II. LITERATURE REVIEW

2.1 Trade Competitiveness

A country’s trade competitiveness determines whether it has specialization in the production of a good (Tam, 2001). A country has a comparative advantage when it can produce the good more cheaply. As indicated by Kannapiran and Fleming (1999), the country has a comparative advantage over another if in producing the good it can do so at a lower opportunity cost. The country therefore may gain from exporting the good so long as it has a margin over the world price. Indices on the revealed comparative advantage (RCA) are commonly utilized as proxies to measure trade competitiveness.

Comparative advantage entails the concept of opportunity cost either in producing or exporting a particular good. The extent to which the domestic cost differs from the world price reflects the competitiveness of that particular country against others. The higher the cost-price differential, the higher is the advantage for that country in producing the good (Simeh, 2004). The principle of comparative advantage has been central to trade theory, demonstrating the gains from, and direction of, trade. If every country specialized in the production and export of goods in which another country is a relatively high cost producer, both global welfare and the welfare of each trading country would be maximized.

Measures of comparative advantage are among the most useful guides to optimal resource allocation in an open economy such as Indonesia where international trade is vitally important. Economists have been applying the principles of specialization and comparative advantage to explain the theory of international trade for which the concepts of relative cost and price differences are
basic. The production and export of traded goods, including crude palm oil exports, are normally guided by the international differences in costs of production and prices of products measured in terms of comparative advantage and international competitiveness.

The doctrine of comparative advantage has been one of the most powerful influences on economic policy making and international trade in recent history. A country has a comparative advantage over another if in producing a commodity it can do so at a lower opportunity cost in terms of the foregone alternative commodities that could be produced (Todaro, 1989). Economic planning involves identification of the sources of comparative advantage and international competitiveness, among other things, in a dynamic world.

The Ricardian and Heckscher-Ohlin doctrines of comparative advantage (Ohlin, 1933) have been powerful influences on economic policy making and international trade. The classical theory of comparative advantage was developed by Ricardo to assess the economic efficiency of resource allocation in the production of traded goods. He considered only one primary factor; labor, to explain variations in labor productivity among industries and between countries as the main source of comparative advantage.

According to the Heckscher-Ohlin doctrine, there are no variations in the production function between countries and each country has a comparative advantage in those industries that intensively use domestic factors available in abundance (Warr, 1992). The Heckscher-Ohlin neo-classical model of international trade and the Heckscher-Ohlin-Samuelson model (Samuelson, 1949) include more than one primary factor. The Heckscher-Ohlin model is based on factor endowments (Leamer, 1984; Thomas, 1988) and does not recognize
influences such as technical change on the productivity of factors of production. Some countries, such as Japan, have been successful in world trade with very limited factor endowments but with great productivity improvements.

The development by Balassa (1965) of the ‘revealed comparative advantage’ model, and its subsequent extension (Balassa, 1978) to encompass a ‘stages’ approach to industrialization, was a major innovation. For a particular country, the revealed comparative advantage in a product is defined as the ratio of the share of that product in world trade. If this index takes a value greater than unity, the country is considered to have a revealed comparative advantage in the product while a value below unity indicates a comparative disadvantage (Yeats, 1989).

A country’s trade performance can be affected by the sectoral composition of its exports. For example, an increase in market share would be expected if exports mainly comprise products for which world demand is growing more rapidly than the global average. Export performance can also be affected by changes in the demand for exports across regions such that an increase in global market share would be expected if a country’s exports are destined for markets that grow more rapidly than the global average. During the 1990s, the Irish economy managed to substantially increase its share of exports to the United States of America, which was the world’s fastest growing region during this period. This mainly reflected the ability of the economy to attract US multinational firms in high-technology sectors and much of the trade between Ireland and the US represents intra-firm trade between branches of US multinationals.
2.2 Government Policies

The government of Indonesia considers agriculture as a very important sector in the national economy. Therefore all agricultural activities like cultivation of rice, maize, spices, rubber, cacao and oil palm are encouraged. Agriculture provides job opportunities for the majority of the labor forces in Indonesia. At the same time, the government makes efforts to maintain the prices of basic goods and services at levels affordable to low-income people.

Basic needs are mainly for food and clothing. Cooking oil also falls in this category. Therefore the price of cooking oil has to remain at an affordable level. When the price of palm oil in the international market went up in 1994, the price of cooking oil in domestic market experienced a similar increase. In order to lower the price of cooking oil, the government applies export tax on crude palm oil and refined products. By export tax, the local price of the crude palm oil can be brought down to a level which is considered affordable. When the price was not excessively high, the tariff of the export tax was around 15 percent (Bangun, 2006).

However, when in 1998 the international price of palm oil reached US$ 600 per metric ton (CIF Rotterdam) and the Indonesian currency suffered a dramatic weakening of its exchange rate, the tariff of the export tax was increased to 40 percent. Even such a high export tax was not sufficient to bring the local price of cooking oil to the expectation of the public. So, the government further increased the tax to 60 percent. As a result, the exporter of palm oil received only US$ 240 per ton after a deduction of US$ 360 as export tax (Bangun, 2006).

Subsequently, the price of palm oil in international market declined and the Indonesian currency achieved a better exchange rate. The government agreed
to reduce the export tax to 30 percent, then to 10 percent, followed by 5 percent, and subsequently to levels as shown in Table 1 (Bangun, 2006). In a new regulation issued on September 10, 2005, the export tax is called “export collection” which is categorized as non tax revenue by the government. It can be easily calculated that the export of crude palm oil is subject to export collection as much as US$ 5.25 per ton, and for RBD Olein US$1.14 per ton.

**Table 1. Indonesian Crude Palm Oil Export Tax in the Year 1997 to 2007**

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>CPO Export Tax (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1997</td>
<td>January 1998</td>
<td>5</td>
</tr>
<tr>
<td>January 1998</td>
<td>April 1998</td>
<td>0</td>
</tr>
<tr>
<td>April 1998</td>
<td>July 1998</td>
<td>40</td>
</tr>
<tr>
<td>July 1998</td>
<td>February 1999</td>
<td>60</td>
</tr>
<tr>
<td>February 1999</td>
<td>June 1999</td>
<td>40</td>
</tr>
<tr>
<td>June 1999</td>
<td>July 1999</td>
<td>30</td>
</tr>
<tr>
<td>July 1999</td>
<td>September 2000</td>
<td>10</td>
</tr>
<tr>
<td>September 2000</td>
<td>February 2001</td>
<td>5</td>
</tr>
<tr>
<td>February 2001</td>
<td>December 2002</td>
<td>3</td>
</tr>
<tr>
<td>December 2002</td>
<td>June 2007</td>
<td>1.5</td>
</tr>
<tr>
<td>June 2007</td>
<td>To date</td>
<td>6.5</td>
</tr>
</tbody>
</table>


Since the policy implementation in August 1994, this export tax policy has had significant impact on the industry. Within the time horizon 1994-1999 when the effective tax rate was around 13.33 percent, the mature area of oil palm plantation had been reduced by 2.56 percent per annum or around 37 000 ha per annum as reported in Table 2. This indicates that this policy had a substantial negative effect on investment in the industry. As a result of this negative investment effect, CPO production had also been depressed by the policy. It is estimated that the policy had caused a loss of around 0.81 percent of the total production or around 36 000 tons of CPO per annum.
Table 2. Impact of Export Tax of Crude Palm Oil in the Year 1994-1999

<table>
<thead>
<tr>
<th>Variable</th>
<th>Units</th>
<th>Mean</th>
<th>Impact in percent</th>
<th>Impact in volume (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature Area</td>
<td>000’ ha</td>
<td>1445.00</td>
<td>-2.56</td>
<td>-37.00</td>
</tr>
<tr>
<td>Production</td>
<td>000’ tons</td>
<td>4484.00</td>
<td>-0.81</td>
<td>-36.32</td>
</tr>
<tr>
<td>Export</td>
<td>000’tons</td>
<td>2371.00</td>
<td>-6.20</td>
<td>-147.00</td>
</tr>
<tr>
<td>CPO Price</td>
<td>Rp/kg</td>
<td>1525.00</td>
<td>-8.58</td>
<td>-130.85</td>
</tr>
<tr>
<td>Cooking Oil Price</td>
<td>Rp/kg</td>
<td>2366.85</td>
<td>-7.77</td>
<td>-183.90</td>
</tr>
</tbody>
</table>


The most devastating impact of the policy had been on the export and farm income. During that time horizon, this policy had caused a 6.02 percent drop in exports compared to the pre-export tax period. This implies that Indonesia had sacrificed her export of about 147 000 t annually. Similarly, the policy had caused the farm income to be lower by around 11.35 percent or around Rp 400 000/ha/yr; a substantial loss for farmers. On the other hand, this policy had been proven to be effective in controlling domestic cooking oil price. With this policy, the government had been successful to keep the cooking oil price down when the world CPO price increased or when the rupiah was substantially depreciated. Using this policy, the government had kept the cooking oil price at 7.77 percent, or Rp 184/kg, lower than it should be. Moreover, from the government point of view, significant tax revenue, estimated at around Rp 5241 billion, was also considered to be a positive result of the policy (Susila, 2004).

The reference price was to be adjusted monthly based on the actual prices in Rotterdam and Kuala Lumpur. With regard to laws and regulations and the objective of achieving good governance, both the government and the parliament promulgated laws on forestry and plantations. The law on forestry No.41 was promulgated in 1999 and the law on plantations No.18 was promulgated only recently in 2004. These two laws greatly restrict the conversion of forest into oil
palm plantation. Only certain forests can be converted into plantation. With these new laws already in place, the government has been taking measures to enhance the protection of forest and as well as endangered animals.

2.2.1 Effects of Export Tax

Export taxes are predominantly used by developing countries with the objective either to generate government revenues or to protect particular groups for political reasons. The effect of an export tax by a small country under a competitive market structure causes the price in the exporting country to fall below the world price (Reed, 2000; McCalla and Josling, 1985).

Empirical studies on the effect of export taxes have been conducted by Akiyama (1992), Bruce and Perez-Garcia (1992) and Warr (1997). Akiyama (1992) examined the effect of an optimal tax on perennial crops (cocoa) in a large country case. In particular, his research focused on an optimal export tax and its implications on producer surplus and government reserves. His results showed that an export tax significantly affected the distribution of national welfare between farmers and the government, and also significantly affected the long-run production of cocoa. Bruce and Perez-Garcia (1992) examined the economic impact of a USA export tax on forest products using a competitive global trade model. Their results showed a loss of consumer welfare in the USA and a large transfer of wealth from timber growers to processors. Warr (1997) conducted a similar study on Thailand’s rice export tax and calculated economic gains and losses.

2.2.2 Effects of Export Tax on Indonesian Crude Palm Oil

From the previous studies, Mohamad et al. (2001) found out that Indonesian palm oil’s net export shares fell by 44.5 percent in October 1994 after
the implementation of the export tax in September 1994. The effect of the export tax on Indonesian palm oil reached a peak in December 1994, when it reduced net export shares by 64.4 percent. The export tax was quite variable during the September 1994 through December 1997 period, but model results made it clear that the export tax had tremendous impacts on palm oil exports from Indonesia.

Clearly, the export tax policy reduces not only competitiveness of the Indonesian palm oil industry but also hurts producers of CPO, some of them are small-holder farmers, due to the lower price of CPO relative to the world market price. On the other hand, refiners that process CPO into various products such as cooking oil, margarine, shortening gain from this policy since they get CPO at lower prices (Mohamad et al., 2001). Finally, consumers may or may not gain from this policy since there is no guarantee that the processors will pass on the lower price of cooking oil. Considering that the concentration ratio in this industry is large, which indicates a potential oligopolistic market structure; it is not likely that the consumers fully benefit from the lower price of cooking oil.

The export tax policy also hinders the development of the cooking oil industry in Indonesia as a whole and does not encourage diversification in cooking oils. The major sources of cooking oil in Indonesia are coconut oil, which is made from CCO (crude coconut oil), and RBD (refined, bleached, deodorized) Olein, which is made from CPO. These two products are close substitutes so that policies imposed on one commodity will have tremendous effects on the other commodity.

The imposition of an export tax diverts CPO from the export market to the domestic market, lowering all cooking oil prices. This causes more competition with the domestic coconut oil industry, which otherwise would provide the supply
more of the raw material for domestic cooking oil (Soeherman, et al., 2006). Considering that significant amounts of copra, the raw material of coconut oil, are made from coconuts that come from small-holder farmers, the export tax policy on CPO could further lower price of coconuts and pressure farm incomes.

In light of the current economic crisis, the export tax policies discourage the country’s recovery effort. Under current exchange rates, there is an opportunity to increase Indonesia’s industrial export competitiveness to achieve economic recovery. Improved competitiveness will benefit not only economic growth but also overcome the bias against the rural and agricultural sectors which has been associated with previous growth spurts. Thus, agricultural exports should be encouraged at all costs. The implications are that taxes and non-tax barriers to export should be removed if the potential gains from export are to be realized. By imposing an export tax on CPO, the government creates an impediment to increasing agricultural exports and competitiveness of the export-oriented industry.

### 2.2.3 Export Performance of Indonesian Crude Palm Oil

Export value of Indonesian CPO in 1999 was US$ 118.37 million and in 2005 increased to US$ 493.39 million that contributed to 36.24 percent growth rate per year. Indonesia CPO faces competition from Malaysia in the international market. During the same period, in 1999, Malaysia exported CPO worth US$ 311.46 million while in the year 2005 it received US$ 814.063 million from CPO exports that represents 21.29 percent growth rate (Siregar and Sinaga, 2006).
Tambunan (2006) used Revealed Comparative Advantage (RCA) Index according to the Balassa formula. Based on data from the Ministry of Industry (Deprindag), Figure 1 above shows the RCAs of Indonesia and Malaysia as reported by Tambunan, 2006, which indicated that Malaysia is indeed the heaviest competitor for Indonesia in palm oil trade, as in most years the RCA of Malaysia is higher than that of Indonesia.

The export performance index of CPO (RCA) of Indonesia and Malaysia in the period 1999 to 2005 had values greater than one (RCA>1). RCAI of Indonesia in China’s market in the year 2005 was 1.29 while Malaysia had a value of 1.66 as shown in Table 3, showing that Malaysia and Indonesia at that time had comparative advantage in exporting CPO to China. In comparison of revealed comparative advantage index per year, the export performance of Malaysian CPO was higher than that of Indonesia (Siregar and Sinaga, 2006).
Table 3. Revealed Comparative Advantage of Malaysia and Indonesia in China Crude Palm Oil Market in the Year 1999 to 2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Malaysia</th>
<th>Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>1.88</td>
<td>1.76</td>
</tr>
<tr>
<td>2000</td>
<td>1.58</td>
<td>1.47</td>
</tr>
<tr>
<td>2001</td>
<td>1.33</td>
<td>1.05</td>
</tr>
<tr>
<td>2002</td>
<td>1.61</td>
<td>1.40</td>
</tr>
<tr>
<td>2003</td>
<td>1.82</td>
<td>1.62</td>
</tr>
<tr>
<td>2004</td>
<td>2.00</td>
<td>1.73</td>
</tr>
<tr>
<td>2005</td>
<td>1.66</td>
<td>1.29</td>
</tr>
</tbody>
</table>

Source: Siregar and Sinaga, 2006.

Simeh (2004) found that Indonesian CPO has comparative advantage like Malaysian CPO because of the low cost of producing CPO in Indonesia (US$ 165.2 per ton) compared to that of Malaysia that costs US$ 239.4 per ton. With uniform price of US$ 433.0 per ton gives a profit margin between production cost and price of CPO of US$ 277.8 for Indonesia which is higher as compared to that of Malaysia that gets US$ 203.6 per ton (Siregar and Sinaga, 2006).

2.2.4 Government Subsidies

The Indonesian government has lessened the burden on the industry by cutting export tax to 3 percent. However government gives no cash subsidy or equivalent incentives, and allows market forces of supply and demand to govern the price of palm oil paid to the producer (Howard, 2001). This is also the case in Malaysia, although there is recognition that the current CPO market price paid to smallholders is insufficient to maintain a reasonable standard of living. As a result there is a proposal from the Malaysian government to pay an "incentive" of $260 per planted hectare to both smallholders and to estates that re-plant palms over 25 years of age.

In contrast, fat and vegetable oil producers in the United States and Europe are subsidized. The United States Department of Agriculture (USDA) provided
$28 billion to its farmers and ranchers in the financial year 1999-2000, equivalent to almost half of total farm income. An additional $500 million ‘emergency assistance’ was available in 2000 to 600,000 producers of oil seed (canola, flaxseed, mustard, rapeseed, safflower, sesame, soybean and sunflower). Further cash is available to all farmers if natural disasters cause losses. Within the European Union the producers of rapeseed received a subsidy of 46 percent of their production costs. The spirit of the World Trade Organization agreements to stop farming subsidies is clearly being broken to the detriment of the Indonesian and Malaysian producers of palm oil.

2.3 Status of Indonesian Palm Oil Industry

2.3.1 Palm Oil Cultivation in Indonesia

Palm oil trees were brought to Bogor, West Java as ornamental plants in 1908. Not until 1911 was it cultivated commercially, when oil palm plantations were started on the East Coast of Sumatra Island. By 1969, Indonesia produced 180,000 tons of palm oil and around 40,000 tons of palm kernels. Small quantity of palm oil was used in domestic market and the balance was exported. As for palm kernel, total production was exported as no palm kernel crushing plant had been installed in Indonesia (Bangun, 2006).

Until early 1970’s palm cultivation was done by large plantation companies only. Small private companies and farmers came into this business in 1975. The soil and climate in many parts of Indonesia are suitable for growing oil palm. But the soil and climatic condition are also suitable for cultivation of coconut tree, rubber, cacao and spices. Small holders chose to grow coconut or rubber trees because their crops could be easily marketed, while for oil palm fruit bunches there was no ready market. When in 1974 the price of palm oil in the
international market was exceptionally high (around US$ 700 per ton), efforts were made to increase the production. The government established a scheme called Nucleus Estate Scheme (NES), where state-owned plantation companies helped farmers to grow oil palm. The plantation companies provided seedlings, technical assistance and finance to small holders. Their crops would be purchased by the companies’ mills (Bangun, 2006).

The farmers’ access to processing mills was greatly enhanced. As a result, more and more farmers and small companies were attracted to cultivate oil palm. Consequently the growth of oil palm area after 1975 was through the effort of multiple players: large companies (both foreign and domestic), state owned companies and small holders. Presently about 32 percent of the total planted area belongs to small holders, about 50 percent to large companies and about 18 percent to state-owned companies.

2.3.2 Supply and Demand

The productive area in 2006 was only 4.15 million hectares out of 5.15 million hectares planted area. The productivity varies from company to company due to different factors like soil and climatic conditions, efficiency of management and security problems. Large companies have better management resulting in higher productivity. A certain company produces an average of 23 tons of Fresh Fruit Bunches (FFB) per hectare per year with an oil extraction rate (OER) of 24 percent. That means a productivity of 5.52 tons of palm oil per hectare per year. In addition, this company produces 4.6 percent or 1.06 ton of palm kernel. Total production is 6.58 tons. Smaller companies produce much less. Some produce 16 tons FFB per hectare per year with OER of 19 percent resulting
in productivity of 3.04 tons of palm oil per hectare per year. Small holders produce even less. Some only make 13 tons FFB with OER of 18 percent resulting to 2.34 tons of palm oil per hectare per year (Bangun, 2006).

Demand for palm oil is growing very fast. Global production has doubled over the past ten years and is expected to double again in the next decade. A major opportunity exists to meet the rising demand in an environmentally and socially sustainable manner through expansion and improvement of smallholder production. Smallholders already play a significant part in the palm oil industry. In the two countries responsible for over 80 percent of world oil palm production, Indonesia and Malaysia, smallholders account for 35-40 percent of the total area of planted oil palm and up to 33 percent of the output. In other countries, considerable numbers of smallholder producers are present, but are often not properly linked to world markets (Vermeulen et al., 2006).

The demand for palm oil consists of domestic and export components. Domestic demand is to fulfill the need of over 240 million people for cooking oil. Average consumption of cooking oil is around 12 kg per capita per year. Small part is contributed by coconut oil, so that palm oil supplies about 10.5 kg per capita in the form of RBD Palm Olein. In total 2.31 million tons of palm cooking oil is needed which is equivalent to 3.2 million tons of crude palm oil per year. Other domestic demand is for soap making and oleo-chemical industries. This accounts for 200 to 500 thousand tons of crude palm oil. Total domestic demand varies from 3.4 to 3.7 million tons (Soeherman et al., 2006).

2.3.3 Indonesian Crude Palm Oil Export Markets

The development of the Indonesian oil palm sector is increasingly export-driven, as palm oil exports increased by 244 percent in the past seven years. Table
4 provides an overview of the main export markets for Indonesian palm oil both crude and refined.

Table 4. Export Markets for Indonesian Crude Palm Oil, Year 1995 to 2002

<table>
<thead>
<tr>
<th>Export in 000 tons</th>
<th>Percent</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1995 1998 1999 2000 2001 2002 Growth Share</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India 113 309 1029 1639 1520 1767 1464 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU 935 993 1002 908 1185 1496 60 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China 181 325 354 693 681 789 336 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia 27 264 273 76 78 405 1400 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan 41 16 10 15 97 269 556 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh 3 12 41 96 179 221 7267 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey 31 10 45 68 154 152 390 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria 0 0 21 51 53 141 &gt;100 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanzania 5 3 36 87 110 114 2180 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hongkong 19 8 12 34 31 101 432 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan 39 6 4 14 25 96 146 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa 4 7 47 61 136 93 2225 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia 0 0 3 10 88 91 &gt;100 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egypt 56 22 70 35 96 89 59 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other countries 401 285 372 353 507 556 39 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total export 1855 2260 3319 4140 4940 6380 244 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Despite a volume growth of 60 percent since 1995, the European Union lost its position as the most important export market for Indonesian palm oil to India. The share of the EU declined from 50 to 23 percent, while India now accounts for 28 percent of Indonesian palm oil exports. Some other Asian markets, especially China, Malaysia, Pakistan, Bangladesh and Hong Kong are quickly expanding their palm oil imports from Indonesia. On a lower level, the same applies to some African countries that include Egypt, Tanzania, Nigeria and South Africa as well as to others like Jordan and Russia. In the past seven years, Indonesia has further diversified its export markets, a development that looks likely to continue. Indonesian palm oil exports to Malaysia - still the largest palm
oil exporter in the world are worth remarking on. It is probable that this palm oil is
re-exported from Malaysia, but classified as Malaysian palm oil.

2.4 Smallholder Scheme Types in Indonesia

2.4.1 Nucleus-Plasma Schemes

Between 1978 and 2001, the Government of Indonesia provided policy
support and the World Bank financial assistance to nucleus-plasma (*Perkebunan
Inti Rakyat* or PIR) supported grower schemes, in which plantation companies
would develop palm oil plots for smallholders in a ‘plasma’ area around their own
plantation ‘nucleus’. Management of plasma plots, generally 2 hectare of oil palm
plus one hectare for other crops, would be transferred to individual smallholders
after 3-4 years. The nucleus-plasma schemes were conceived as an integral part of
the government’s resettlement (*transmigrasi*) programme, through which
Javanese and Sumatran people transferred to start a new life in the less populated
islands. Thus many, though not all, of the plasma smallholders have been new
settlers (Vermeulen et al., 2006).

Nearly 900,000 hectares of palm oil smallholdings were established under
variations of this model. Land for the schemes was allocated by central
government from a land category called conversion forest. Much of this land was
simultaneously under the management and traditional ownership (*adat*) of local
communities, who in this sense were, consensually or not, contributing a capital
investment of land into the nucleus-plasma schemes. The original apportionment
between nucleus and plasma was 20-80, but this tended towards 40-60 percent
over time (Vermeulen et al., 2006).

In a typical scheme, holders of the plasma plots would be supported in the
early years before the palm oil reached maturity through employment and (often
inadequate) subsistence agriculture. The management of the plasma area would come officially under a cooperative of smallholders, which would generally contract technical functions back to the nucleus plantation company. Hence growers often work as laborers on their plots. They receive additional income through the guaranteed sale of fresh fruit bunches at a price set through a government formula (Zen et al., 2005).

The nucleus-plasma schemes continue, though government sponsorship of expansion stopped in 2001 following Indonesia’s major decentralization of government functions that year, and a renewed support for traditional individually owned smallholdings. Zen et al. (2005) reported that, although there are exceptions, many of the smallholders in mature nucleus-plasma schemes are getting good incomes today. But underlying issues such as control over land remain unresolved. Nucleus-plasma schemes not only occupy lands where there are overlapping systems of customary (adat) ownership, but also disrupt adat arrangements, for example by allocating plasma farmers 2 hectares plots belonging to another community or even in another sub-district.

2.4.2 Koperasi Kredit Primer Anggota Schemes

The Indonesian government introduced the KKPA (Koperasi Kredit Primer Anggota), which literally translates as Members’ Primary Credit Cooperative Scheme as a general rural micro-finance programme, through which formalized local cooperatives could borrow up to a maximum of IDR50 million, at a partially subsidized repayment rate of 16 percent, for small business development (Vermeulen et al., 2006). The scheme was widely applied in the palm oil sector from 1995 onwards, replacing the basic nucleus plasma scheme.
Cooperatives of smallholders have more autonomy under KKPA than under earlier nucleus-plasma models.

Both nucleus-plasma schemes and the modified KKPA schemes are not without problems – smallholders report an abiding set of difficulties, such as:

1. Long delays (of up to eight years) in receiving allotted land and credit
2. Allocated plots are inaccessible
3. Roads are poorly maintained
4. Traditional intercropping disallowed
5. Decision-making is in the hands of the company (land allocations, recruitment of labor, prices for fresh fruit bunches)
6. After production, land reclamation costs are high
7. Broader scale social and environmental impacts such as rivers drying up and cost of living rising

2.4.3 Pola Patungan Scheme

In a variation on the nucleus-plasma and KKPA schemes, the Pola Patungan (Joint Venture Model) scheme gives local residents, who are settlers under the Indonesian transmigration programme, share certificates for their 2 hectares, rather than allocating an actual block of land. Shareholders are then given the choice of working either in the plasma under the cooperative, trained by the plantation company, or in the nucleus staff. The reasoning behind this is to pre-empt conflicts arising from the variable performance of individual blocks, but another outcome was greater efficiency analogous to the Malaysian scheme. Anecdotal evidence suggests that the standard of living is relatively high among participants in this share certificate scheme (Zen et al., 2005).
2.4.4 Income Diversification Sub-Scheme

A medium-sized plantation company in Sumatra, Indonesia, distributed 3 cattle to every one of 500 employees, with supplementary feeding on oil palm waste and kernel cake. The cattle are used for breeding, fattening and transporting fresh fruit bundles and the scheme is considered a huge success economically and socially (Zen et al., 2005).

2.5 Measurement of Comparative Advantage

2.5.1 Price Competitiveness

International competitiveness relates to an economy’s ability to compete in international markets by either producing goods at a lower cost or selling goods at a lower price than competitor countries. Obviously these two concepts are interrelated, as the lower the production costs the lower the price firms can charge for their products yet remain profitable. In the short term, competitiveness developments are often equated with the evolution of the real exchange rate. The real exchange rate is essentially a relative price or cost index expressed in some common currency. The Central Bank’s real trade weighted competitiveness index (RTWCI), for example, shows changes in the relative price of a country’s goods expressed in a common currency. As a result, it takes into account changes in both the nominal exchange rate and prices relative to our major trading partners.

2.5.2 Cost Competitiveness

The Real Trade Weighted Competitiveness indicator provides one measure of export competitiveness. One advantage of this measure is that because it is based on consumer or producer prices and it offers the most up to date data, because prices are available monthly. However, it gives an incomplete picture for a number of reasons. For example, the index takes account of either consumer or
producer prices relative to our trading partners. It can be argued, however, that since this includes a very large number of non-traded goods and services it does not provide a very good indication of international competitiveness.

An alternative would be relative export prices since they cover only tradable products. They suffer from other drawbacks, however, one of which is particularly relevant for any country. As a small open economy, the country’s export prices are generally set in international markets and, effectively, given for home country’s exporters. Therefore, changes in competitiveness manifest themselves through changes in profitability (export prices less the cost of producing exports) rather than changes in prices. For this reason, relative cost indicators, which overcome the difficulty with export prices, are a useful alternative measure of export competitiveness.

Wage costs are an important component in the total costs of producing exports and unit wage costs in the traded (manufacturing) sector relative to our main trading partners, expressed in a common currency, are generally accepted as a useful proxy for cost competitiveness. It is important to recognize, however, that unit wage costs do not take into account changes in non-labor business costs, including rents, energy, communications, insurance, waste and cost of capital.

2.5.3 Constant Market Share Analysis

An approach used to establish the position of a commodity in the world market in terms of growth, composition, distribution and competition is based on constant market share (CMS) analysis. This analysis is used to measure export performance of a country relative to its competitors. This approach provides some
statistical indicators to assess whether an exporting country is able to manage its export shares to all importing countries in a certain period.

Just like other models, the CMS model also has some weaknesses. Therefore the reasons behind changes in export competitiveness could not be evaluated using CMS analysis in that the analysis does not take into account change in competitiveness of a point of time in between two intervals of time. However, this analysis is useful in assessing the trend of commodity product competitiveness produced by a country.

2.5.4 The Principle of Absolute Advantage

A country has an absolute advantage over it trading partners if it is able to produce more of a good or service with the same amount of resources or the same amount of a good or service with fewer resources. In the case of Indonesia, the country has an absolute advantage over many countries in the production of crude palm oil. This occurs because of the existence of favorable condition for the growth of oil palm, as well as the availability of adequate and cheap labor in the CPO industry. It can be seen that in terms of the production of goods, there are obvious gains from specialization and trade, if Indonesia produces CPO and exports it to those countries that specialize in the production of other goods or services.

2.5.5 The Principle of Comparative Advantage

David Ricardo (1772-1823), in his theory of comparative costs suggested that countries will specialize and trade in goods and services in which they have a comparative advantage. It is easy to see that if countries have an absolute advantage there are advantages to trade. However, what happens if one country has an absolute advantage over its trading partners in the production of a number
of goods. Specialization and trade can still result in there being welfare gains made from trade. A country has a comparative advantage in the production of a good or service that it produces at a lower opportunity cost than its trading partners. Some countries have an absolute advantage in the production of many goods relative to their trading partners. Some have an absolute disadvantage. They are inefficient in producing anything, relative to their trading partners. The theory of comparative costs argues that, it is better for a country that is inefficient at producing a good or service to specialize in the production of that good it is least inefficient at, compared with producing other goods.

2.5.6 Revealed Comparative Advantage

Revealed Comparative Advantage (RCA) assumes that the comparative advantage of a country is reflected or revealed in a market over others or at home over a selection of prospective commodities (Tam, 2001). In general terms, revealed comparative advantage measures the efficiency by which a country performs in the market when it produces a particular good for export. Revealed Comparative Advantage, as developed by Balassa in 1965 (Kannapiran and Fleming, 1999), provides a rough indicator of the strength of a product in terms of its comparative advantage in the world market relative to others (Fatimah and Alias, 1997). In summary, the whole concept of competitiveness can thus be viewed from three economic aspects, i.e. economic advantage (cost of producing the product), comparative advantage (cost-price differential) and structural competitiveness (revealed competitive advantage).

2.5.7 Revealed Comparative Advantage and the Competitiveness

Ling et al. (1996) applied the RCA approach to assess the export performance of major cultured shrimp producers in the Japanese and US markets.
Based on the international trade statistics during 1989-1991, they computed the RCA indices for nine major cultured shrimp producers in the Japan and US markets respectively. The results revealed countries’ comparative advantage in differentiated shrimp export products (e.g., Taiwan’s strong comparative advantage in live shrimp export to Japan and fresh shrimp export to the US; the Philippines’ strong advantage in dried/salted/in brine shrimp export to Japan; Ecuador’s strong advantage in fresh/shell-on shrimp export to the US, etc.). Identifying such comparative advantage patterns is only the first step, what is more important is to understand the driving forces behind them. As pointed out by Ling et al. (1996), Taiwan’s remarkable comparative advantage in live shrimp export to Japan comes from its well-established, integrated network of live shipping, packing and transporting techniques and facilities. Thus, other countries that wish to develop similar comparative advantage would know where to spend their effort.

Karakaya and Ozgen (2002), by employing RCA approach, investigated the potential trade creation and diversion effects of economic integration for Turkey and the EU. They also used the RCA index to examine if Turkey’s accession will jeopardize the trade for southern members, i.e. Greece, Portugal, and Spain. Results confirmed that the export structures are remarkably different among Turkey and the EU. It was pointed out that Turkey, probably, does not change the EU position significantly since country’s low trade volume with respect to the EU. Results indicate that Turkey’s accession to the EU market with no trade barriers may hamper the export position of the southern EU countries.

In another recent study in the year 2005, the RCA approach was applied to examine the comparative advantage of Asian, Latin American, and Sub-Saharan
countries’ comparative advantage in the farming of three major freshwater aquaculture species (i.e., carp, catfish, and tilapia). The purpose was to provide a systematic assessment of these countries specialization patterns regarding those three species. Due to lack of applicable trade data, production data is used for this assessment; hence such “production” comparative advantage would be different from the conventional “trade” comparative advantage revealed by trade specialization patterns.

The main difference is that a country’s production serves both domestic and foreign markets. Thus, it is possible that even when a country has relatively high specialization in farming one species, its trade specialization in this species could be low if most of the production is consumed domestically. Comparing “trade” comparative advantage is more straightforward than comparing “production” comparative advantage because while countries face similar conditions in the international trade markets, the conditions in their domestic markets could differ significantly. However, while trade specialization patterns reflect the export performance of different species (i.e., their ability to earn foreign exchanges), production specialization patterns provide more general information about the importance of different species regarding economic development.

The main purpose of this thesis is to demonstrate a systematic framework for comparative export performance assessment. Methodologically, the researcher will use market share to measure a country’s competitiveness in a market and identify “size advantage” and “comparative advantage” as two contributing factors; the former captures the competitiveness due to a country’s total export capacity, while the latter captures the competitiveness due to the degree of its
specialization in the market. It emphasizes on examining the dynamics of comparative advantage and develops a more accurate index for its measurement compared to the common practice of directly using the difference between RCA indices at two points in time to measure the comparative variation between them, which is not precise and could cause misleading results. At the same time, this thesis will also enable the researcher to identify the effects of imposing export tax on Indonesian crude palm oil industry. It will use econometric method where simultaneous equations will be used to study the effects of export tax on the production, consumption, export and domestic price of CPO.