



UNIVERSITI PUTRA MALAYSIA

**ASSESSING THE COMPETITIVENESS OF THE MALAYSIAN
PALM OIL INDUSTRY**

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**ASSESSING THE COMPETITIVENESS OF THE MALAYSIAN
PALM OIL INDUSTRY**

By

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**Dissertation Submitted in Fulfillment of the Requirements for
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DEDICATION

To my beloved husband , Mr. R. Sivalingam
and to all my brothers and sisters.



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LIST OF ABBREVIATIONS

GATT	- General Agreement on Tariffs and Trade
MTN	- Multinational Trade Negotiations
GDP	- Gross Domestic Product
FELDA	- Federal Land Development Authority
FELCRA	- Federal Land Consolidation and Rehabilitation Authority
RISDA	- Rubber Industry Smallholders Development Authority
PORIM	- Palm Oil Research Institute of Malaysia
PORLA	- Palm Oil Registration and Licensing Authority
FFB	- Fresh Fruit Bunches
MOPGC	- Malaysian Oil Palm Growers Council
POMA	- Palm Oil Millers Association
PORAM	- Palm Oil Refiners Association of Malaysia
MEOMA	- Malaysian Edible Oil Manufacturing
MPOPC	- Malaysian Palm Oil Promotion Council
CPO	- Crude Palm Oil
FFA	- Free Fatty Acid
CMS	- Constant Market Share
SCP	- Structure, Conduct and Performance
ROA	- Return on Asset
ROI	- Return on Investment
ROS	- Return on Sales
TFP	- Total Factor Productivity
PC	- Productivity of Capital



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Chairman: Professor Dr. Mohd. Ghazali Mohayidin

Faculty: Economics and Management

Malaysia has been the world's largest producer and exporter of palm oil for the last fifteen years. The palm oil is facing stiff competition from other palm oil producers especially Indonesia. Indonesia's production of palm oil is increasing rapidly at more than 10% annually compared to Malaysia which showed an average growth of only 8.2% from 1990 to 1995. In response the Malaysian government has taken many efforts to improve the performance of the local palm oil industry. Despite the efforts of the government as well as the private sector to develop the palm oil industry in Malaysia, the performance of the industry, measured in terms of market share and profitability, is declining relative to those of other countries especially Indonesia. Therefore, the aim of this study is to assess the competitiveness of the Malaysian palm oil industry and to identify the factors affecting it.



This study analyzed the competitiveness of the palm oil industry at the country and industry level. The competitiveness at country level was determined by palm oil export performance which was measured by the Constant Market Share model (CMS). The CMS model decomposes the export of palm oil into three effects i.e. size of market, distribution and competitive effects. The result of the CMS analysis for the size of market effect shows that the country was unable to cope with world palm oil demand in the later periods, compared to Indonesia. The distribution effect showed that both Malaysia's and Indonesia's palm oil exports were concentrated in markets where demand was growing at slower rates during earlier periods followed by faster rates in the later periods. Finally, the competitive effect showed a decline in Malaysia's market share for the later periods, while Indonesia's market share was increasing continuously. Thus, Malaysia is gradually losing its competitiveness to Indonesia in terms of market share.

The analysis was carried out on crude palm oil (CPO) millers. The performance of the industry was found to be affected by productivity, technology, market share, quality, bargaining power and cost of production. Performance was measured by value added and return on assets. The coefficient of determination was 64.0% and 42.08% for ROA and value added respectively. The results showed that the cost of production, market share, productivity of capital, quality (free fatty acid content) and technology were significant at 5%. Bargaining power did not contribute much to the performance of CPO millers. In conclusion, it was found that the competitiveness of the industry can be improved if the firms increase their production, productivity, technology, market share and reduce the cost of production.

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**PENILAIAN PERSAINGAN INDUSTRI MINYAK KELAPA SAWIT
MALAYSIA**

Oleh

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Malaysia merupakan pengeluar dan pengeksport minyak kelapa sawit yang terbesar di dunia selama 15 tahun yang lalu. Kini, industri tersebut menghadapi persaingan yang hebat dari pengeluar minyak kelapa sawit lain seperti Indonesia.

Kadar produksi Indonesia telah meningkat lebih daripada 10% jika dibandingkan dengan Malaysia hanya 8.2% dari tahun 1990 ke 1995. Kerajaan Malaysia dan badan-badan swasta telah mengambil beberapa langkah untuk memperbaiki prestasi industri tersebut yang ditentukan oleh keuntungan dan bahagian pasaran (market share). Namun demikian, saham pasaran Malaysia semakin banyak diambil alih oleh Indonesia. Jadi, tujuan kajian ini adalah untuk menilai persaingan industri minyak kelapa sawit Malaysia dan mengenalpasti faktor-faktor yang mempengaruhi industri tersebut.

Kajian ini menganalisa persaingan minyak kelapa sawit pada peringkat negara dan industri. Persaingan pada peringkat negara ditentukan oleh prestasi eksport negara.



la diukur dengan menggunakan model “ constant market share” (CMS). Model in dibahagikan kepada tiga kesan iaitu: saiz pasaran, distribusi dan persaingan. Keputusan analisa CMS untuk saiz pasaran menunjukkan bahawa negara ini tidak dapat memenuhi permintaan dunia jika dibandingkan dengan Indonesia. Pada awalnya kesan distribusi untuk Malaysia dan Indonesia menunjukkan pengeksporan minyak kelapa sawit tertumpu pada negara-negara yang permintaannya bertambah pada kadar yang perlahan. Tapi pada tempoh masa 1990-1994 permintaan minyak kelapa sawit dari negara-negara pengimpor telah meningkat. Kesan persaingan menunjukkan saham pasaran negara Malaysia semakin berkurang manakala pasaran Indonesia semakin meningkat untuk tempoh masa 1991 - 1994. Oleh yang demikian, pasaran minyak kelapa sawit Malaysia semakin berkurangan berbanding dengan Indonesia.

Seterusnya kajian ini menganalisa faktor-faktor yang mempengaruhi prestasi industri tersebut. Analisa regresi dilakukan pada minyak kelapa sawit yang belum diproses (CPO). Prestasi industri tersebut dipengaruhi oleh produktiviti, teknologi, bahagian pasaran (market share), mutu, kuasa menawar and kos pengeluaran. Prestasi tadi diukur oleh “value added” dan kadar pulangan pada asset. Angkali regresi menunjukkan 64% untuk pulangan pada asset dan 42.0% untuk “ value added”. Keputusan regresi menunjukkan kos pengeluaran, saham pasaran, produktiviti kapital dan mutu adalah signifikan pada 5% untuk kajian ini. Manakala kuasa menawar adalah tidak signifikan untuk pengajian ini. Kesimpulan kajian ini adalah persaingan minyak kelapa sawit boleh diperbaiki jika firma-firma meningkatkan produktiviti, teknologi, pasaran dan kurangkan kos pengeluaran.

CHAPTER I
INTRODUCTION
Background

Malaysia maintained its high economic growth rate of 9.2% and 9.6% in 1994 and 1995. This was mainly due to the expansion of local and external demand for higher value added products. Domestic demand increased from 10.6% in 1994 to 17.7% in 1995 while export market grew from 17.5% to 25.6% during the same period. The higher external demand was driven by electrical and electronic products, manufactured goods and palm oil, each contributing 48.6%, 25% and 5.3% respectively.

The rapid growth of export can also be attributed to successful trade negotiations through the General Agreement on Tariffs and Trade (GATT). The successful completion of the eighth round of Uruguay Rounds (1986) of negotiations under GATT provided additional stimulus to international trade. GATT's main functions were to facilitate periodic multinational trade negotiations (MTN) and provide a forum for dispute settlement among the member countries (Markusen, 1995). The GATT negotiations were also aimed at creating a much more liberal trade setting for agriculture products through the reduction of trade barriers. The removal of such barriers indicates opening of the domestic market to international producers and indirectly encourages competition.



It is safe to assume that firms strive to improve the performance of their products in order to compete with similar products in the international market. As such firms have to operate efficiently and be able to meet customers requirements to sustain or improve their competitiveness. An efficient firm will be able to set a competitive price to capture higher market share and increase its profitability (Porter, 1979). Maintaining superior performance leads to competitive advantage. This study evaluates the competitiveness of the Malaysian palm oil industry since the country currently possesses the highest market share in the global market. In the next decade, the competitiveness of the palm oil industry is expected to be highly intense, thus it is also crucial to identify factors affecting the performance of palm oil vis-a-vis other vegetable oils as well as the palm oil producing countries.

Overview of World Vegetable Oils

There are 17 major types of oils and fats available in the world market namely soybean oil, cotton oil, groundnut oil, sunflower oil, rapeseed oil, sesame oil, corn oil, olive oil, palm oil, palm kernel oil, coconut oil, butter, lard, fish oil, linseed oil, castor oil and tallow. The discussion in this section focuses on four major vegetable oils i.e. soy bean oil, rapeseed oil, palm oil and sunflower oil.

Demand for Vegetable Oils

According to Wong and Golingi (1992), the demand for vegetable oils depends on two factors namely; population growth and per capita consumption. The world population is estimated to grow from 5.78 billion in 1995 to 6.23 billion by the year 2000, growing at an average rate of 7% per annum (81 million) (Table 1). The

United Nations Statistics forecasted that by the year 2025, the population of Asia, Africa, Latin America, Europe, USSR, North America and Oceania will be 4.467, 1.643, 0.787, 0.527, 0.367, 0.347 and 0.04 billion respectively (Neilsen, 1994).

Table 1: World Population (Billion)

Year	Population
1955	2.75
1960	3.02
1965	3.34
1970	3.70
1975	4.08
1980	4.45
1985	4.85
1990	5.30
1995	5.76
2000	6.23
2005	6.69
2010	7.15

Source : Oil World statistics 1963- 2012, 1994
& Wong & Gollingi (1992)

The second important factor is consumption per capita, which is influenced by income, government policy, prices and foreign exchange. Prices of vegetable oils are generally determined by world supply and demand.

Considering the expected changes in the two main factors, consumption for vegetable oils is forecasted to increase from 80.236 million tonnes in 1990 to 104.844 million tonnes by the year 2000. During this period, the expected consumption growth rate is 15.84% compared to a population growth rate of only 7%. In other words, a 1% increase in population will increase the world consumption of vegetable oils by 2.26% (Oil World Statistics 1963-2012, 1994). Consumption per capita of oils and fats is expected to increase from 15.71 kg in the year 1995 to 16.82 kg in the year 2000. The United Nations recommends that the minimum per capita oil consumption to maintain physical and mental health is 12 kg. However, the world average consumption per capita is only 15 kg. Developed countries such as USA and the European Economic Community consume more than their share while developing countries such as China and India are lagging behind with about half the world average at 7 kg. As China and India account for 40% of the world population, the growth in demand for oils and fats from these two countries will be very high in the next decade as their economy is expected to improve with the liberalization of their economic policies, particularly that of China's .

As shown in Table 2, the consumption per capita for palm oil is expected to increase from 2.66 kg in 1995 to 3.31 kg in the year 2000. Comparing this with soybean oil, consumption per capita is expected to increase from 3.1 kg in 1995 to 3.197 kg in the year 2000. The consumption of major oils namely palm oil, soybean oil, rapeseed oil and sunflower oil is expected to grow at 34.43%, 11.54%, 18.5% and 17.4% respectively from the year 1995 to 2000. The consumption pattern is shown in the Figure 1. Therefore, palm oil has a greater potential in the world market compared

to other vegetable oils and investing in this sector will help increase the country's income.

Table 2: Consumption of Four Major Vegetable Oils ('000 tonnes)

Year	Palm Oil	Soybean Oil	Rapeseed Oil	Sunflower Oil
1963/67	1,368	4,090	1,355	2,767
1968/72	1,694	5,975	2,024	3,623
1973/77	2,753	8,412	2,560	3,632
1978/82	4,356	12,522	3,654	4,805
1983/87	6,837	14,152	6,015	6,275
1988/92	10,703	15,855	8,379	7,833
1993/97	15,355	17,858	10,089	8,355
1998/02	20,642	19,919	11,957	9,811
2003/07	25,238	22,365	13,545	10,931
2008/12	29,800	25,130	15,550	12,048

Source : Oil World Statistics 1963-2012, 1994.

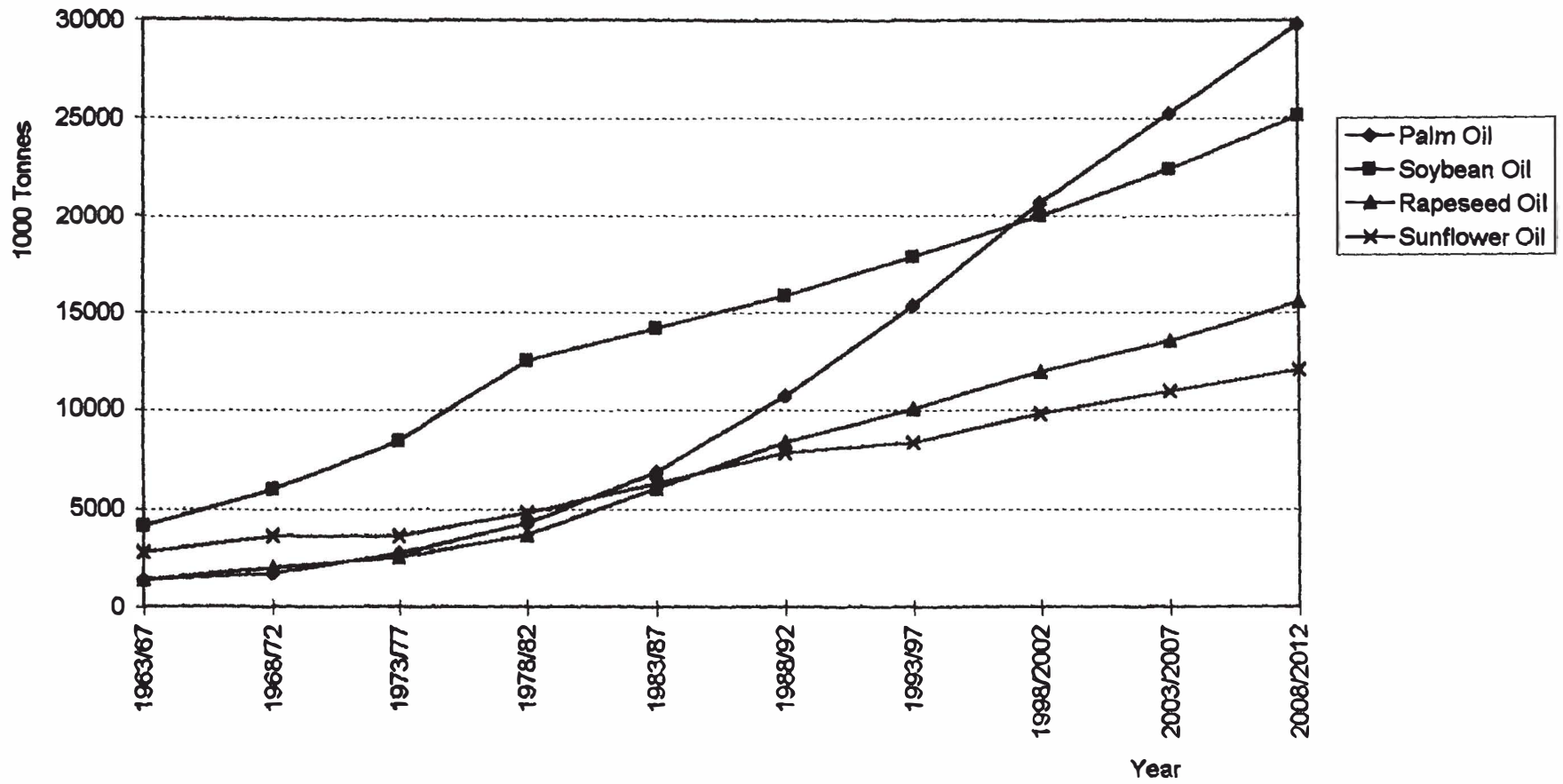


Figure 1: Consumption of Four Major Vegetable Oils in the World

Production of Vegetable Oils

The production of vegetable oils and fats in 1990 was 80.103 million tonnes and it is estimated that 90.612 million tonnes was produced in 1995. As shown in Table 3 and Figure 2, it was forecasted that oils and fats supply will grow from 13.11% in 1995 to 15.98% in the year 2000 (Oil World Statistics 1963-2012, 1994). Soybean oil production, as the world largest vegetable oil produce, is estimated to grow at an average of 12.1% for next five years from 1995. However, palm oil production is expected to grow much more rapidly, at an average of 39%, while that of rapeseed oil and sunflower oil at 19% and 12% respectively.

The production of vegetable oils depends on yield per hectare and total hectares. The average yield per hectare of palm oil was 3.06 tonnes in 1992 and 3.25 tonnes in 1995. The higher yield per hectare of palm oil could result in the lowering of production cost when compared to soybean oil. Soybean oil yield per hectare is only 2.04 tonnes on the average. It is estimated that the production of palm oil will be at 2.5 million tonnes compared to 2.2 million tonnes for soybean oil by the year 2005. Sunflower oil and rapeseed oil production is expected to reach 1.09 million tonnes and 1.35 million tonnes by the year 2005 respectively.

In 1993 and 1994 the world production of oils and fats was 88.042 and 85.82 million tonnes respectively. In comparison, the world total consumption for the same years was 88.298 and 86.22 million tonnes. This indicates that the demand for oils and fats is higher than the supply. Thus, vegetable oils producing countries have to increase their production level to meet the increasing level of consumption.

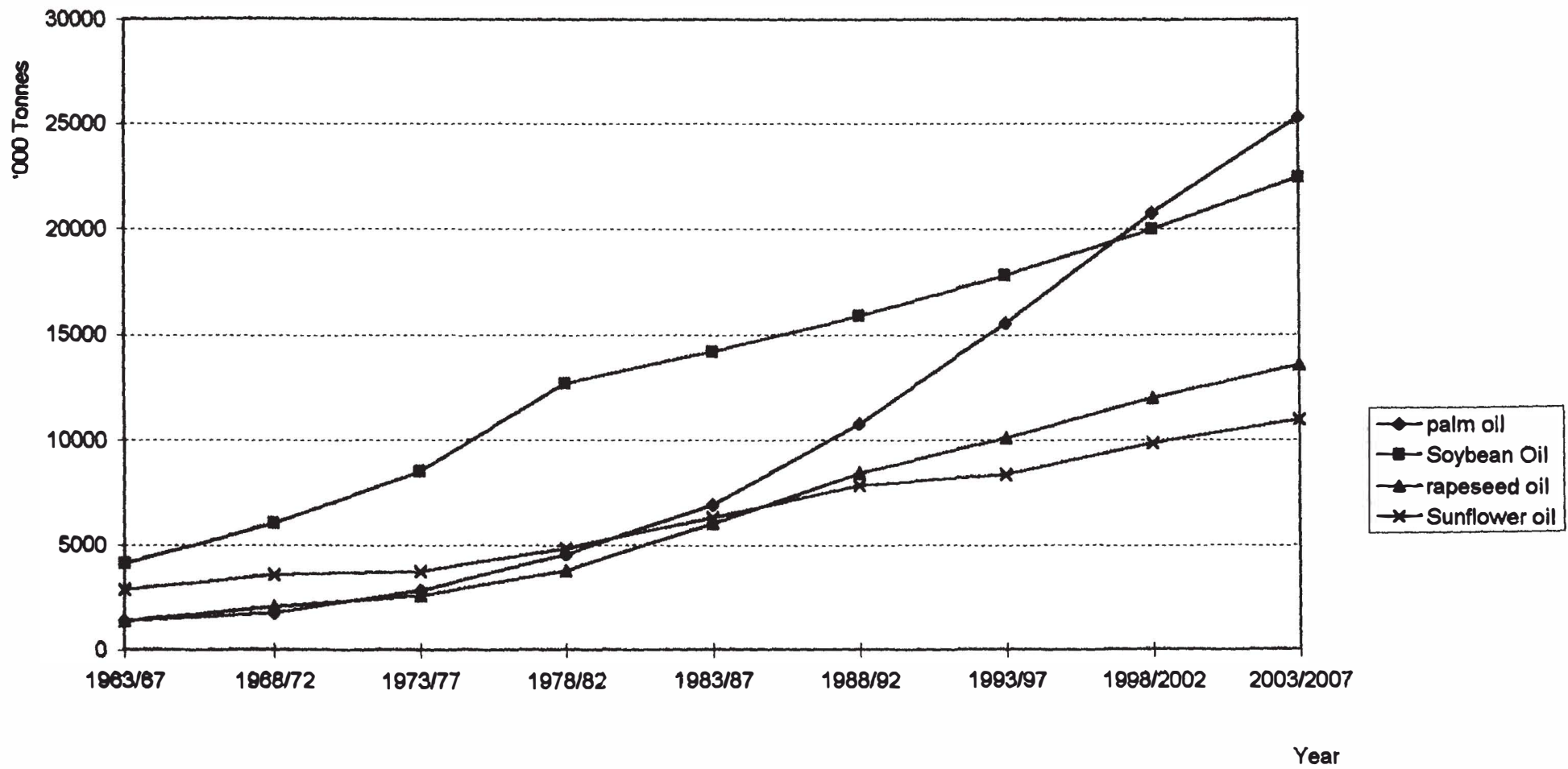


Figure 2: Production of Four Major Vegetable Oils in the World

Table 3: Production of The Four Major Vegetable Oils (' 000 tonnes)

Year	Palm Oil	Soybean Oil	Rapeseed Oil	Sunflower Oil
1963/67	1,358	4,088	1,368	2,864
1968/72	1,725	6,036	2,039	3,550
1973/77	2,802	8,504	2,572	3,703
1978/82	4,548	12,672	3,736	4,828
1983/87	6,924	14,194	6,023	6,324
1988/92	10,752	15,871	8,407	7,833
1993/97	15,553	17,792	10,095	8,369
1998/02	20,745	19,961	11,983	9,838
2003/07	25,295	22,410	13,566	10,969

Source : Oil World Statistics 1963- 2012, 1994.

Export of Vegetable Oils

In the year 1990, the world total export of vegetable oil was 26.161 million tonnes and is estimated to reach 29.34 million tonnes in the year 1995 at a growth rate 12.15% per annum. The Oil World Statistics has forecasted, that the world export of oils and fat will increase at an average of 16.23% (34.102 million tonnes) for next five years as indicated in Table 4 and Figure 3. The statistics also identified that palm oil will maintain its position as the world's largest export at 30.49% (7.977 million tonnes), 38.56% (11.314 million tonnes) and 42.95% (14.647 million tonnes) in the year 1990,

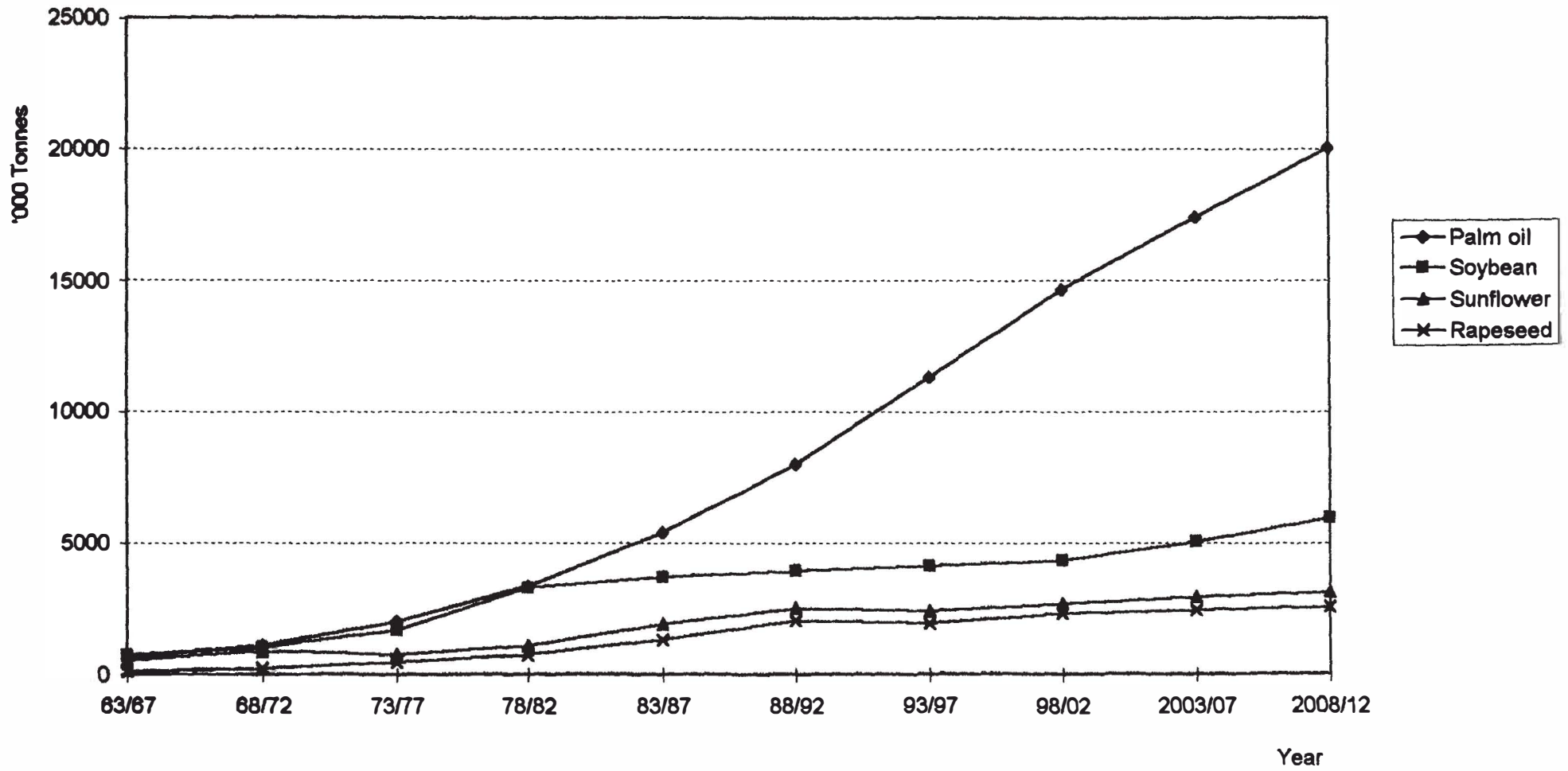


Figure 3: Export of Four Major Vegetable Oils in the World

1995 and 2000 respectively. Export of the oil is expected to grow at 29% , the highest rate, from the year 1995 to 2000. This is followed by soybean oil, which captured 19.97% and 12.63% of the total market share in the year 1995 and 2000. Sunflower oil as a third important vegetable oil possessed 8.07% of oils and fats export share in 1995, but its share is estimated to decline to 7.69% by the year 2000. In 1995, rapeseed oil had 6.5% of the oils and fats export share and which is expected to grow to 6.67% by the year 2000.

Table 4: Export of Four Major Vegetable Oils ('000 tonnes)

Year	Palm Oil	Soybean Oil	Sunflower Oil	Rapeseed Oil
1963/67	626	685	512	106
1968/72	1,043	994	858	234
1973/78	1,983	1,631	713	448
1979/82	3,328	3,242	1,049	711
1983/87	5,387	3,675	1,867	1,273
1988/92	7,977	3,913	2,461	2,003
1993/97	11,314	4,100	2,368	1,908
1998/02	14,647	4,307	2,624	2,275
2003/05	17,400	5,034	2,897	2,410

Source : Oil World Statistics 1963-2012, 1994.

This phenomenon can be due to the low cholesterol level and other nutritional contains as well as the lowest price in the palm oil increase the world demand for the oil. Thus, palm oil appears to be an important vegetable oil in the world market. Having

discussed the performance of the four major vegetable oils, it is also important to analyze the performance of the Malaysian palm oil industry with other producing countries.

World Palm Oil Industry

Malaysia is the world leading producer of palm oil followed by Indonesia, Nigeria, Ivory Coast, Columbia, Thailand and others. Malaysia has successfully maintained its market share above 50% for the past fifteen years. However, its position is threatened by the rapid expansion of Indonesia's palm oil production and shown on Figure 4 and Table 5. In 1995, Indonesia produced 27.7% of the world total compared to only 14% in 1990. Oil World Statistics forecasted that Indonesia will be able to capture almost the same market share of palm oil production by the year 2010 (9.3 million tonnes) (Table 5). This is due to the country's matured area growing at an average of 12.5% while Malaysia's is only 4.3% for the period 1992 to 1995. Beside this, production growth rate for Indonesia is greater than 10%, compared to that of Malaysia's which was only 8.2% for the same period. Therefore the Malaysian export share is declining slowly. The country's export share is expected to decline from 67.9% in 1990 to 63.37% and 56.46% in 1995 and 2000 respectively. In contrast, Indonesia's export is expected to grow from 31.4% in 1995 to 38.4% in the year 2000.

With the emergence of palm oil in the world market, oils and fats buyers have focused on the South East Asian producing countries, notably Malaysia, for securing their needs. Malaysia's major export destinations are Pakistan, China, EEC, Singapore,