

CHAPTER FOUR

SOURCES OF EXPORT INSTABILITY

4.1 Introduction

In Chapter Three, it has been found that despite the fall in commodity export concentration (C_c), there has been no consistent decline in export instability. Wide dispersion in earnings instability in the set of commodities exported may have in part, accounted for the weak relationship as there have been large fluctuations in the instability level of each commodity export (N_c). As a result, the direct link between commodity concentration, after having adjusted for the variation in instability of individual commodities ($C_c N_c$), on the one hand, and export instability, on the other, is weak.

To better understand the link between commodity concentration and export instability, it is necessary to examine the relative contribution of each export subgroup to total export instability. The identification of the principal commodity export subgroups that have contributed most or least to export instability is also useful in relation to long-term planning and public policy. However, a review of all commodities (even at the two-digit level) would be an immense task. The study is therefore confined to Malaysia's leading export commodities. In particular, the study focuses on sixteen two-digit level SITC groups. The value of each commodity group exceeded RM1 billion in 1991. Together, they accounted for about 90.0 per cent of total export earnings in 1978 and 83.3 per cent in 1991.

Similarly, in order to provide further insights into the link between geographic concentration and export instability, an examination of the individual export markets is therefore useful. The examination of instability levels of individual export markets relative to their export sizes is narrowed down to the major export markets. They are

Singapore, the United States, Japan, the EEC and the East Asian NICs. These export markets alone accounted for 81.2 per cent of total exports by destination in 1991.

It is also of interest to assess the contributions of price and quantity fluctuations to export earnings instability. For commodities where data on price and quantum indices are available, an attempt is made to calculate their price and quantum instability indices. A comparative study is done on the basis of price and quantum instability indices.

This chapter is organized as follows: Section 4.2 examines the extent of export instability for Malaysia's major export commodities with respect to their contribution to total export earnings. Section 4.3 probes into the sources of export instability for commodities where data are available for our study. Section 4.4 completes the analysis with an examination of the contribution of individual major export markets to geographic instability. The final section summarises the findings from the above analyses.

Limitations of Study

It is important to stress that an analysis of the SITC commodity groups at two-digit level tends to bias downward the extent of specialization. Significant "within group" developments in trade would not be captured by the analysis.

4.2 Contribution of Major Commodity Exports to Export Instability

The contribution of any single subgroup to total export instability depends on both its instability and its relative size with respect to total export earnings (Kingston, 1973, p.383). Following Kingston, the approach to measuring the contribution of each export subgroup to total exports over a period is as follows:

- (i) Calculate the weighted average percentage share of each subgroup by its instability index.
- (ii) Sum up the weighted averages over all subgroups.
- (iii) Calculate each subgroup's weighted average as a percentage of the total of weighted averages.

The SITC commodity groups under study are as follows: *Crude Rubber* (SITC 23); *Cork and Wood* (SITC 24); *Petroleum and Petroleum Products* (SITC 33); *Gas, natural and manufactured* (SITC 34); *Fixed Vegetables Oils and Fats* (SITC 42); *Animal or Vegetables Oils and Fats* (SITC 43); *Cork and Wood Manufactures* (SITC 63); *Textile Yarn, Fabrics and Manufactures* (SITC 65); *Non-ferrous Metals* (SITC 68); *General Industrial Machinery and Equipment* (SITC 74); *Office Machinery and Data Processing Machinery* (SITC 75); *Telecommunication and Sound Equipment* (SITC 76); *Electrical Machinery and Appliances* (SITC 77); *Other Transport Equipment* (SITC 79); *Articles and Apparel/Clothing* (SITC 84) and, *Photographic Apparatus and Equipment* (SITC 88). The export destinations are Singapore, the United States, Japan, and the individual countries that comprise the EEC and the East Asian NICs¹.

Kingston's "contribution percentage statistic" is used here as it gives a better picture of each subgroup's export performance as compared with the mere contribution of each subgroup with respect to the total exports. Table 4.1 gives the average relative size of each export subgroup to total export earnings over the 1968-91 period. Table 4.2 shows the average instability contribution of each export subgroup relative to its importance in total export trade.

¹The EEC consists of Belgium, Denmark, France, Germany, Italy, Netherlands, Spain, United Kingdom, Greece, Ireland and Portugal. The East Asian NICs are Hong Kong, Republic of Korea and Taiwan.

Table 4.1
Share of major commodity groups in total export earnings

Commodity SITC	Average Annual Earnings(RM billion) (1968-91) (1)	Percentage Share of Total Exports* (1968-91) (2)
23	3.05	10.73
24	3.50	12.31
33	4.86	17.09
34	0.79	2.78
42	2.61	9.18
43	0.28	0.98
63	0.49	1.72
65	0.34	1.20
68	1.39	4.89
74	0.27	0.95
75	0.28	0.98
76	1.56	5.49
77	3.91	13.75
79	0.37	1.30
84	0.82	2.88
88	0.13	0.46
Total		86.69

*The average total earnings of merchandize exports during the period under study is RM 28.43 billions.
Source: Appendix 4.1

Table 4.2
Contribution of major commodity groups to total export instability

Commodity SITC	Average Annual Earnings (RM billion) (1968-91) (1)	Average Instability Value (1968-91) (2)	Weighted Average (RM billion) (3)=(1)*(2)	Contribution Percentage of each commodity (4)=(3)/441.88
23	3.05	15.24	46.48	10.52
24	3.50	11.56	40.46	9.16
33	4.86	17.90	86.99	19.69
34	0.79	75.01	59.26	13.41
42	2.61	13.91	36.31	8.22
43	0.28	65.62	18.37	4.16
63	0.49	10.15	4.97	1.13
65	0.34	9.86	3.35	0.76
68	1.39	15.30	21.27	4.81
74	0.27	10.17	2.75	0.62
75	0.28	219.81	61.55	13.93
76	1.56	10.68	16.66	3.77
77	3.91	5.15	20.14	4.56
79	0.37	29.29	10.84	2.45
84	0.82	12.73	10.44	2.36
88	0.13	15.73	2.04	0.46
Total			441.88	

Source: Appendix 4.2

Tables 4.3 to 4.5 provide a summary of the commodity groups export performance with respect to export earnings instability, and their contributions to total export earnings.

Table 4.3

SITC commodity groups for which contribution to export instability is about the same proportion as their individual importance in total export trade

SITC Commodity Groups	Contribution to Export Instability	Contribution to Total Export Earnings
Crude Rubber (SITC 23)	10.52	10.73
Textile Yarn, Fabrics and Manufactures (SITC 65)	0.76	1.20
Non-ferrous Metals (SITC 68)	4.81	4.89
General Industrial Machinery and Equipment (SITC 74)	0.62	0.95
Articles and Apparel/Clothing (SITC 84)	2.36	2.88
Photographic Apparatus and Equipment (SITC 88)	0.46	0.46

Table 4.4

SITC commodity groups for which contribution to total export instability is less than their individual share of total export trade

SITC Commodity Groups	Contribution to Export Instability	Contribution to Total Export Earnings
Cork and Wood (SITC 24)	9.16	12.31
Fixed Vegetables Oils and Fats (SITC 42)	8.22	9.18
Cork and Wood Manufactures (SITC 63)	1.13	1.72
Telecommunication and Sound Equipment (SITC 76)	3.77	5.49
Electrical Machinery, Appliances (SITC 77)	4.56	13.75

Table 4.5

SITC commodity groups for which contribution to export instability is more than their individual share of total export trade

SITC Commodity Groups	Contribution to Export Instability	Contribution to Total Export Earnings
Petroleum and Petroleum products (SITC 33)	19.69	17.09
Gas, natural and manufactured (SITC 34)	13.41	2.78
Animal or Vegetable Oils and Fats (SITC 43)	4.16	0.98
Office machinery and Data Processing machinery (SITC 75)	13.93	0.98
Other Transport Equipment (SITC 79)	2.45	1.30

In terms of export earnings, the three leading export commodities in order of their export size are *Petroleum and Petroleum Products* (SITC 33), *Electrical Machinery and Appliances* (SITC 77) and, *Cork and Wood* (SITC 24). However, each commodity group contributes in varying degree to export instability relative to its importance in export trade.

Petroleum and Petroleum Products (SITC 33) which account for 17.09 per cent of total exports over the 1968-91 period, also display the highest degree of export instability among the three major commodity export groups. The overall export instability for this commodity group relative to its importance in total export trade is 19.69 percentage points². Although further export expansion into this sector may not look favourable, it must be noted that its large share of export instability is partly due to its relatively large share in total export earnings. On its own, its average instability only accounts for 3.33 per cent of total export earnings instability of the sixteen major commodity groups under study. Hence, the situation in terms of instability does not look as bleak as at first glance³.

Exports of *Electrical Machinery and Appliances* (SITC 77)⁴, on the other hand, appear to be the most stable export earner. Its contribution to total export instability relative to its importance in total export earnings is only 4.56 percentage points although it accounts for an average of 13.75 per cent of total export earnings between 1968 and 1991. Diversifying into electronics, electrical machinery and appliances seems to be in

²Office machinery and data processing machinery (SITC 75) is, however, the most unstable among the sixteen major commodity groups under study. It accounts for only 0.98 per cent of total exports but, its contribution to total export instability after adjusting for its relative importance in total export earnings is 13.93 per cent.

³However, an analysis on their price and quantum fluctuations may give a clearer picture on the stability of this export sector. This is covered in the next section.

⁴These include electrical power machinery and parts; electrical apparatus, resistors and other electrical bases; equipment for distributing electricity; electro-diagnostic appliances for medical and radiological appliances; household type, electric and non-electrical equipment; thermionic valves and tubes, integrated circuits and parts and; electrical machinery and apparatus.

the *right* direction in the efforts to reduce export earnings instability. In the Malaysian case, the share of the commodity group in total export earnings has risen from 8.5 per cent in 1978 to 17.9 per cent in 1991.

Cork and Wood (SITC 24), the third largest export commodity group, contributed to total export instability roughly in proportion to its contribution to total export earnings. Its relative export share is about 12.31 per cent, compared to 9.16 per cent in its contribution to export instability after accounting for its importance in total export earnings.

Overall, it can be seen that there has been a considerable dispersion in the degree of earnings instability among Malaysia's major export commodity groups during the 1968-91 period. However, it is noteworthy that ten out of the fifteen major export commodity groups display export instability lower than their proportionate shares in aggregate export earnings. They are SITC groups 23, 24, 42, 63, 65, 68, 74, 76, 77 and 84. They account for an average of 63.1 per cent of total export earnings between 1968 and 1991 (see Table 4.1, column (2)). Diversification into SITC groups 6, 7 and 8 which cover manufactures and machinery are relatively "new" export commodity groups while commodity groups 2 and 4 which include raw materials and food, represent the "traditional" exports. Hence, based on the respective major commodity groups which are able to achieve low export earnings instability relative to their share in total export earnings, it appears that export instability could have been worse if Malaysia had not diversified. Thus, commodity diversification efforts over the period of study had, to some extent, produced the desired results.

4.3 The Association of Export Instability with Price and Quantum Instability

Given that export earnings is the product of price and quantity, a study on the relationship between export value, price and quantum instability could provide some insights into the probable sources of export instability in individual commodities. Section 4.3.1 probes into the contributions of price and quantum instability to export value instability among non-fuel primary products, fuel and manufactured goods. This follows the classification of exports in the *World Tables* which covers only broad categories of commodities. A detailed examination of the individual commodities in each category would provide a clearer picture. However, such data for our study can be obtained only for Malaysia's five major primary commodities. They are taken from the *IMF, International Financial Statistics*, 1988. An examination of export value, price and quantum fluctuations among the five major primary commodities is covered in Section 4.3.2. Although it is equally desirable to examine the sources of export instability among the individual manufacturing exports, it is omitted due to inadequate data on price and quantum indices for the individual manufacturing exports.

4.3.1 Comparison of Price and Export Instability amongst Non-fuel Primary, Fuel and Manufacturing Exports

As mentioned earlier, data from the *World Tables* give only a broad categorization of commodities, that is, non-fuel primary products, fuel and manufactured goods. Updated continuous time series on price and quantum indices for the commodity groups are not available for our study. Consequently, the analysis of the relationships between export values and prices for non-fuel products, fuel and manufactured goods is confined to the period between 1968 and 1988 in which data are available⁵. Data on quantum index

⁵The data used in the study were obtained from the World Bank, *World Tables*, 1987 and 1988/89.

for manufactured exports is only available for the years between 1975 and 1986. They are published in the various issues of the *Statistical Yearbook for Asia and the Pacific*, United Nations. Insufficient data on quantum index for manufactured exports do not permit a reliable time series study. Nevertheless, an attempt is made to stretch the time series by calculating some estimates for the quantum figures. This was done by dividing export values by price. However, the quantum index obtained varied greatly from the limited published quantum figures in the *Statistical Yearbook for Asia and the Pacific* (see Appendix 4.3). The reliability of the quantum values calculated is questionable. Analysis of quantum instability in the case of manufactured goods is thus omitted here.

Calculation of export instability values and price instability indices are expressed in terms of deviations from trend values. After having computed the export values and price instability for non-fuel primary exports, fuel exports and manufacturing exports, a correlation matrix of export values and prices for the exports concerned is drawn up as shown in Table 4.6.

Table 4.6
Measures of export instability of non-fuel primary products, fuel and manufactures (1968-1988)

	Non Fuel Primary Products	Fuel	Manufactures
<i>I. Values</i>			
Std. Deviation *	12.1	23.6	11.8
Variance	0.0146509	0.0556272	0.0140169
Correlation Matrix			
Non-fuel Primary Products	1		
Fuel	-0.1907791	1	
Manufactures	-0.0477040	0.0793400	1
<i>II. Prices</i>			
Std. Deviation *	15.7	26.6	13.6
Variance	0.0247807	0.070504	0.0184003
Correlation Matrix			
Non-fuel Primary Products	1		
Fuel	-0.1191238	1	
Manufactures	0.8252359	-0.2211020	1

* Expressed in percentage (Source: Appendix 4.4)

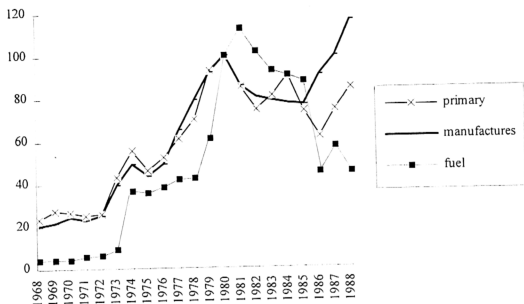


Chart 4.1: Price indices of non-fuel primary, fuel and manufactured exports
Source: Appendix 4.5

There is a high positive relationship between the price instability indices for manufacturing and non-fuel primary exports during the 1968-88 period. The correlation coefficient equals to 0.8252 (see Table 4.6). Chart 4.1 shows that the trend movements of the price indices for both primary and manufactured exports are quite similar. This positive price correlation between them could have, at least, partially caused the inconsistent decline in the overall export earnings instability index. This happens despite a fall in commodity concentration index of about 16 percentage points from an amount of 46.1 in 1968 to 30.2 in 1988.

The price of non-fuel primary and manufactured exports which tend to move together could be attributed to a few factors. First, manufacturing exports from Malaysia, compared with exports of the industrial countries, were not sophisticated and not of high value added. For instance, the percentage contribution of value added to gross value of output from Malaysian manufacturing industries was only 28.4 per cent in 1968 and

declined to 24.9 per cent in 1988 following the sharp recession in the mid-1980s (Department of Statistics, 1974; 1990, *Industrial Surveys*). Although the fall in value added should be interpreted with care as the years 1985-86 was a recession period and excess capacity explained in part the drop in value added, total value added from manufacturing output had been disappointingly small. In 1991, for instance, its percentage contribution to gross value of output from manufacturing industries only rose marginally to 25.9 from its low level in 1988. It was still lower than what was achieved in 1968 (Department of Statistics, 1991, *Industrial Surveys*).

By contrast, there has been rapid rate of technological change and the rapid diffusion of new techniques and new synthetic and composite materials in developed countries. Maizel (1987, p.542) noted that new engineering practices and new materials have come to displace the traditional natural materials in a variety of end-uses, while many traditional products have themselves be substituted by new types of goods. Singer's (1987) finding reinforces this argument. There were more rapid deterioration in the price of both primary commodities and manufactures exported by developing countries relative to primary commodities and manufactures exported by industrial countries since the mid-1950s. He observed that the deterioration in the terms-of-trade experienced by developing countries can be attributed to the types of primary commodities and manufactures exported in relation to the different types exported by the industrialised countries⁶.

Another probable reason, as argued by Yeats (1981), is that the developed countries apply import tariffs and other trade barriers which discriminate against processed forms from many developing countries. Hence, both Malaysian primary and

⁶Exports of primary commodities or (simple) manufactures from developing countries are at a disadvantage against the exports of industrial countries which are predominantly sophisticated manufactures and capital goods (as well as skill intensive services). For instance, there are differences in the elasticities of demand for primary commodities and manufactured goods, differences in the expansion rate in the demand for primary commodities and manufactured goods, technological superiority factors and differences between competitive structures in both factor and product markets.

manufacturing exports could be more susceptible to world demand and subject to changing economic environment from their industrial trading partners between 1968 and 1988. Thus, commodity diversification appears not to have much effect when influences from external factors have been stronger.

Nonetheless, it is interesting to note that despite the high positive correlation between the price indices for Malaysia's non-fuel primary exports and manufactured exports, there is still some indication that the shift from large dependency on primary exports to manufactured exports appears to be in the *right* policy direction. First, in terms of price movements among the non-fuel primary exports, fuel and manufactured exports with respect to import prices, manufactured export prices appear more stable (see Chart 4.2)⁷. It also appears that the prices of non-fuel primary exports compared with manufactured exports contributed more to the decline in the overall terms of trade during the 1968-88 period (see Chart 4.3 which shows Malaysia's terms of trade during the 1968-88 period).

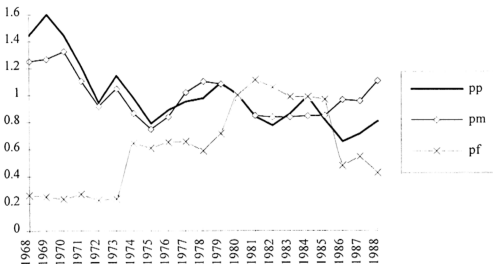


Chart 4.2: Export prices relative to import prices for non-fuel primary products (pp), manufactures (pm), and fuel (pf).
Source: Appendix 4.6

⁷The trends of export prices for non-fuel primary products, fuel and manufactured products in Chart 4.2 are expressed in relation to import prices.



Chart 4.3: Malaysia: Terms of trade
Source: Appendix 4.6

Second, from Table 4.6, it can be seen that export earnings instability for manufactured goods, in general, is relatively lower than that for primary commodities between 1968 and 1988. The mean instability export value and price indices for manufactured goods are 11.8 and 13.6 respectively, while it is 12.1 and 15.7 for non-fuel primary commodities. While Chart 4.4 shows a lower declining trend of export earnings instability for manufactured goods relative to non-fuel primary commodities during the sample period, Chart 4.5 reveals that the trend of price instability for manufactured goods is also relatively lower during the 1968-88 period⁸.

In Chapter Three, it was found that total export earnings instability did not decline consistently despite a fall in commodity concentration between 1968 and 1988. However, the findings here show that export value and price for manufactured goods displayed the lowest instability level compared with non-fuel primary products and fuel products. This

⁸The picture could have been enlightened with the analysis of quantum instability. However, for reasons mentioned earlier, such an analysis is not feasible here.

supports our earlier findings in Section 4.2 - that export instability could have been higher if Malaysia had not diversified.

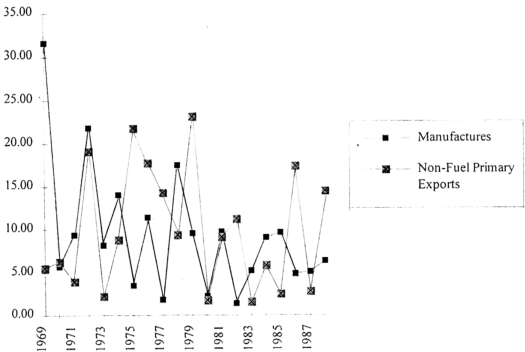


Chart 4.4: Instability of export values of manufactured goods and non-fuel primary products
Source: Appendix 4.4

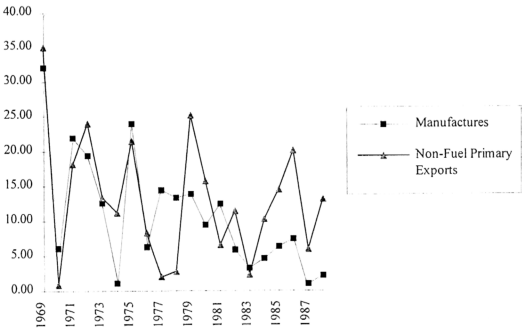


Chart 4.5: Instability of price indices of manufactured exports and non-fuel primary exports
Source: Appendix 4.4

4.3.2 *Contribution of Price and Quantity Instability to Export Instability amongst Major Primary Commodities*

The contention that concentration in primary products is the major cause of export instability, assumes that there is a relatively high correlation between the movements of the proceeds of primary products. If this is not so, Soutar (1977,p.281) argues that the different movements of the various commodity groups could offset each other and so produce a relatively stable export sector.

Trend-eliminating instability indices for price, quantum and export values of rubber, tin, palm oil, saw logs and sawn timber, and petroleum are examined. Data restrictions, however, limit the period reviewed to 1967-87. The data used were obtained from the IMF, *International Financial Statistics*, 1988.

The correlation (if any) between export prices, quantum and export earnings instabilities are tested for Malaysia's five major primary commodities. It is found that there are more *negative* than positive correlations between them during the 1967-87 period. As the export prices, quantum and export values of the commodities appear not to move together, this would call for further diversification among the Malaysian primary exports. Kuchiki (1990) argues that correlations among commodities are not always strong when there exists a non-fundamental factor known as the *technical factor*⁹. He contended that this factor may ignore the fundamental factor of supply and demand for a commodity price where mass psychology and market sentiments influence the periods of cycles in price movements of primary commodities in the futures markets.

⁹When sellers and buyers in the markets do not take account of long-term trends, the flow of funds into and out of the market becomes faster with traders entering the markets looking only 2 or 3 months ahead. This contrasts the production cost of a primary commodity which does not change over such short period. The diverting effects exerted by speculative money which flows into or out of the commodity markets are in large part, a reaction to psychological anticipation of future inflation or deflation among traders (Kuchiki, 1990,p.99-100).

Table 4.7 presents a comparison of instability indices between the major primary export commodities.

Table 4.7
Measures of export instability of major primary commodities (1967-1987)

	Rubber	Palm Oil	Tin	Logs & Timber	Petroleum
<i>I. Values</i>					
Std. Deviation*	17.1	18.3	25.9	17.7	51.9
Variance	0.0313055	0.0336695	0.0672903	0.0311838	0.269801
Correlation Matrix					
Rubber	1				
Palm Oil	-0.3131312	1			
Tin	-0.1277927	-0.1456368	1		
Logs & Timber	0.4937521	-0.1929135	-0.0607826	1	
Petroleum	-0.1861783	0.4853011	-0.1175610	-0.0765456	1
<i>II. Prices</i>					
Std. Deviation*	17.0	20.5	13.4	13.7	26.7
Variance	0.0288976	0.041898	0.0179861	0.0188015	0.0713395
Correlation Matrix					
Rubber	1				
Palm Oil	-0.1867576	1			
Tin	-0.1721210	0.0183737	1		
Logs & Timber	0.1697743	-0.0233729	-0.1950414	1	
Petroleum	-0.3468683	0.5794508	0.3867647	0.0785974	1
<i>III. Quantum</i>					
Std. Deviation*	4.7	5.9	7.8	14.9	23.2
Variance	0.0022559	0.003486	0.006062	0.022220	0.053920
Correlation Matrix					
Rubber	1				
Palm Oil	-0.1483355	1			
Tin	-0.0346502	0.1943509	1		
Logs & Timber	-0.0786744	0.0977185	0.3804368	1	
Petroleum	-0.0721807	-0.2564637	-0.2072266	-0.0953526	1

* Expressed in percentage

Source: Appendix 4.7(a)-(e)

An examination on the export values, prices and quantum instability of the five primary exports, reveals that four out of the five primary exports are seen to be heavily influenced by price instability. They are rubber, palm oil, tin and petroleum.

In the case of natural rubber, during the 1967-87 period, fluctuations in prices (17.0) were far greater than fluctuations in quantum (4.7). Price instability appears to be

responsible for instability in rubber export earnings. Chantagul (1979) believes that the instability index of rubber export earnings is generally high and the terms-of-trade to be less favourable for rubber. He noted that the Association of Natural Rubber Producing Countries then, had excluded the consuming countries. The demand and price of rubber were governed to a large extent by the supply and price of the synthetic substitutes. The existence of substitutes exacerbated the income inelastic export demand for rubber (see Yusoff,1992).

In the case of palm oil, although Malaysia has intensified efforts, the variability in palm oil prices (20.5) appears larger than quantum instability (5.9). This indicates that price instability had substantial effect on the instability of palm oil export values. During the period under review, the price and quantum instability indices for rubber are negatively correlated with the price and quantum instability for palm oil. This may have mitigated the export instability problem because export instability on the whole would be worse had both of them moved in the same direction. Although this may indicate that diversifying into palm oil had been a good move between 1967 and 1987, one should note further of the higher instability in its export earnings compared with rubber. Export instability index for palm oil amounts to 18.3 as compared to 17.1 for rubber. Factors that could have contributed to a lesser volatility of export earnings from rubber as compared to palm oil, include the differences in demand induced changes in aggregate quantities traded¹⁰ and, that the Rubber Stockpile Scheme by the International Rubber Stabilization Agreement which was implemented in 1977, could have at least, provided relative stability in the rubber market for both output and prices. Although penetration of edible

¹⁰Efforts to increase exports of palm oil and other edible tropical oils to North America had been strongly competitive. Malaysian export of palm oil has been affected by the subsidies war between the United States and the European Community (EC). The Food Security Act (1985) in the US provides subsidies for a number of exports, including vegetable oils under the Export Enhancement Programme (EEP), while subsidies provided by the EC was under the Common Agricultural Policy. In the late eighties, palm oil exports were also subjected to adverse anti-palm oil campaign by lobby groups in the United States, mainly the American Soybean Association and the American Heart Savers Association. Some have considered this as a trade rather than a health issue (Business Times, May 9,1989).

tropical oils into industrialised economies in general, had been difficult and very competitive, one can still be optimistic of the future performance of Malaysian palm oil due to the high quality of palm oil exported and its increasing multi uses.

Petroleum is, perhaps, the most unstable of Malaysia's exports as indicated by the fact that it has the highest instability in terms of export value, price and quantum among the five major primary commodities. It can be seen from Table 4.6 that fluctuations in export earnings from petroleum are even greater than those in price. This occurs when there is a parallel fluctuation in price and quantity. This happens most commonly in industrial raw materials when demand fluctuations initiate the instability (Law,1975,p.13). It is not surprising to find that price instability of petroleum (26.7) as compared to quantum instability (23.2) has contributed more to the commodity's export earnings, in particular before the eighties owing to the two oil price shocks in 1973 and 1979. Price instability appears to have fallen after the early 1980s (see Appendix 4.7(e)). Our earlier findings in Section 4.2 (p.97) also indicate that petroleum's own average export earnings instability is not large compared with some of the other major commodities. Malaysia's crude oil production for exports had been on a gradual rise since 1980 with a growth rate averaging almost 7.0 per cent per annum between 1980 and 1991. However, there are several factors that may discourage further concentration in this sector. First, its relatively high instability in both price and quantum exacerbate its export value instability. Second, its export earnings instability appears to be the highest among the major primary commodities. Third, petroleum has become a market-sensitive commodity transacted in futures market. In commodity exchange, if there were well-informed professional speculation, it may be expected to offset large price fluctuations. However, at the other end, badly informed or perverse speculation could also accentuate price fluctuations (Law,1975,p.9). Fourth, Malaysia's oil reserves are not abundant.

In the case of tin, the variability of tin prices is not large as compared to rubber, palm oil and petroleum (see Table 4.7). The relatively stable tin prices may be explained by a few successful price stabilization operations of the International Tin Agreement before the turn of the eighties. After the International Tin Agreement came to an end in 1985, larger price instability was found (see Appendix 4.7(c)). As tin has become a market-sensitive commodity in the futures market, it can be expected that its price would be more susceptible to speculation.

In contrast to rubber, palm oil, tin and petroleum, quantum instability of saw logs and sawn timber was the main contributor to export instability. Fluctuations in the quantity of log and timber exported have in part due to policies restricting exports since early 1970s as a result of rapid depletion of easily accessible forest areas. This was subsequently followed by stringent efforts enforced to control logging. Increasing pressures to conserve the tropical forests both from internal and external sources will largely affect and restrict the production growth of this sector.

From the analyses above, intercorrelations between export values and price fluctuations for Malaysia's major primary exports have been stronger than between export value and quantum fluctuations. In fact, there are evidences which show that exports in Malaysia grew significantly faster in the 1970s particularly between 1977 and 1980 when *rising prices* for palm oil, rubber, timber and petroleum improved the terms-of-trade by about 19.5 per cent as compared to 1975 (World Bank, *World Tables, 1988/89*, p.374-375). This resulted in an *increase in export earnings* by as much as two fold during the period. The oil price increase in the late 1973 and 1979 also shifted oil-export earnings trend upwards for Malaysia. On the other hand, a *fall in commodity prices* and the short international recession during 1980-82 (associated with the second oil shock) caused a large decline in the terms of trade after 1983. This subsequently led to a *fall in total export earnings* in mid-1980s.

A similar analysis would be most appropriate for the various categories of manufacturing exports by looking into their price, quantum and export value fluctuations. However, it is not feasible here because the data are not available for our study.

4.4 Contribution of Export Markets to Geographic Instability

If a particular country experiences frequent variations in its overall economic activity, these variations are likely to be transmitted to its demand for foreign goods. Ceteris paribus, a country exporting to an unstable economy will suffer greater instability in export earnings than if it traded with a more stable economy (Knudsen and Parnes,1975,p.38).

We turn to examine Malaysia's export destinations to ascertain export regions with low and high export instability. This could help provide directions to alleviate the volatility of total export earnings peculiar to certain export markets. Table 4.8 presents the average instability index for total exports in each export region between 1968 and 1991.

Table 4.8
Instability by export destinations

Export Region	Export Instability Index (1968-91)
European Economic Community	7.26
Western Europe	7.27
Eastern Europe	16.85
Africa	32.39
West Asia	11.83
South-East Asia	9.96
ASEAN	9.87
North-East Asia	10.50
South Asia	20.29
Latin America	22.03
Oceania	11.40
North America	11.46

Source: Computed from Appendix 4.8

It appears that exports to non-traditional importing countries in Eastern Europe, Africa, South-Asia and Latin America fluctuate greatly during the period under review. This finding suggests that the situation has not changed much from Lee's (1977) finding in his study on export markets during the 1960-73 period. Lee found that the mean instability for non-traditional markets was much larger than the traditional ones¹¹.

On the other hand, there have been lower levels of instability in the traditional export regions of the EEC, Western Europe, South-East Asia (and ASEAN) with the average instability index less than 10. In Chapter Two, it was noted that there has been a gradual declining export trend to the EEC and a noticeable rise of exports to the North-East Asia over the past fifteen years. From Table 4.8, it can be seen that the relatively higher export instability value in North-East Asia (10.5) as compared to the EEC (7.3) seems to suggest that this small change in export destinations is not as favourable as expected in terms of lowering export earnings instability.

Nevertheless, it is still comparatively better to focus on East-Asian NICs in terms of geographic diversification than it is, for instance, to diversify into Eastern Europe, Africa or Latin America. This is because one could expect an even lower export earnings instability in the longer run as the former develops further. For instance, the NICs in East Asia experienced strong economic growth for the last twenty years. The average annual growth rate of GDP for East Asia and Pacific was 7.3 per cent during the 1965-80 period, which went up to 7.8 per cent between 1980 and 1990. This contrasts a relatively low production growth in other regions such as Europe (2.1 per cent), Sub-Saharan Africa (2.1 per cent), South Asia (5.2 per cent), and Middle East and North Africa (0.5 per cent) during the 1980-90 period (World Bank, 1992, *World Development Report*, p.221). Under

¹¹For the 1960-73 period, the mean indices of instability for the traditional markets (the Commonwealth countries, Japan and the United States) was 28.6535 compared with 202.8899 for non-traditional ones (Lee, 1977, p.327).

such scenario, one may argue on the same line the favourable possibilities in ASEAN and South-East-Asia region as a whole. Nonetheless, it is still essential to look into the variations across countries within the export regions even though a particular export region on the whole may appear more/less stable than the others. This is covered in the following section.

4.4.1 Contribution of Major Export Markets to Geographic Instability

We now examine the contribution of the individual export market to total export instability. The analysis in export instability also takes into account the individual export market size with respect to total export trade among Malaysia's trading partners. Resource and data constraints limit the analysis to Malaysia's principal trading partners. They are Singapore, the United States, Japan, the EEC and the East-Asian NICs. The analysis here follows closely the analysis in Section 4.1.

Table 4.9 shows the relative size of each importing country with respect to Malaysia's total export earnings between 1968 and 1991. Table 4.10 on the other hand, shows the contribution percentage of each importing country by its instability adjusted for its contribution to total export trade.

It can be seen that each individual export market under study contributes to export instability roughly in proportion to its importance to Malaysia's total export trade. The difference in the export instability value among the export markets compared with their contributions to total export earnings, varies with an average of 1.10 percentage points. It is found that during the period under review, the United Kingdom appears to be the only export market with an export instability index which is less than its proportionate share in Malaysia's export trade. Its contribution to total export earnings instability (3.32) is, therefore, less than its proportionate share of total export earnings (3.84).

Table 4.9
Share of total exports by major export markets

Export Market	Average Annual Earnings (RM '000) (1968-91)	Percentage Share of Total Exports* (1968-91)
EEC		
<i>Belgium</i>	274,995.80	0.97
<i>Denmark</i>	60,812.50	0.21
<i>France</i>	359,845.80	1.27
<i>Germany</i>	996,775.00	3.51
<i>Italy</i>	342,020.80	1.20
<i>Netherlands</i>	1,184,217.00	4.17
<i>Spain</i>	145,195.80	0.51
<i>United Kingdom</i>	1,091,729.00	3.84
<i>Greece</i>	21,808.33	0.08
<i>Ireland</i>	21,275.00	0.07
<i>Portugal</i>	25,600.00	0.09
United States	4,595,646.00	16.17
Japan	5,454,225.00	19.19
Singapore	5,944,821.00	20.91
East-Asian NICs		
<i>Hong Kong</i>	696,725.00	2.45
<i>Rep. of Korea</i>	1,203,025.00	4.23
<i>Taiwan</i>	659,554.20	2.32
Total		81.19

*The average total value of exports during the period under study is RM 28.43 billions.
Source: Appendix 4.9

The three most important export markets in terms of total export earnings are Singapore, Japan and the United States. From Table 4.10, it appears that they exhibit larger export instability values after accounting for their relative contribution to total export earnings. At a glance, the results seem to suggest that Malaysia can do better if they concentrate on reducing geographic concentration. However, geographic diversification in this case requires a careful study of each export market because the findings in earlier part of Section 4.4 revealed that the non-traditional export markets experienced larger geographic instability as compared to the traditional ones (see Table 4.8). From Table 4.10, it can also be seen that the various countries of the EEC which have been Malaysia's traditional trading partners, generally display lower export earnings fluctuations compared with the NICs in the North-East Asia region. In fact, the United

Kingdom which accounts for the second largest share of Malaysia's exports to the EEC after Netherlands, appears to be the most stable market during the 1968-91 period.

Table 4.10
Contribution of major export markets to total export instability

Export Market	Average Annual Earnings (RM '000) (1968-91) (1)	Average Instability Value (1968-91) (2)	Weighted Average (3)=(1)*(2)	Contribution Percentage of each export market (4)=(3)/2.72 E+8
EEC				
<i>Belgium</i>	274,995.80	11.66	3,206,451.03	1.18
<i>Denmark</i>	60,812.50	21.77	1,323,888.13	0.49
<i>France</i>	359,845.80	13.60	4,893,902.88	1.80
<i>Germany</i>	996,775.00	11.28	11,243,622.00	4.13
<i>Italy</i>	342,020.80	13.72	4,692,525.38	1.73
<i>Netherlands</i>	1,184,217.00	11.72	13,879,023.24	5.10
<i>Spain</i>	145,195.80	11.34	1,646,520.37	0.61
<i>United Kingdom</i>	1,091,729.00	8.27	9,028,598.83	3.32
<i>Greece</i>	21,808.33	11.08	241,636.30	0.09
<i>Ireland</i>	21,275.00	29.30	623,357.50	0.23
<i>Portugal</i>	25,600.00	17.31	443,136.00	0.16
United States	4,595,646.00	12.00	5,5147,752.00	20.28
Japan	5,454,225.00	11.92	65,014,362.00	23.90
Singapore	5,944,821.00	10.65	63,312,343.65	23.28
East-Asian NICs				
<i>Hong Kong</i>	696725.00	12.44	8,667,259.00	3.19
<i>Rep. of Korea</i>	1,203,025.00	16.07	19,332,611.75	7.11
<i>Taiwan</i>	659,554.20	14.00	9,233,758.80	3.40
Total			271,930,748.85	100.00

Source: Appendix 4.10

Although the main issue here is still to search for markets with relatively lower instability, there is also a need to consider together the relative growth rate of individual export markets. It has been found that the countries in the North-East Asian region experienced impressive economic growth over the 1980-90 period. The Republic of Korea for instance, recorded an average of 9.7 per cent annual GDP growth rate, Hong Kong, 7.1 per cent; Japan, 4.1 per cent and China, 9.5 per cent. In the ASEAN region, Thailand had an average of 7.6 per cent annual GDP growth rate,; Singapore, 6.4 per cent;

Indonesia, 5.5 per cent and Philippines, 0.9 per cent during the same period (World Bank, 1992, *World Development Report*, p.220-221).

4.5 Conclusion

The results here are consistent with the general conclusion from previous studies that export instability is not due to export concentration *per se*, but the kinds of goods that a country happens to export (Michaely, 1962; Moran, 1983). In Chapter Three, it was found that an overall consistent reduction in export instability did not result despite a consistent decline in export concentration. The findings from this chapter indicate that the export instability problem could have been worse if Malaysia had not diversified. First, a further examination of Malaysia's major export commodity groups reveals that two-third of them contributed less to the instability of total export earnings than their proportionate share of total exports. "Old" commodities such as *Crude Rubber* (SITC 23) and *Non-ferrous Metals*¹² (SITC 68) which accounted for 10.7 per cent and 4.9 per cent of total exports respectively over the 1968-91 period, contributed to total export earnings instability in about the same proportion as their importance in total export trade. "New" major export commodities, on the other hand, such as *Cork and Wood* (SITC 24), *Fixed Vegetables Oils and Fats* (SITC 42), *Telecommunication and Sound Equipment* (SITC 76) and *Electrical Machinery and Appliances* (SITC 77), contributed to total export earnings instability relatively lower than their shares in total export earnings. Their respective shares in total export earnings over the 1968-91 period were 12.3 per cent, 9.2 per cent, 5.5 per cent and 13.8 per cent. Among the major export commodities, it is found that exports of *Electrical Machinery and Appliances* (SITC 77) had been the most stable

¹²They include silver, platinum and other metals of the platinum group (SITC 681), copper (SITC 682), nickel (SITC 683), aluminium (SITC 684), lead (SITC 685), zinc (SITC 686), tin (SITC 687), and miscellaneous non-ferrous base metals used in metallurgy and cermets (SITC 689). Among them, tin is the most important metal (Department of Statistics, 1991, *External Trade Summary, Malaysia*).

export earner while the most unstable was *Office Machinery and Data Processing Machinery* (SITC 75). Second, export earnings instability and price instability for manufactured goods were comparatively lower than fuel, and non-fuel primary exports. Third, diversification among the major primary commodities had shown to be effective as their export value, price and quantum fluctuations were not highly correlated with each other. There were more negative correlations than positive ones. This suggests that expansion of the manufacturing export sector over the years appears to be in the *right* direction. It should be noted, however, that the results obtained are specific to the time period used.

Another point of contention is the stability of palm oil export earnings, a major export commodity which overtook rubber from the agricultural diversification viewpoint. The fluctuations in export value, price and quantum for rubber and palm oil were negatively correlated and their relationships were weak during the 1967-87 period. This helped mitigate the export instability problem. However, our findings also show that palm oil export earnings exhibited larger instability as compared with rubber. It is found that price instability was the major contributor to fluctuations in palm oil export earnings. It should be noted that during the period under study, Malaysian palm oil faced stiff competition from the heavily subsidised products of the EEC and the United States in the world market for oils and fats. It can be expected that the size of instability may change depending on whether there will be favourable or adverse future trade environment in the international oils and fats market, and Malaysia's own capability to meet the challenges.

The move to widen export markets in South-South countries in Africa, South-Asia and Latin America appears more challenging than expected as non-traditional export markets tend to experience larger geographic instability compared to the traditional ones. However, it must be emphasized that the results are sensitive to the time period under review; that past display of instability does not necessarily imply that the same will hold

in the future. Further, in terms of export growth potential, it is important to consider the relative growth rate of the non-traditional markets. Overall, it is necessary to examine first the cause(s) of the relative high level of export instability in non-traditional markets such as those in the South-South region and evaluate if these will continue or if they can be reduced over time. Such a study is however, beyond the scope here.