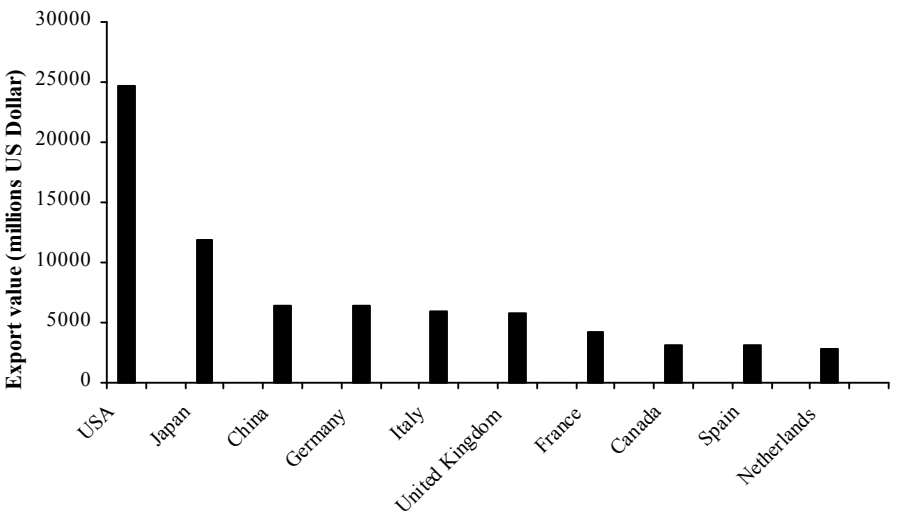
**Tables and Figures**

Figure 1: The trade value of Malaysian wood products exported to EU15 from 1999-2006




Source: United Nations Commodity Trade Statistics (2009)

Figure 2: The major importers of Malaysian wood products in 2006




Source: United Nations Commodity Trade Statistics (2009)

Table 3: Types of wood products based on United Nations Commodity Trade Statistics

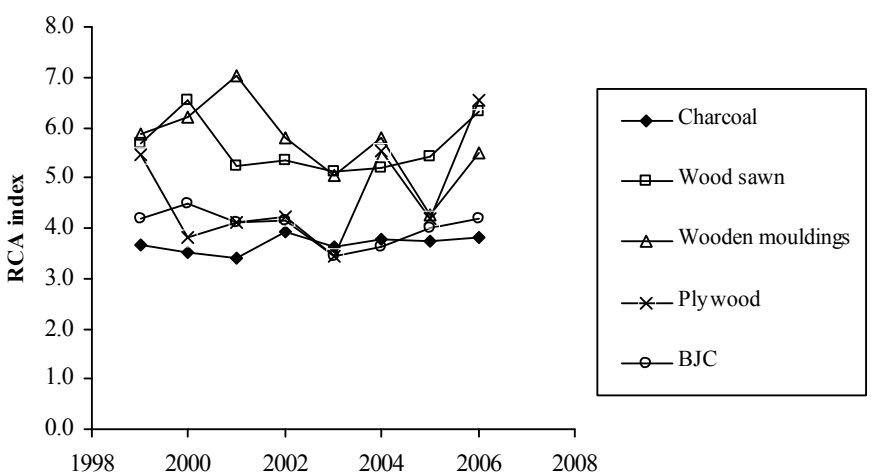
| **Harmonization Code** | **Description** | **Short description of the products** |
|---|---|---|
| 44 | Wood and articles of wood, wood charcoal | Wood products |
| 4401 | Fuel wood, wood in chips or particles, wood waste | Fuel wood |
| 4402 | Wood charcoal (including shell or nut charcoal) | Charcoal |
| 4403 | Wood in the rough or roughly squared | Logs |
| 4407 | Wood sawn, chipped lengthwise, sliced or peeled | Wood sawn |
| 4408 | Veneers and sheets for plywood etc <6mm thick | Veneers |
| 4409 | Wood continuously shaped along any edges | Wooden mouldings |
| 4412 | Plywood, veneered panels and similar laminated wood | Plywood |
| 4413 | Densified wood, in blocks, plates, strips or profile | Densified wood |
| 4414 | Wooden frames for paintings, photographs, mirrors etc | Wooden frames |
| 4415 | Wooden cases, boxes, crates, drums, pallets, etc | Wooden cases |
| 4418 | Builders joinery and carpentry, of wood | BJC |
| 4419 | Tableware and kitchenware of wood | Wooden tableware |
| 4420 | Ornaments of wood, jewel, cutlery caskets and cases | Wooden ornaments |
| 4421 | Articles of wood, nes | Wooden articles |

Source: United Nations Commodity Trade Statistics (2009)

Figure 4: Revealed comparative advantage (RCA) index for overall Malaysian wood products in the European market (1999-2006)

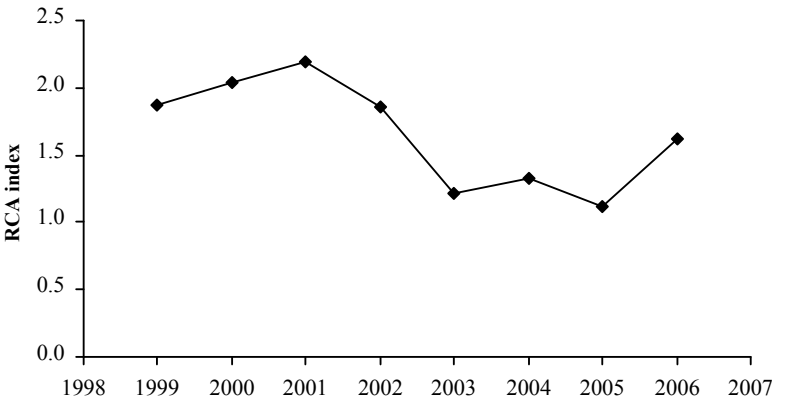

Source: Calculated based on data from UN Commodity Trade Statistics (2009)

Figure 5: The higher comparative advantage of the Malaysian wood products in the European market (1999-2006)



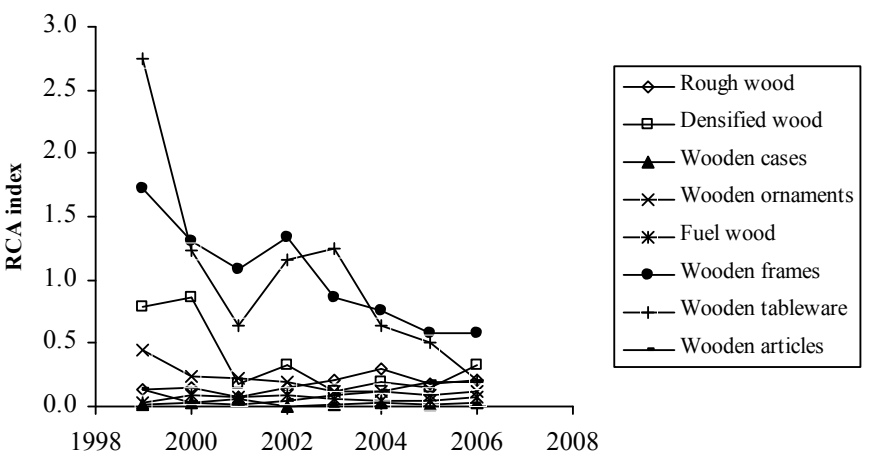

Source: Calculated based on data from UN Commodity Trade Statistics (2009)

Figure 6: The lower comparative advantage of veneer in the European market (1999-2006)



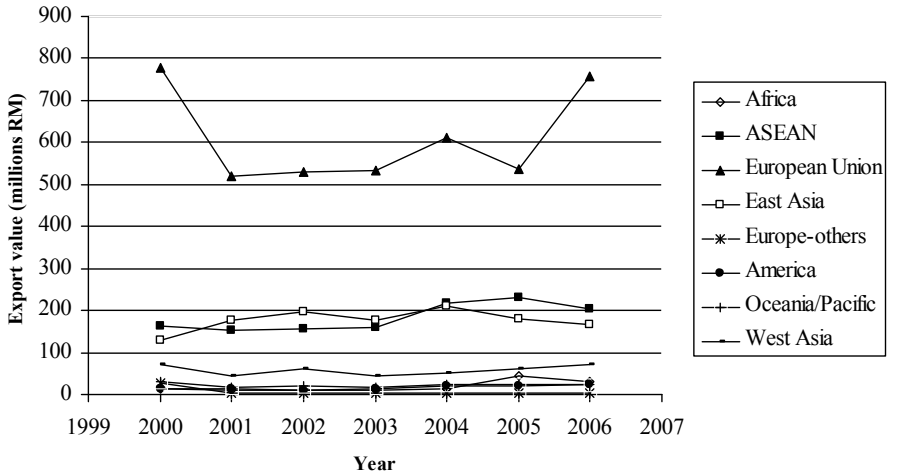

Source: Calculated based on data from UN Commodity Trade Statistics (2009)

Figure 7: The comparative disadvantage of eight Malaysian wood products in the European market (1999- 2006)



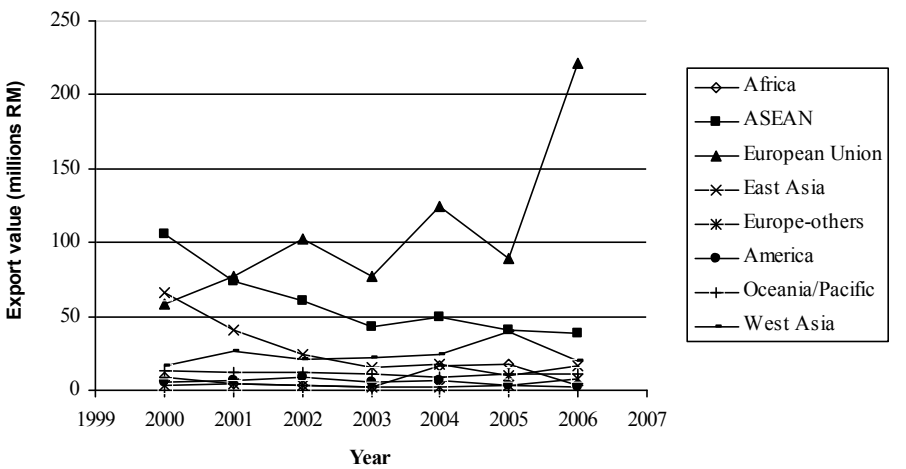

Source: Calculated based on data from UN Commodity Trade Statistics (2009)

Figure 8: Export value of wood sawn from Peninsular Malaysia to the world from 2000-2006



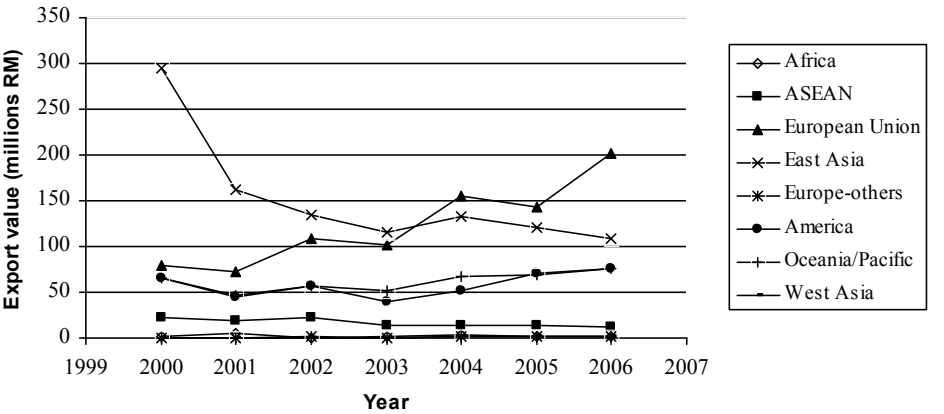

Source: Malaysian Timber Industrial Board (2006)

Figure 9: Export value of "plywood" from Peninsular Malaysia to the world from 2000-2006



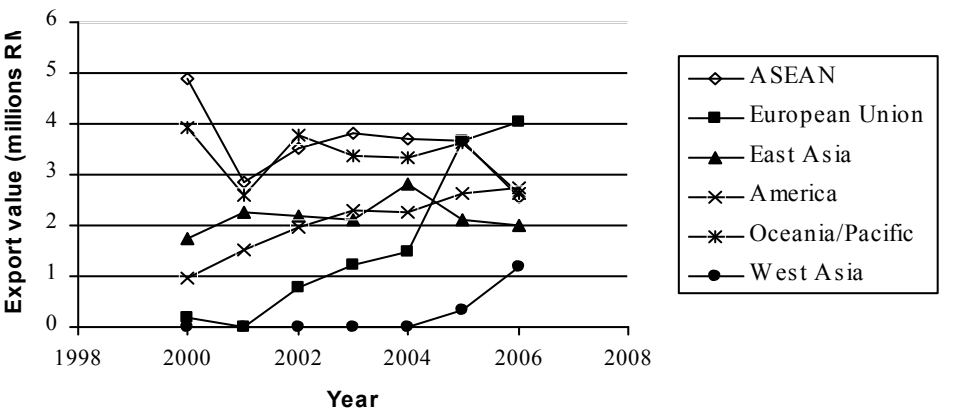

Source: Malaysian Timber Industrial Board (2006)

Figure 10: Export value of wooden mouldings from Peninsular Malaysia to the world from 2000-2006




Source: Malaysian Timber Industrial Board (2006)

Figure 11: Export value of "veneer" from Peninsular Malaysia to the world from 2000-2006




Source: Malaysian Timber Industrial Board (2006)