CHAPTER ONE
REVIEW OF LITERATURE

1.1 Introduction

The common notion is that export instability is more serious for a developing country than for a developed country. The former, it is argued, exhibits the characteristics of a small open economy specializing in the production and export of a small range of primary commodities. It is therefore more vulnerable to the vagaries of international commodity markets (see McNicol,1978; Adams and Behrman,1982).

In the late 1950s and during the sixties, however, economists began challenging the assumption that instability in the exports of developing countries is due to high commodity concentration. This assumption was unsubstantiated by empirical findings using post-war to late 1950s data (Coppock,1962; Massell,1964). Most of the later studies via cross-country analyses also cast doubt on its general applicability (for example, see Michaely,1962; Coppock,1962; Massell,1964; and MacBean,1966).

However, it has been argued too that the results of the previous studies may be due to faulty variable definitions, perhaps in the formulation of the concentration variables used (Soutar,1977,p.283). As a result, many policy makers in LDCs have generally ignored the negative findings and continue to argue that concentration is a major source of export instability and that diversification would stabilise export earnings.

A collorary to the first notion is the argument that export instability exerts a negative influence on the economy. However, Guillaumont (1987) argues that there are two kinds of effects on growth, namely, ratchet effects (results of the asymmetrical

effects of ups and downs which compound the problem) and risk effects which often act in contrary ways, leading to some uncertainty as to the final result.

The following sections give an overview of the literature on export instability. Section 1.2 examines general trends in export instability. Section 1.3 discusses the causes of export instability while Section 1.4 reviews the effects of export instability on economic growth. Section 1.5 debates on the methodological issues which arise from empirical studies measuring export instability. The final section states the objectives of the present study with specific reference to Malaysia in a more recent period and concludes with the limitations faced in the study.

1.2 Trends in Export Instability

During the 1970s, empirical evidence from various intertemporal comparisons of export instability of both developed and the less developed countries for the period between the post-war years and the sixties, showed a relative decline in the absolute level of export earnings instability. Erb and Schiavo-Campo (1971), Kenen and Voivodas (1972), Naya (1973), Lawson (1974), Knudsen and Parnes (1975) and Sheehey (1977) among others, found that export instability was lower in the 1960s as compared with the fifties. Export instability was nevertheless higher in the developing, as compared to the developed, economies.

Subsequent studies provided evidence of non-declining export instability for both developed and developing countries for the years between the sixties and early seventies (see for example, Love,1977; and Guillaumont,1987). It should be noted that the early 1970s was a period of high instability. The World Bank's Annual Report (1980,p.15) noted that the decade of the 1970s was marked by a series of economic shocks. There

was a notable slowdown in the growth of developed countries, coupled with high rates of inflation. A dramatic rise in the price of crude oil with its wide-ranging effects emerged, leading to deterioration in the terms-of-trade of the oil-importing developing countries and increases in the costs of imported capital goods and food. There was also a massive build-up of liquidity in the international capital markets and unusually large fluctuations in commodity prices. Developments such as these might be expected, *a priori,* to induce greater instability in primary product markets and developing countries' export earnings which are concentrated on a few primary commodities.

During the 1980s, greater integration in the world economy resulted in faster growth in trade and financial flows over output. It was, however, another decade subjected to shocks due to wide swings in exchange rates and erractic movements in international interest rates (World Bank,1991,*World Development Report*,p.18). Maizels (1987,p.537) noted that instability in exchange rates and international interest rates coupled with fluctuations in the flow of financial resources (which included speculative funds from the capital markets), have interacted with and reinforced the fluctuations in primary commodity markets in particular. Towards the end of the decade, economic activity in a number of large industrial countries slowed down. Monetary policies were tightened in response to production at near-capacity levels and rising inflation. The slowdown became more widespread with the Gulf crisis in August 1990. Increased uncertainty led to markedly lower growth of consumer spending and business investment in the industrial countries. Financial requirements following from the unification of Germany and war-related reconstruction in the Middle East exerted upward pressures on short-term interest rates in Germany and Japan despite the economic slowdown in 1990 and early 1991 (World Bank,1991,*World Development Report*,pp.19-20). Developments such as these might *a priori* be expected to effect high instability in export earnings especially in developing countries during the decade.

1.3 Causes of Export Instability

Export earnings instability is often attributed to: (a) a high degree of commodity concentration, (b) high degree of geographic concentration and, (c) the types of goods exported.

1.3.1 Export Instability and Commodity Concentration

It is argued, that the less developed countries which are principally exporters of primary commodities, experience high export instability. Contributing factors include, aside from supply and demand price inelasticities for most primary commodities, a high degree of commodity concentration. Since small LDCs have little control/influence over price inelasticities of the commodities they export, efforts to diversify are naturally exhorted. It is believed that diversification could provide the economy with greater flexibility in adapting the structure of its production to changes in market conditions.

MacBean (1966) and Naya (1973) found the relationship between export instability and high specialization in primary commodities to be insignificant at 0.05 per cent level. O'Brian (1972) using the entropy index[1], as an alternative to the Gini-Hirschman index of concentration, failed to find any significant link between diversification performance and reduction in instability. During the period of sharp fluctuations in commodity prices in the mid-seventies, Love (1983) found greater

[1]The entropy concept is derived from information theory. Its coefficient has been used to measure industrial concentration and the international diversification of a number of multinational firms. It is given as:

$H(X) = \sum_{i=1}^{n} X_i \log\left(1/X_i\right)$ where X_i is the share of commodity i in total exports. The larger is $H(X)$, the greater the degree of diversification. This is actually an inverse measure of concentration in that it increases in value as concentration decreases. This measure, it is argued, permits easier manipulation and interpretation (O'Brien,1972,p.47).

instability in manufactured exports (which were non-traditional products for 24 LDCs) relative to that in primary exports. These cast doubt on the contention that: (i) high degree of commodity concentration implies high export earnings instability, and (ii) increasing exports of manufactured goods would help stabilise export earnings.

• Two main factors are thought to contribute to the weakness or absence of a positive and significant relationship between commodity concentration and instability of total export earnings:

(i) that export earnings from individual commodities often tend to move in phases as indicated by the high correlation between world prices of major commodity groups, and/or

(ii) that there is a tendency for countries with high export commodity concentration to specialise on commodities with relatively stable proceeds.

Knudsen and Parnes (1975) further argued that diversification could cause higher export instability by reducing the possibility of negative correlation between price and quantity exported. This could happen when a country which exports a large share of world supply of a commodity, and could influence world price, decides to diversify. Commodity diversification would then reduce its share of world supply and its influence on world price.

Using a numerical analysis, MacBean and Nguyen (1980) found another reason for the lack of a positive relationship between commodity concentration and instability in total export earnings. Wide dispersion in the degree of instability of the proceeds of individual commodities[2] could, MacBean and Nguyen argued, cause the relationship

[2]The degree of instability of the proceeds of individual commodities could be due to a variety of factors such as: (a) differences in demand or supply induced changes in aggregate quantities traded, (b) differences in prices ruling on world markets, (c) the relative effectiveness of commodity agreements and, (d) differences in domestic-supply conditions (see Love,1979).

between commodity concentration and export instability to be weaker for countries with high commodity concentration than those with low concentration. Supporting MacBean and Nguyen's argument, Turner and Lambert (1981) contended that only in the case where the index of instability is the same for all exports, is there a one- to-one correspondence between export instability and commodity concentration. In this case only will a reduction in commodity concentration reduce export instability.

1.3.2 Export Instability and Geographic Concentration

Similarly, it has been argued that high geographic concentration implying greater dependence on economic conditions in one or a few countries, is associated with a high degree of export instability. It is thus argued that if export destinations are diversified, changes in export earnings caused by falls in certain countries' import demand can be offset by opposing changes in other countries, making total earnings more stable.

Massell (1964) and Kingston (1973), for instance, did not find any significant correlation between geographic concentration and export instability. On the other hand, Naya (1973) found that the size of exports had a stabilizing effect on export earnings. He suggested enlarging trade through regional arrangements (in Asia) to bring about a stronger stabilizing force on export earnings. Soutar (1977), on the other hand, found geographic concentration relatively important in explaining export instability. He argued that the LDCs should concentrate on reducing geographic concentration which would appear easier as compared to reducing commodity concentration.

In line with MacBean and Nguyen's (1980) earlier argument, Kumar Das and Pant (1989), in their empirical study of India's export earnings instability for the period 1960-80, found that while geographic diversification of exports could reduce export earnings instability, the same was not true in the case of commodity diversification. They argued

that diversification may be of the 'wrong' kind if the variation amongst the individual commodity instability indices are great and the interaction among various individual export commodities which depends on cyclical factors in world trade are large enough to offset any favourable effect of diversification on instability (Kumar Das and Pant,1989,p.66).

1.3.3 Types of Commodity Exports

An often sought solution to the problem of high export earnings instability is diversification away from concentration in the few primary commodities. In particular, LDCs facing high export earnings instability have often sought to diversify into manufactured exports. This proposed solution is based on the contention that the intercorrelation between earnings from a manufactured product and a primary commodity is likely to be less than that between earnings from pairs of primary commodities (see Massell,1964; and Love,1983). Consequently, it is hypothesized that an increase in the export of manufactured goods could reduce the level of export instability.

Several studies showed that the relative prices of commodities tend to move against primary producers in the long run because of their low income elasticity of demand[3] (see Prebisch,1950; Singer,1950; Spraos,1980; Sapsford,1990). They contend that the relative concentration of market power in the industrialised countries and the technological progress made in the advanced countries reduce the contribution of raw materials to finished goods, resulting in relatively slow growth in primary exports. In

[3]Soutar (1977,p.280) cited some evidence on price movements which can be found in "Price Movements in International Trade, 1950-1970" (Statistical Office of the United Nations, New York, 1971). MacBean (1966,p.25) argued that factors like low price elasticities coupled with uncontrolled variability in demand and supply caused sharp instability in both prices and proceeds of primary products. Law (1975,p.21) argued that the income elasticity of demand is less than unity for primary commodities, largely due to an Engel's Law effect. With increased wealth and income, he argued that a greater percentage of expenditure goes towards luxuries and more sophisticated manufactured goods in which raw materials constitute only a smaller portion of the entire cost of production.

addition, subsidies and protectionism in advanced countries also served to turn the term-of-trade against primary commodities (Law,1975,p.20).

However, findings by Knudsen and Parnes (1975), and Love (1983) did not lend support to the argument that a shift to manufactured items and away from primary goods production significantly reduce export instability. While Knudsen and Parnes' study covered the period from 1954 and 1967, Love in his sample of 24 developing countries found greater instability in manufactured exports relative to primary exports during the 1959-78 period although fluctuations in primary commodity prices were also found to be relatively larger in the 1970s.

1.4 Export Instability and Economic Growth

The predominant thrust of the *a priori* hypothesis is that export instability adversely affects economic growth. This hypothesis rests on three arguments[4]:
(i) that instability reduces the level of investment because "uncertainty" encourages and generates risk-aversion behaviour. Surges in export earnings induce fluctuations in aggregate demand and aggravate inflationary problems for the domestic economy which in turn depress private investment expenditure in two ways. First, by reducing real returns, inflationary pressures may depress domestic savings. As the cost of capital will be higher, this tends to deter long-term investment in favour of projects having shorter pay-back periods. Second, fluctuations in export earnings may exert strains periodically on the balance of payments. In the face of a balance of payments deficit, investors' fear about the likelihood of an exchange rate depreciation would surface. A low level of

[4]See for example, Law (1975), Knudsen and Parnes (1975), Lim (1976) and McNicol (1978).

investment can only mean, *ceteris paribus*, a low rate of economic growth within a Harrod-Domar capital-centred framework;

(ii) that export earnings instability results in a discontinuous flow of the imports of intermediate and capital goods which are crucial to the implementation of development plans especially during the early and middle phases of development. This is particularly true for developing countries which do not have any substantial domestic capital goods capacity. Conceivably, excessive fluctuations in exports earnings will have a negative effect on the amount of capital items that can be imported. Even when an economy has already begun to industrialize, it could still require foreign exchange with which to purchase goods not in domestic production and;

(iii) that poor policy judgement in a country's attempt to lower instability by diversifying could instead raise costs if diversification involves shifting of resources into substantially less productive uses.

Using the same analytical technique but different specifications of estimating equations and country samples, some support for the negative effects of export instability on economic growth were found by Glezakos (1973), Voivodas (1974) and Lim (1976), Guillaumont (1987) and Maizels (1987)[5]. There are, however, arguments and other empirical findings which detract from these.

Export boom-induced investment, for instance, does not necessarily mean that there is disinvestment in periods of export slumps. Empirical findings by Caine (1958) showed high levels of investment prevailed in Malaya and Indonesia during 1913-14

[5]Export instability, it is argued, reduces the growth rate of exports (Glezakos,1973), lowers the level of investment (Kenen and Voivodas,1972), lowers overall growth rate (Lim,1976; Voivodas,1974), decreases the rate of domestic savings and productivity of capital (Guillaumont,1987) and decreases the country's ability to import the capital goods necessary for development (Maizels,1987).

when sharp fluctuations in the prices of their principal products were experienced. He concluded that *"the kind of investment which has perhaps been most affected by price fluctuations has been government investment, but it may well be that that should be taken as a criterion of government policy rather than as an inevitable consequence"* (Caine,1958,p.189). One could also argue that the high levels of investment which prevailed inspite of the 1913-14 sharp fluctuations, could be due to the fact that investments take a longer term perspective. Therefore, they may not matter much in the short-run. Results of other empirical studies covering the period between the fifties and late sixties by MacBean (1966), Kenen and Voivodas (1972), Knudsen and Parnes (1975), on the basis of cross-country analyses, also found little or no empirical support for the argument that export instability has detrimental effects on economic growth. Adams and Behrman (1982) using integrated macroeconometric models showed that effects of commodity price fluctuations on macroeconomic goal attainment were more likely to be positive. A case study on Peninsular Malaysia by Ariff (1972) showed similar results.

There also exists a more optimistic minority view that favours economic instability within the context of economic development (Caine,1954; Hirschman,1959; Michaely,1962; and, Knudsen and Parnes,1975). Export price instability could, it is argued, encourage investment as more capital can be formed when income and profits are high periodically than when they are stable. On the other hand, low prices would generate improved productivity and general efficiency of the affected industry. It has also been argued that uncertainty about future income will have positive effect on savings by increasing the precautionary demand for savings. They may be positive because more investments are believed to be made on upswings than is discouraged on downswings and because savings may be greater out of transitory rather than out of permanent income. Instability reduces the propensity to consume by requiring larger reserves for unexpected

or temporary declines in income. The increased savings would provide funds for investment programmes which would lead to a higher rate of growth[6].

In summary, on the *a priori* and empirical levels, there are arguments and evidences which lend support to or contradict the argument that: (i) export instability is associated with high commodity and/or market concentration, and (ii) export instability is detrimental to economic growth. A plausible reason for the diverse empirical findings lies in the differing methodologies employed in these studies. As the discussion below will show, the views obtained from these empirical evidences are specific to the research strategies chosen by the authors.

1.5 Methodological Issues

1.5.1 Incorrect Model Specification

Lim (1976) argued that the lack of clearly specified hypotheses about the effects of export instability on the behaviour of key economic agents prohibits a correct specification of the reduced-form estimating equations. Lim highlighted, an example of mis-specification of the estimating equations in MacBean's study (1966). Consider, for instance, the following approach used by MacBean (1966,pp.111-12;123-24):

$$I_g = f(X_t, MC, FE, MK_1, MK_2) \quad \text{.....(1)}$$
$$Q = f(X_t, MC, MK_1, MK_2) \quad \text{.....(2)}$$

where I_g is the growth rate of real investment; X_t a measure of export instability; MC is the growth rate of total import capacity; FE is the growth rate of foreign exchange reserves; MK_1 is the capital goods imports to the domestic fixed capital formation ratio; MK_2 is the capital goods imports to total imports ratio; Q is the average ratio of investment to income.

[6]It could be argued that even if the savings argument is found to be valid, this does not necessarily imply a positive effect of export instability on economic growth. Some other effects could counteract the positive influence of an increase of savings.

Lim argued that the two equations are mis-specified. *"The effects of export instability is to make imported intermediate and capital goods unavailable at crucial moments in the implementation of development plans so that X_i acts on I_g and Q through its influence on MK_1 or MK_2. As such, X_i and MK_1 or MK_2 should not appear as determinants in the same estimating equation"* (Lim,1976,p.315). To do so, as Behrman (1987) noted, would bias the results as these endogenous variables included as right-side variables may be picking up the effects of primary commodity export instability.

Often, linear reduced-form parameters are used as approximations to complicated combinations of the underlying structural parameters. Behrman (1987) argued that in some cases, the linear reduced-form parameters may be unstable even if the underlying structural parameters are stable. Also, in testing procedures, the choice of lagged variables is quite arbitrary and this can change the conclusion of the test drastically. Lim (1976) also found that the results obtained were sensitive to model specifation. For example, when he made some adjustments to Voivodas' model[7], he found that the significance of the results vary.

[7] Voivodas' model (1974,p.410) was:

$$\partial Q_t/Q_t = (b_1 b_2\ g)(X_t\ Q_t) + (b_1 b_3/g)(F_t/Q_t) - (cb_2^2/g)(\text{var. } X_t/Q_t) - (cb_3^2/g)(\text{var. } F_t/Q_t) - (2b_2 b_3 c/g)(\text{cov}[X_t, F_t]/Q_t)$$

where Q_t is gross domestic product; X_t is exports; F_t is foreign capital inflow; g is the incremental capital-output ratio; t denotes time. He did not find evidence to support the proposition that export or foreign exchange instability is detrimental to economic growth by way of its impact on the imports of capital goods. Lim maintained the same sample period as Voivodas, but could have used a different sample of LDCs as Voivodas did not name his sample countries. Lim removed the $\text{cov}[X_t, F_t]/Q_t$ term on the argument that it had no distinct economic meaning vis-a-vis the instability issue. He further added that the term may affect some of the effects which are meant to be recorded by the two instability terms. When Lim dropped the covariance term [cov.$(X_t,F_t)/Q_t$)] from the analysis, the regression coefficient of (var. X_t/Q_t) was negative in sign and was statistically different from zero at 0.05 per cent level of confidence, suggesting that export instability is detrimental to economic growth.

The extent to which changes in export earnings will affect the entire domestic economy is a function of many factors. Although the general instability of the economy is, as the *a priori* argument goes, partly attributable to fluctuations in export earnings, the actual link between the rate of growth of real GDP (Yg) and export instability (Xi) is indirect. The link is through the effects that export instability (Xi) has on the rate of growth of real investment (Ig), via inflation, business miscalculation and speculation. These indirect effects are not easily quantifiable. For example, the presence of inflation could have been caused by monetary mismanagement rather than Xi so that the existence of a significant negative relationship between GDP and Xi does not necessarily imply that economic growth has been retarded because of export instability. As changes in GNP and export proceeds move consistently in the same direction, the foreign-trade multiplier which is implicit in most discussions of the effects of instability in exports on LDCs should be calculated[8]. However, the magnitude of the multiplier is debatable because the direct relationship between changes in GNP and export earnings is not clear. Some LDCs may be able to moderate the internal impact of export fluctuations through the use of monetary and fiscal measures. For instance, the high marginal propensity to import may be reduced as these countries increase their domestic production and produce more substitutes for imports.

By far, the version of the hypothesis which sees export instability resulting in a discontinuous flow of imported capital goods which in turn lowers investment and economic growth is seen as the most analytically manageable in most studies of the effects of export instability on economic growth. With foreign exchange being a critical input into

[8]The multiplier for instance, could be given as $\frac{1-p_x-m_y-t_x}{m_y+s_y+t_y}$

where p_x is the proportion of export earnings repartriated overseas; m_x is the proportion of export earnings paid for imports which are re-exported; t_x is the proportion of export earnings which accrues to the government through taxes on exports and on exporters' incomes; m_y is the marginal propensity to import; s_y is the marginal propensity to save; t_y is the proportion of the change in the domestic income which accrues to the government through taxes whose revenues respond to changes in the domestic income and expenditure (MacBean,1966,p.93).

the development process, unpredictable supply of capital goods imports would therefore create *bottlenecks* at crucial points in the implementation of the investment programmes. However, the hypothesis, as Love (1989) argues, assumes large inflows of foreign funds through aid and tourism do not play an important part in financing investment programmes for the affected countries, but where import capacity depends largely on their export earnings.

1.5.2 Inadequacy of cross-country studies

The different findings of the empirical studies on export instability can also be explained by the inadequacies of international cross-section analyses which assume great homogeneity across developing countries despite their heterogeneity with regard to institutions, overvaluation and other policies, adjustment capacities and economic structure. This obscures the ways in which the economy of individual countries are affected by forward and backward linkages, impact of fiscal and external balance for instance. Divergent results could also be due to different data bases of sample countries and time periods were used. For instance, while Massell (1970) showed that concentration on food exports was a source of relative stability during the 1950s and 1960s, Brundell, Horn and Svedberg (1981) found the reverse was true in the 1970s.

The criterion used in many earlier studies for the selection of the sample of LDCs despite the problem of data paucity was also questioned by Lim (1976) and Maizels (1968). For instance, Maizels obtained entirely different results although he used basically the same function between export instability and real GDP as MacBean's (1966) but, with a more discriminate use of the data. The data were examined on country by country basis instead of cross-country basis. Thus, if the impact of export instability on aggregate income varies from country to country, a cross-country regression may reveal

no relationship even if a strong relationship between the two variables is present on a country basis.

Lim (1976), on the other hand, argued that some studies had indiscriminate selection of LDCs in their samples without referring to a criterion used[9]. They then assumed that export instability would be automatically transmitted to the rest of the economy. This could cast doubt on the results obtained concerning the relationship between economic instability per se and economic growth (Lim,1976,p.322).

1.5.3 Concentration Indices

The Hirschman-Gini coefficient of commodity or geographic concentration for exports[10] used in most studies utilizes the standard international trade classification of commodities as the basis for measuring commodity concentration, and countries as the basis for measuring geographic concentration. This measure of concentration assumes statistical independence between SITC codes for commodities or among countries. However, some commodities or countries may be closely related to each other although others could be totally unrelated. Hence, the assumption of statistical independence in the Hirschman-Gini coefficient makes the index inadequate as a measure of concentration (see Soutar,1977; and Love,1983). Also, as Michaely (1962) has pointed out, the value of concentration depends on what commodity classification scheme is employed. For instance, the concentration level will be higher if there is a high level of aggregation over commodities; for at a higher level of aggregation, commodities which are relatively

[9]For instance, a criterion would be choosing LDCs with abnormally high degrees of export instability.

[10]The Hirschman-Gini coefficient is defined as $c_t = 100\sqrt{\sum_{i=1}^{n}(X_{it} / X_t)^2}$

where X_{it} = the value of exports of commodity i in year t,

$X_t = \sum X_i$ i.e. total export earnings in that year.

The value of the Hirschman-Gini coefficient will be lower the greater is the number of export items and the more even is the distribution of export earnings among those various products.

dissimilar are classified together. A corresponding problem also arises if a highly disaggregated classification scheme is used.

1.5.4 The Measurement of Export Instability

Leith (1970) argued that the results obtained from empirical studies are sensitive to the measure of instability employed. "*The conclusion one draws regarding a change in instability can depend on one's definition of instability and hence on the index employed which takes into account different treatment of extreme values*" (Leith,1970,p.268). Massell (1970) stressed that the measure of instability chosen would be influenced by the type of trend to which the data were fitted. Following the same line of argument as Massell, Erb and Schiavo-Campo (1971), on the other hand, contended that comparisons of instability measured with reference to the same trend are incorrect and inappropriate if the trend differs in two different periods. Therefore, they argued that it is necessary to ascertain that the different trend coefficients of different periods must be equal to enable intertemporal comparisons. Lawson (1974), stressed the need to assign different weights to group exports to reflect their contributions to group trade and avoid disproportionate impact of highly unstable earnings on overall results.

Love (1990) pointed out that the issues of the choice of index raised by Leith (1970) and of the *appropriate* trend raised by Erb and Schiavo-Compo (1971) relate directly to the definition of *instability.* The widely used conventional approach involves equating trend values with the *normal* or anticipated path of earnings and thus regards deviations from trends as comprising instability. While Coppock (1977) argued that instability means excessive departure from some normal level, Love (1990) cited Michaely's (1962), Massell's (1970) and Katrak's (1973) arguments on instability as one which should not be associated with deviations which are predictable and amenable to policy action. Emphasis should perhaps, be placed on the exposure to the vagaries of

international commodity market. Using the analogy of Friedman's analysis of permanent income, Knudsen and Parnes (1975) defined instability as a concept of uncertainty as embraced by the components of unobservable and transitory changes of export income. Lawson and Theobald (1976), on the other hand, asserted that negative deviations and not positive deviations from trend which should be given more weight instead.

This lack of consensus on the measurement of these fluctuations is reflected in the multiplicity of "appropriate" forms of trend correction. Each method of measuring trend generates a different set of residuals, and therefore, a different measure of instability. *"The problem arises because there is no obvious way to measure the variance of a non-stationary time-series"* (Moran,1983,p.198). Further, *"confusion may arise because when a decline occurs, it is difficult to know to what extent it is a simple deviation from an unchanged trend (a pure instability phenomenon) or the result of a changing trend"* (Guillaumont,1987.p.633). However, Cuddy and Della Valle (1978) contended that the *goodness-of-fit* criterion should be used for the adoption of appropriate trend forms because *the better the fit* of a regression model (as evinced by high coefficients of determination), the lower the instability index since there is less variation about the regression model to be counted (Cuddy and Della Valle,1978,p.82)[11].

The choice of different measurements of instability used is, however, not as serious as at first sight. Massell (1964), Erb and Schiavo-Campo (1969) and Glezakos (1973) observed high degrees of correlation among different instability indices used. Kenen and Voivodas (1972), Knudsen and Parnes (1975), and Lin and Ho (1979) also presented figures which claimed that the choice of instability index did not really matter.

[11]Indices which have been used to calculate the degree of export instability include (i) the standard error of estimate divided by the mean of the observations, (ii) the standard deviation from a logarithmic trend, (iii) the average proportionate deviation from a logarithmic trend, and (iv) the average percentage deviations of the series from unweighted moving-average.

More support comes from recent studies by Moran (1983) and Love (1990) which also showed results appeared insensitive to alternative ways of measuring fluctuations[12].

1.6 Objectives of Study

It is generally found that the differences in the findings of export instability with diverse conclusions mainly involved cross-country studies[13] which assume homogeneity across developing countries. If that assumption does not hold, it is more appropriate to examine the effects of diversification on overall export instability on a country by country or individual cases. This is because country-specific variables such as specific economic and non-economic factors and its particular export products are important determinants of export instability. It is for this reason that a case study approach is adopted here in the hope that a more appropriate and valid conclusion could be found by isolating the underlying factors relating to export instability in a particular country.

Malaysia has, for long, been regarded as a classic case of a primary commodity export-oriented LDC. Between the sixties and early seventies, over 70 per cent of export earnings in Malaysia were derived from natural rubber, tin, timber and palm oil, while the overall export of primary commodities constituted more than 85 per cent of the country's export earnings. Concentration on a small range of primary commodities was accompanied by concentration on a small group of traditional export markets namely, Singapore[14], the United States, the European Economic Community (EEC) and Japan.

[12]Love's study in particular, had accommodated earlier reservations expressed by Erb and Schiavo-Campo by using "best-fit" trends and, in line with Lawson's argument, used weighted indices to remove the potential impact of extreme or atypical results.

[13]Cross-country studies are based on the argument that if a hypothesis holds across countries, it should also hold within countries.

[14]Much of the exports to Singapore is for re-export to other countries.

Earlier empirical findings (Coppock,1962; Massell,1964; Leith,1970; and Ariff,1972) showed that the export instability for Peninsular Malaysia was on the high-end of the scale, amounting to 41.9, 20.2, 19.6 and 29.1 respectively. These findings concluded that the high export instability index was largely attributable to specialization in the production and export of natural rubber and tin coupled with rather unstable demand for both the commodities. The unstable demand was mainly due to consumption which was highly inelastic with respect to price and income changes caused by stiff competition faced by both rubber and tin (Ariff,1972,pp.44,47,53,58). The empirical evidence lends support to the hypothesis that there is a close link between high concentration of exports in primary commodities and export earnings instability.

However, over the past twenty years, Malaysia's export structure has changed from dependence on two primary exports to a more diversified basket of exports which include palm oil, logs, petroleum and gas, cocoa and manufactured goods. Most notably, the manufacturing sector has made headway in contributing to export performance and economic growth in the country. Manufacturing accounted for about 64.9 per cent of total gross exports and 49.6 per cent of the nation's GNP in 1991. The corresponding percentages in 1970 were 11.9 and 5.1 respectively (Bank Negara,Dec.1977;Sept.1993). Following worsening terms-of-trade for producers of primary commodities as evidenced by earlier empirical findings which seem to indicate long-term decline, the need for diversification appears to be more justified if it is equated with the expansion of manufactured exports. Such development in the Malaysian export structure scene enhances the need to examine the effectiveness of diversification into manufacturing exports in lowering export instability. Such an examination is deemed essential as the government has from the start (since political independence from 1957) assumed a leading role in serving this objective of promoting and assisting export diversification. An empirical study is thus essential to examine the implications of the changes in the

pattern of Malaysia's exports on its export earnings instability particularly over a more recent period. Malaysia represents a good case study of the issues involved.

During the period between the sixties and mid-seventies, diverse findings were found lending support to commodity diversification as an effective way to reduce fluctuations in export earnings[15]. Although Lee (1977) advocated diversification by commodity, he claimed that the relative instability which existed in the non-traditional export markets as compared with the traditional ones, explains partly a negative correlation between geographic concentration and export instability for the case of Peninsular Malaysia during the 1963-73 period. However, it must be noted that Lee (1977) used the Hirschman-Gini coefficient of commodity and geographic concentration. It has been argued earlier that the index is inadequate because it assumes statistical independence among SITC codes for commodities and among countries. On the other hand, Pang and MmBaga (1982) in their study which covered the period 1955-77, found that export instability was increased even with commodity or geographic diversification for both the Malaysian and Tanzanian case. These findings are based on the use of another kind of index which shows the contribution of commodity concentration in the country's economic instability[16]. In conclusion, they stressed the importance of the type of commodities exported and the choice of countries traded with.

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[15]A considerable number of studies on export instability covering the Malaysian economy using early post war data had been undertaken. However, the findings from two studies in particular [Lee (1977) and Pang and MmBaga (1982)] are relevant to the issue discussed in our study. They dealt directly with the link between export instability and commodity/geographic concentration.

[16]The Pang-Mmbaga (PM) index is defined as follows: $PM_j = \sum_i \Phi_{ij}\Psi_j$

where Φ_{ij} is the proportion of commodity i in country's j total merchandize exports, Ψ_j is country j's share of total merchandise exports in national income (GNP) (This is a measure of the "openness"of the economy); i is country j's four major exports. A high value of PM implies a greater impact on economic instability. Comparing the Pang-MmBaga index with the Gini-Hirschman coefficient, Φ_{ij} is equivalent to Gini-Hirschman's X_{ij}/X_j. The only difference is that the PM index is further weighted by Ψ_j. Ψ_j was brought in to take into account the proportion of total exports to GNP. Pang and MmBaga argued that "if total exports is an insignificant component of GNP, the effects of instability that may be caused by exports would also be insignificant to the economy's GNP" (Pang-MmBaga,1982,p.21,23).

The approach used in this study will throw some light on whether diversification is of the right kind and/or direction in terms of reducing the degree of export instability over a more recent period, that is between 1968 and 1991. Based on the contention that the instability index is not the same for all exports and, hence, there is no one-to-one correspondence between export earnings instability and commodity/geographic concentration, this study considers an adjusted concentration index which takes into account the particular relationships between export commodities/markets. In assessing the implication of changes in the export-mix, this study also attempts to identify the principal export commodities/markets that have contributed most or least to export instability with respect to their relative shares in total export earnings.

The *a priori* conclusion that export instability has an adverse effect on economic development has met with contradictory empirical results. Using a production function type framework, Nasaruddin (1992) found that increase in export instability lowered the GNP and economic growth of Malaysia during the 1970-91 period. However, it has been argued that the direct causality between export instability and economic growth has been impeded by their indirect causation and the difficulty of quantifying the variables involved. A study of this nature would require a systematic derivation of a macro-econometric model which would take into account the country's economic growth where export instability is only one of the many explanatory variables involved. In our study which is largely constrained by data and resource limitations, we use a reduced-form equation to show the impact of export instability on imports of capital goods instead. Intuitively, a discontinuous flow of capital goods imports could lower investment and economic growth. In line with Lim's (1976) argument on the difficulty of quantifying opportunity costs involved which would complicate empirical investigation about the effects of export instability on economic growth, an analysis of the direct nature of the impact of export instability on the import of capital goods and domestic investment would avoid any gross incorrect specification in our estimating equation.

Essentially, the principal aims of Chapters 2 to 5 are as follows:

Chapter 2: to trace the development of Malaysia's policies on commodity and geographic diversification over the past thirty years;

Chapter 3: to shed light on whether diversification is of the right kind and/or direction by examining the extent and trend of export instability level given the rapid diversification efforts over recent years;

Chapter 4: to probe into the level of instability of individual export commodities and export markets by examining their contribution to export instability relative to their share in total export earnings. Within data limits, the contribution of price and quantum fluctuations to export earnings instability for various commodities are also examined. This will provide some insights into the probable sources of export instability among the commodities under study and;

Chapter 5: to examine the impact of export instability on capital good imports and domestic investment with their implicit implications on economic growth (given resource constraints).

1.7 Limitations of study

(i) Although we would like to enlarge the number of data points so that we can operate with more degrees of freedom in estimation, this study only covers the period between 1968 and 1991. This is largely governed by consideration of the availability of comparable data. In some periods, there are important gaps in information. Although the figures on import price index and export values for Malaysia's major export commodities taken from the World Tables (published by the World Bank) give a continuous series covering more recent periods, data on import price index prior to 1967 were, however, not published. An alternative data source is the IMF Statistical Yearbook. In the latter, the import price index covers earlier periods - the fifties and sixties. However, import

price indices for Malaysia after the year 1987 were not published in the IMF statistics. The data on import price index from the World Tables and the IMF Statistical Yearbook in earlier years are found to differ quite markedly. Constrained by accessibility to other reliable and comparable data sources, and our objective to update the period of study on export instability, the only available data set which meets our requirements come from the World Tables.

(ii) The issue of economic diversification during the colonial rule until the early 1970s have been dealt with in earlier studies (for instance, see Lee,1978; Lim,1973). To avoid repetition, this study places emphasis on more recent policies which have a bearing on the strategy of economic diversification.

(iii) Commodity concentration index is computed at the two-digit SITC level. Although further disaggregation appears desirable, limited financial resources restrict the analysis to the two-digit level. This also limits the analyses to large categorization of sectors, mainly the non-fuel primary sector, fuel sector and manufacturing sector which could be gathered from the World Tables. Adequate data are not available from the same data source to follow up distinction of the categories with high degree of confidence. Because the categories are quite broad, many goods that are essentially different in their trade structures and patterns are grouped together here.

(iv) The extent of the peculiarity of various elasticities for certain commodities cannot be examined due to the aggregative data collected in this study. These commodities should be evaluated individually rather than being grouped. For instance, a close examination should be given to individual commodities or markets where the most serious instability exists. However, the need for detailed disaggregation requires some sacrifices of comprehensiveness due to resource constraints.