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I

Export Fluctuations, Growth and Policy

Causes of Export Fluctuations, Consequences for Underdeveloped  
Countries and Appropriate Economic Policies

By

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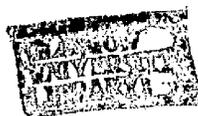
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### III

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## IV

### Contents

Acknowledgements

Preface

List of Charts and Figures

List of Tables

### Section I

#### Causes and Consequences

1. The Prima Facie Case
2. Causes of Excessive Fluctuations in Export Proceeds of Underdeveloped Countries.
3. The Short-term Consequences
4. Economic Growth

### Section II

#### Five Cases: Summary

5. Uganda
6. Tanganyika
7. Puerto Rico
8. Chile
9. Pakistan

Section III

National Policies

- 10. National Stabilization Policies
- 11. Fiscal and Monetary Policies

Section IV

International Policies

- 12. International Commodity Agreements
- 13. International Compensatory Finance
- 14. The Role of the Industrial Countries
- 15. Summary of Findings

Appendix

- I Data and Methods
- List of Works Cited
- Index

## Preface

This study was originally intended to be an inquiry into the relative merits of different policies for dealing with the effects of export fluctuations on underdeveloped countries. But as I read more and more of the literature I became increasingly aware of the lack of systematic empirical analyses of the causes and consequences of export fluctuations. The literature was full of assertions on these subjects but little or no evidence. As a result I became increasingly interested in this aspect for it seemed to me that the design of appropriate policies required a reasonably accurate diagnosis of the causes and effects of the ailment. I began the search reasonably confident that I should in fact find the general views expressed in the literature to be upheld by the evidence, but the more evidence I examined the less confident of this I became. The result has been that the emphasis in the study has shifted from being mainly a discussion of policy to a relatively equal emphasis on statistical analyses of theories about export instability and on economic policies to deal with problems which may arise from it.

The statistical material available for considering the impact of short-term fluctuations in export proceeds in underdeveloped countries is often of doubtful reliability and the series are frequently of inadequate length to enable firm conclusions to be drawn from the analyses. Most of the data used came from UN and IMF publications, some from national sources, but in general they are subject to all the qualifications which normally apply to statistics from underdeveloped countries particularly in the area of national accounts. Such factors should be borne in mind when considering the statistical results presented in the text. The reader is usually reminded of them at

## VII

appropriate points in the study. Appendix I discusses the methods and data used in this study.

In essence, the approach of this book is to present and discuss briefly various propositions about the causes or effects of export fluctuations in the context of underdeveloped countries. The propositions are then tested by a combination of cross-country regression analyses and time-series analyses sometimes presented formally in regression or correlation coefficients, sometimes in tabular comparison of direction or strength of changes in one variable compared to another. The statistical results are then discussed in an attempt to fit them into a rational and consistent framework for use in considering their implications for economic policy. The chapters on stabilization policies give a fairly general account of the main disputes concerning their respective advantages and disadvantages, but continually refer back to the earlier analyses for empirical evidence on which particular measure would be appropriate. Emphasis on the diversity of the structure and experience of underdeveloped countries' economies as demonstrated in Sections I and II forms something of a refrain throughout the whole study.

Because many references are cited very frequently in the course of the study and because their names are often very similar an abbreviated form of citation has been adopted. Most often this is enclosed in parentheses in the text thus - (Michaely, 1962: pp. 100-105). The reader who wishes the exact title and place of publication will find this in the list of works cited at the end of the study. These are in alphabetical order by the second name of the author or by the initial letter of the organization responsible for the document:

Michaely, Michael,

1962     Concentration in International Trade,

North Holland Publishing Company, Amsterdam 1962.

United Nations (UN)

1958     World Economic Survey

Where more than one book, document or article is attributable to an author or organization in the same year, small letters a, b, c etc. are added to the second and subsequent works cited.

EXPORT FLUCTUATIONS AND ECONOMIC GROWTH

PART I Causes and Consequences

Chapter 1 The Prima Facie Case

A. I. MacBean

## Chapter I

### The Prima Facie Case

Next to the maintenance of world peace it can reasonably be claimed that raising the standards of living of the populations of the underdeveloped countries of Asia, Africa and Latin America is the most important problem of our time. In this study one small, but potentially important obstacle to underdeveloped countries in their attempt to satisfy their ambitions for rapid and stable growth is cut out for scrutiny. This is the problem of short-term fluctuations in their export earnings.<sup>1</sup> Export instability of this nature, quite apart from longer-term changes in exports, may have very damaging effects on both the internal stability and the economic growth of underdeveloped countries. The consequences and causes of export fluctuations form the subject matter of the first two sections of the book. The benefits and costs of various national and international schemes for dealing with the problems are analyzed in the third section.

The object of this chapter is to present the prima facie case for believing that export instability inflicts serious damage upon the economies of most underdeveloped countries. Subsequent chapters formulate these a priori arguments separately and attempt to test each against the facts as recorded in the era since the Second World War.

### Export Fluctuations

It is generally accepted that the prices of primary products vary much more sharply from year to year than do the prices of most manufactures. A major reason for this lies in the relative short-run inflexibility of both output and demand to changes in price for primary commodities such as food, agricultural and industrial raw materials as compared with

manufactured goods. On the output side the lack of short-term response can be attributed to the lengthy period required to bring about a significant increase or decrease in production in several major crops such as coffee, cocoa, tea, natural rubber and hard fibers. Even annual crops can only respond with something of a time lag as the most important production decision is generally taken many months before the harvest time and a new level of prices can affect only next season's plantings.

For most metals and minerals the supply elasticity or response of output to price changes is generally rather higher than for agricultural products, but it is still unlikely to be substantial. The major costs tend to be fixed overheads. Mines are likely to continue operating as long as prices remain at a level which covers the running costs of mining and extraction. If the running costs are low, prices may have to fall very far before the mining concerns would find it advantageous to close down some of their operations. This is reinforced by the probability that for many of the mining operations the closure and subsequent reopening of pits would involve substantial costs. Overtime working or a change to shift working may be possible in some mines in response to increased prices, but most underground mines will probably operate a shift system in the normal course of events and are strictly limited in their ability to vary labor inputs. For open-cast mines a possible higher ratio of running to fixed costs may make for greater price responsiveness of output.

For both agricultural and mining products it seems clear that the response of output to changes in prices should be low compared with the output elasticities of factory-produced goods. It is true that the elasticity of supply of commodity exports may be greater than the output elasticity because exporters' stocks, domestic demand and even, in some cases, imports for reexport may respond to price incentives, but the additional flexibility from these is generally likely to be small. Few underdeveloped

countries hold large stocks of exportable commodities: such policies are often barred by technical difficulties and expense. Domestic consumption of exportable commodities is also, in general, minute. The possibility that imports for reexport should affect elasticities significantly is likely to be small for most underdeveloped countries.

On the demand side there are even better reasons for accepting response to changes in the prices of most food and raw materials to be slight. Price elasticities of demand for food and beverages are notoriously low. National custom rather than relative prices seems to determine whether people drink coffee or tea, or eat maize, wheat, rice, barley or potatoes as their staple food. Many other commodities depend on a derived demand. Their cost forms only a tiny part of the cost of the final product. Examples are the raw cotton in a shirt, wool in a suit, jute in floor coverings, aluminum in an airplane. The percentage change in the price of any of these finished products due to even a substantial change in the price of the raw material will usually be infinitely small.

A low supply elasticity means that any change in demand for a product, due to a change in consumers' incomes, industrial activity or speculation will induce a disproportionately large fluctuation in price. Conversely, if the price elasticity of demand is low a change in supply caused by exceptional weather conditions, pests or disease will cause a sharp change in price.

Given the further factor that both supply and demand for most commodities are characteristically unstable, a high degree of price instability is inevitable. For both food and agricultural raw materials it is evident that output variations are very likely, due to the normal hazards of farming. In most underdeveloped countries these are further bedevilled by lack of

technique or resources for flood control, use of pesticides and fertilizers which have helped to reduce output variability of agriculture in richer and more developed agricultural systems. In addition some current changes in output may be related to price conditions of several years earlier. Tree crops such as coffee and cocoa exemplify this form of instability. While minerals are less subject to output variability, demand for them tends to be more closely related to cycles in industrial activity and speculation and can fluctuate widely.

Low price elasticities combined with variability in demand, supply or both provide an entirely credible rationale for sharp instability in both prices and proceeds of primary products.

It is true that rather more primary commodities are exported by the developed world than by the underdeveloped countries, but for the average underdeveloped country, primary products form a very much greater proportion of exports than they do for the average developed country. Consequently specialization in primary exports forms a reasonable explanation for underdeveloped countries' export instability. Other intuitively appealing reasons are concentration on a small range of commodities and regional concentration of export markets. Such lack of diversification in both product and market reduces a country's prospects of "gaining on the swings what it loses on the roundabouts." For many underdeveloped countries one product alone accounts for well over 50 percent of the total value of their exports. Most underdeveloped countries sold the greater part of their exports to the United States, the United Kingdom or France.

Between them these factors seem to provide a reasonably convincing explanation for a high degree of export instability in the average underdeveloped country.

## Consequences

Not only are underdeveloped countries' exports more unstable than the exports of the developed countries, but the economies of underdeveloped countries are more vulnerable to such fluctuations. They are more likely to suffer damage than would a richer, more developed country from the same degree of export instability. The principal reasons for this situation include a greater quantitative and qualitative importance of foreign trade to underdeveloped countries and the lack of the techniques or the facilities for effective countercyclical monetary and fiscal policies.

In the literature, underdeveloped countries are usually described as foreign trade-oriented. This has several aspects.

"In one form it appears in the considerable extent to which the market-type sectors of the economy rely on the production of a few primary products which usually are almost completely exported. The ratio of this export production to total output is normally high; the share of the national income generated by exports normally exceeds the shares generated by private domestic investment or governmental expenditures." <sup>2</sup>

The implication of this statement is that the national income in underdeveloped countries should be very sensitive to changes in export proceeds. A change in the total value of exports will have a direct impact on export producers' incomes. This in turn will tend to affect their expenditures on consumption and investment and so have repercussions on the incomes of other national industries. These direct and indirect

effects on incomes will tend to affect the willingness and ability of farmers and businessmen to undertake current investments. The combination of these "multiplier" and "accelerator" effects should, unless offset by government policy, tend on the average to produce changes in the national income which are in the same direction and more than proportional to the initial changes in export proceeds.

This instability in money national income may have repercussions on employment and the price level. Few writers expect employment levels to be seriously affected in most underdeveloped countries since the proportion of the total population actually involved in wage-earning employment is generally very small. Many of those who are wage or salary earners are frequently in government service and largely secure from temporary unemployment. By far the greater part of the labor force in most underdeveloped countries is self-employed or works within family units in small-scale farming. Movement between the wage and the subsistence sector is easy. However employment in some export industries may be adversely affected by short-term fluctuations in exports.

Prices, on the other hand, can reasonably be expected to be affected by fluctuations in export incomes. If most incomes move in sympathy with fluctuations in exports the demand for many home-produced goods and services may be expected to follow suit. Since these are mainly agricultural products and housing the short-run supply elasticities are normally very low and increased demand for them will tend to produce sharp increases in domestic price levels. Conversely a sharp fall in export earnings will tend to contract domestic demand and reduce these prices.

In addition to sympathetic fluctuations in prices it is possible that export fluctuations tend to stimulate or add to inflationary pressures over longer periods. This would be particularly likely if underdeveloped

countries were liable to be more effective in countering deflationary than inflationary changes in demand. Anxiety to avoid underutilization of industrial capacity plus institutional and political factors make this a likely state of affairs in many underdeveloped countries.

Apart from heavy dependence on international trade underdeveloped countries may be vulnerable to export fluctuations because of incapacity to deal with export-induced internal instability. In many, the central banks' control over the supply of credit is very weak even when the statute book appears to give them a full quiver of monetary controls. The willingness of the governments to adopt tough budgetary policies is sometimes compromised by fears that this will endanger economic growth or even political stability. The political and administrative power to make quick changes in taxation or public expenditure is often lacking in emergent nations. Their tax systems seldom respond quickly through higher or lower yields at existing tax rates to changes in national income. Their social security systems are non-existent or too small to offset sudden reductions in income. In other words, they lack the built-in stabilizers which, in the last twenty years or so, have become an important feature of the economies of the richer countries.

Unchecked fluctuations in incomes and prices may have undesirable social and political effects. A sudden rise in the proceeds realized from the export of an important crop may appear to redistribute income in an entirely arbitrary manner. One group of farmers may be enriched while the consequent rise in domestic price levels makes another group, not only relatively, but absolutely, worse off. Equally a sudden drop in proceeds can create tensions. These effects of export fluctuations are potentially very serious in countries where race or tribal connections often determine occupations and social tensions are already high.

Aside from these broader effects there is the direct impact on those groups in the community whose cash earnings fluctuate along with exports. In many cases these are small farmers, in some, wretchedly poor peasants. It is almost certain that a fluctuating cash income yields them less economic welfare or satisfaction than would a stable income of the same average level. If they are not sufficiently prudent to put away some cash as a reserve when their incomes rise they cannot support their new standard of living when the recession follows the boom. They may even starve unless they normally grow sufficient food for themselves or can borrow. The latter solution may bring other hardships given the very high interest rates normally charged to peasants by moneylenders in underdeveloped countries.

#### Effects on Economic Development

The last point may have implications for the long-run economic growth of some countries. If peasant production is important in their export industries and if commodity instability causes uncertainty and hardship to the farmers the internal allocation of resources may be distorted away from the optimum. The farmers may be deterred from specializing in the crops which yield the highest average return because they do not wish, or cannot afford, to take the risk of depending exclusively on an exportable crop which is subject to severe instability. Where this happens the country may suffer loss of income and foreign exchange over the long-run.

Uncertainty, generated by export instability, may affect investment by other groups in the economy and by the government. Export fluctuations can have two uncertainty-creating effects on entrepreneurs. First, it increases the difficulty of estimating the expected returns on an investment.

Secondly, the possibility of foreign exchange problems affecting their country makes their ability to import any necessary capital goods or raw materials at a given time uncertain and forms a hazard to their plans. In addition, the existence of these risks may make the suppliers of capital and credit charge higher interest rates and impose more stringent conditions creating further deterrents to investment.

If national income fluctuates in sympathy with exports, parallel changes in domestic savings may be expected. Unless offset by variations in the inflow of foreign capital, changes in domestic savings must lead to equal changes in total gross domestic investment. The importance to investment of changes in national income depends mainly on whether the marginal propensity to save is greater or less than the average propensity to save. Will the proportion of income saved out of an increase in income tend to be larger or smaller than the average proportion of national income normally saved? Will a decline in income lead to a more than proportional decrease in savings? It is generally assumed that the marginal propensity to save is larger than the average for most underdeveloped countries. If so, the domestic incomes available for investment will fluctuate more than proportionally to fluctuations in income.

There are some reasons for supposing the marginal propensity to be larger than the average propensity to save. In many countries the export sector is dominated by large scale firms. It seems reasonable to suppose that their marginal propensity to save out of profits should be larger than the average for the economy as a whole.

Normally a major part of any increase in export earnings will accrue directly to the government in most underdeveloped countries through export duties and royalties on minerals. Such changes in government revenue are unlikely to link directly to increased current expenditures by the government. They are more likely to enable further expenditures on investment.

Another suggested reason is that ordinary citizens expect some level of "permanent" income. Changes of actual income above or below this standard are treated as transitory. The income recipient regards such temporary gains or reductions in income as of a windfall nature and does not adjust his standard of living to them. The logic of the "permanent" income assumption leads to the expectation that almost the entire amount of any increase in income will be saved. Equally any decline in current cash income will be met by dissaving to support the accustomed standard of living.

If these reasons are taken to justify the assumption of a higher marginal than average propensity to save, savings and investment would tend to be much more unstable than national income. Such instability could be expected to lower the efficiency of investment.

Apart from the effect on national income and savings severe export instability will tend to produce temporary bottlenecks on foreign exchange. Many underdeveloped countries are short of reserves of gold or convertible currencies and cannot use them as an effective cushion against fluctuations in export proceeds. Until recently few made much use of the International Monetary Fund (IMF) as a means of smoothing their import capacity over booms and slumps. For most underdeveloped countries it is argued that luxury imports or non-necessities have already been cut out of their imports. Given this situation any drop in foreign exchange available for imports is likely to cut into capital-goods imports and raw materials.

Few underdeveloped countries at present possess the industrial capacity for the production of machines, transport equipment, steel and other essential capital goods. Imported capital goods account for approximately 40 percent of domestic fixed investment in the average underdeveloped country. This makes their development programs tend to

be sensitive to changes in ability to pay for imports. If this results in delays or attempts to substitute inferior domestic goods for imported capital, lasting damage may result.

A high degree of export instability may be expected to deter investment on several grounds. It increases risks for the entrepreneur. It is likely to raise borrowing costs. Because export fluctuations tend to cause balance of payments difficulties they may lower confidence in the maintenance of the exchange rate. Fears of devaluation can add a further stimulus to the capital flight which is endemic in many underdeveloped countries. If export instability stimulates inflation it may encourage spending and discourage saving.

Capital accumulation in the average underdeveloped country is still very largely a matter of domestic savings. Foreign aid and private investment form only a very small contribution to total savings and investments. Consequently any damaging effect on domestic savings rates would imperil underdeveloped countries' prospects for economic growth. The threat which export fluctuations represent to the economic growth of underdeveloped countries has in fact been the focus of most official and academic concern.

#### Repercussions on Rich Countries

Few would expect short-term fluctuations in underdeveloped countries' export prices and proceeds to have a major impact on the economies of the rich nations. However, the interdependence of nations is generally emphasized in the official studies and certain effects are pointed to as giving the richer industrial nations motives for finding solutions to the problem of commodity trade instability. Fluctuations in the prices of their commodity imports may disturb their balance of payments.

Individual industries which use imported raw materials will be affected by price fluctuations. Both of these results may influence the general level of activity and domestic price levels.

Fluctuations in underdeveloped countries' exports tend to generate parallel fluctuations in their imports. This may have some impact upon industries in the industrial nations. The effect may be more important because underdeveloped countries' import fluctuations are likely to be concentrated on capital goods and these happen to be typically the most unstable groups of industries in the industrial nations.

The industrial countries have an interest in increased production of primary products and if instability deters specialization and investment in them it works against their interests.

Finally, the mutual interest of all in the rapid economic development of the poorer countries should be clear to the rulers and citizens of the richer nations. Consequently if export instability is an obstacle to the growth of underdeveloped countries the rich also have a strong motive for desiring to get rid of it or to alleviate its effects.

These represent the major points which have been made in the very many discussions of the domestic and international consequences of underdeveloped countries' export fluctuations which have taken place. Most of the arguments put forward here have been synthesised from some fifteen works which are appended at the end of this chapter. Many others could have been cited. Indeed most of the books and articles in the bibliography at the end of this book contain such introductory sections on the importance of export fluctuations to the stability and growth of underdeveloped countries. This combination of a priori reasoning and casual empiricism has almost universal acceptance. From the official studies of the UN, . .

of reports by experts appointed by the UN and from books and articles written by academic economists it is clear that it is the consensus of opinion that short-term export instability is a very serious matter for the average underdeveloped country. This has formed the basis of a persistent advocacy of a wide variety of proposals designed to deal with commodity trade instability or to moderate its effects. These proposals have ranged from nationally operated marketing boards, to international commodity agreements and the most recent suggestions of international compensation for export fluctuations.

The argument is inherently reasonable and intuitively appealing. It relies on well-known tools of economic theory such as price theory, the foreign-trade multiplier and the accelerator. Most of the basic assumptions about underdeveloped countries which the argument uses are widely held. Nevertheless, when confronted with the facts practically none of the conclusions reached in the preceding argument are verified. The statistical evidence presented in Section I and in the five case studies included in the book appears to contradict the consensus of opinion that export fluctuations inflict significant damage on the stability and growth of the average underdeveloped country.

If my conclusions are valid they call for a complete reappraisal of the role of measures for international economic stability. But one point should be made clear now. My conclusions do not mean that stabilization policy is irrelevant to the problems of all underdeveloped countries. At no point do I deny that some underdeveloped countries or particular industries or groups within some underdeveloped countries may suffer severely from export instability. On the contrary, I feel certain they do. But if the problem is not general and widespread, but particular and specialized, its whole nature is changed and the appropriate policy measures become

quite different. It is in this light that the discussions of stabilization policies are presented in Sections III and IV of this book.

#### Note on Sources

The following works are cited as a representative sample of the opinions of international organizations and academic economists. The first reference, which includes a brief quotation from a very distinguished economist, is a mere aside in a disquisition on the long-term problem of the terms of trade, but it emphasizes the confidence with which the prima facie case is generally stated. Items 4 and 5 are very widely used textbooks and to a considerable extent expound received opinion.

1. A. K. Cairncross: "The prices of primary products are notoriously volatile and the damaging effects of this volatility on the economies of the exporting countries are beyond question". "International Trade and Development", in Factors in Economic Development (London, 1962), p. 213.
2. E. H. Harmon, Commodity Reserve Currency (New York, 1959), pp. 1-5.
3. B. Higgins, Economic Development (New York, 1959), pp. 545-58.
4. G. M. Meier and R. E. Baldwin, Economic Development (New York, 1957), pp. 310-314, and 329-30.
5. M. Michaely, Concentration in International Trade (Amsterdam, 1962) pp. 112-26.
6. International Monetary Fund (IMF) "Fund Policies and Procedures in Relation to the Compensatory Financing of Commodity Fluctuations", I.M.F. Staff Papers, November 1960, pp. 5-15.

7. R. Nurkse, "Trade Fluctuations and Buffer Policies of Low-Income Countries", Kyklos, Vol. XI - 1958 - Fasc 2, pp. 141-44.
8. Organization of American States (OAS) Final Report of the Group of Experts on the Stabilization of Export Receipts (Washington, January-March 1962), p. 1.
9. Organization for Economic Cooperation and Development (OECD), Commodity Agreements (Paris, 27 November, 1963), pp. 1-8.
10. United Nations (UN), Instability in Export Markets of Underdeveloped Countries, 1952, p. 1.
11. . . . Commodity Trade and Economic Development, 1953, pp. 6-11 and 14-21.
12. . . . World Economic Survey, 1958, pp. 59-64.
13. . . . International Compensation for Fluctuations in Commodity Trade, 1961, pp. 3-15.
14. . . . World Economic Survey, 1962, Vol. I, pp. 48-51.
15. C. R. Warren, Jr., "The Inelasticity of Southeast Asian Agriculture: Problems of Monocultural Perennial Export Dominance", unpublished report presented to the Agricultural Economics Society of Thailand, Bangkok, November 1962 (mimeographed), pp. 11-12.

A few writers have taken exception to certain points of the argument as it is outlined in this chapter. Sir Sydney Caine has questioned the contention that export instability will reduce investment. Albert Hirschman has argued that the growth of industry may be encouraged more by fluctuations than by stable export proceeds. Joseph Coppock and Michael Michaely (item 5)

have published empirical research which casts doubt on the orthodox explanations of export instability but with relatively few exceptions the general argument on the causes and consequences of underdeveloped countries' export instability which this chapter has outlined does represent a consensus of opinion.

16. Sir Sydney Caine, "Instability of Primary Product Prices--A Protest and A Proposal", Economic Journal , September 1954.
17. Joseph D. Coppock, International Economic Instability (New York, 1962).
18. Albert Hirschman, The Strategy of Economic Development (New York, 1958).

Footnotes for Chapter I

1. Short-term fluctuations are defined here as deviations from the general trend in export proceeds. A constant increase and decrease in exports is not regarded as a fluctuation and such general tendencies are eliminated from the data by calculating the trend over the period and using percentage deviations of actual exports from the trend as the measure of fluctuations. The average of these is taken as the index of instability for each country over the period. Appendix 1 discusses this and related statistical questions.

2. Gerald M. Meier and Robert E. Baldwin, Economic Development: Theory, History, Policy (New York, 1957), p. 310. This is a widely used textbook.

## Chapter 2

### Causes of Excessive Fluctuation in Export Proceeds of Underdeveloped Countries

As was indicated in Chapter I many reports of the United Nations, studies by groups of experts, articles by academic economists and text books on economic development have drawn attention to the severe export instability experienced by underdeveloped countries.<sup>1</sup> It is widely held that such instability can be largely explained by special characteristics of the commodities which underdeveloped countries export and of the structure of their exports. Certain policy proposals flow from these views. They range from the necessity to diversify exports of underdeveloped countries to the need for international commodity agreements or schemes for compensating underdeveloped countries for shortfalls in their export earnings. The main object of this chapter is to review some of the generalisations about the causes of underdeveloped countries' export instability against the results of recent research on fluctuations in the post-war period.

#### Definition of Instability

Export instability is defined here as short-term fluctuations in export earnings corrected for trend. The necessity for some form of trend correction is evident to avoid interpreting a constant year-to-year increase as indicating instability. The number of methods of trend correction possible is almost as numerous as the number of studies on export instability. As long as each index is calculated for the same variable over the same period of time the results are, however, invariably highly correlated. Most techniques assume a linear time trend. For countries where no single linear trend fits,

the index will tend to exaggerate the amount of short-term instability. For this reason I prefer an index of instability which is measured as the average percentage deviation of the dollar value of export proceeds from their five-year-moving average centered on the mid-year. This has the disadvantage of losing two years from the beginning and end of the time series and of being less convenient for computer calculation. The indices used in this study are specified in the footnotes as they are used.

#### The Relative Severity of Export Fluctuations

It is generally held that fluctuations in export proceeds are much greater for underdeveloped countries than for rich developed countries, but the data for the post-war period show that the differences are much less than commonly supposed. On four different indices of instability Australia, Finland and France, for example, have much greater export fluctuations than Brazil, Ceylon or Panama (See Tables 2:1 and 2:2).

Per capita income may be taken as a rough indicator of the stage of economic development. Analysis of association between this indicator of development and export instability for some 80 countries yields a correlation coefficient of  $-0.23$  which is barely significant at the  $.05$  level of significance.<sup>2</sup> It indicates a relatively low degree of association between level of development and export instability.

Another calculation was made to compare the average degree of short-run instability for underdeveloped countries with that experienced by the average developed country. The mean index for 45 underdeveloped countries was 23.1 with a standard deviation of 12.9 while for 18 developed countries the mean

index of instability was 17.6 with a standard deviation of 7.1<sup>3</sup> Once again this suggests a tendency for underdeveloped countries to have less stable export earnings. But it also suggests that this is a fairly weak tendency, that the differences are not large and that there is a considerable overlap in experience of instability between rich and poor countries.

The phenomenon, however, really exists. Underdeveloped countries, on the average, do seem to have a somewhat greater degree of export instability than do the developed countries. Why should this be so? Possible answers include: a tendency for underdeveloped countries to export only or mainly primary products, a tendency for underdeveloped countries' exports to be concentrated on a relatively small number of products, or for their exports to be concentrated in their geographical destination on one or two countries.

#### Specialization in Primary Products

An explanation of the extra instability experienced by underdeveloped countries' exports in terms of their specialization in the export of primary products makes two assumptions. First, it assumes that the typical underdeveloped country is specialized in this way and, secondly, it assumes that receipts from the export of primary products are inherently subject to greater short-term fluctuations than are receipts from the export of manufactures. The first assumption is clearly realistic: apart from Hong Kong, with 82 per cent of its exports manufactures, India, 44 per cent, Pakistan, 27 per cent and Israel (if it is included in underdeveloped countries), 61 per cent, underdeveloped countries' exports are predominantly

composed of foods, minerals and other raw materials. Admittedly several rich developed countries are also predominantly exporters of primary products. Australia, New Zealand, Denmark, Ireland and Finland, for example, fall into this category. However, it is clear that the typical underdeveloped country is much more heavily specialized in primary product exports than is the typical developed country.

That the second assumption is also realistic is far less evident, despite the insistence on this point in the UN studies listed in footnote 1. The Crawford Report states, "Primary commodity markets clearly continue to be permeated by a degree of instability appreciably greater than is evident in markets for other products."<sup>4</sup> Unfortunately the UN studies provide no comparative statistics for fluctuations in export proceeds from manufactured products. J.D. Coppock has calculated instability indices for the total value of world trade in primary commodities and in manufactures (1948 to 1958). These show manufactures to have been more unstable, with an index of 6.8 compared with an index for commodities of 3.8. Such aggregative figures may of course be quite misleading since they conceal enormous variations in the experience of individual goods. The timing of fluctuations for various commodities may coincidentally have led to offsets which reduced the degree of instability of the total. Alternatively the total could have been stabilised by one or two primary products which have great weight. Oil exports amount to a very large proportion of world exports of primary products and may have exerted a strongly stabilising influence.

In a finer division of goods Coppock's work reveals a more complex situation in which some classes of primary goods are more, some less unstable than manufactures. Capital goods for example are relatively unstable, while

food and agricultural raw materials over the period, 1952-57, are relatively stable.<sup>5</sup>

These figures relate to world trade in each class of commodity. The more relevant question from the viewpoint of this study is whether specialization in the export of primary goods leads to a higher average level of instability in the exports of individual countries. A recent study by the International Monetary Fund reveals that fluctuations in all exports from (A) the average primary-producing country were rather larger than from (B) the average industrial country. When the measure used was the average year-to-year percentage change the index values were: (A) = 13.3, (B) = 10.8. When the index used was the average percentage deviation from a five-year-moving-average trend the values were: (A) = 9.0 and (B) = 6.2.<sup>6</sup> Because exports of manufactures have grown rapidly over the period 1948-58 the trend-corrected measure is probably rather more reliable. Fluctuations in the export earnings of the average primary-producing country appear to have been some 45 per cent greater than for the average industrial country. This method involves the choice of some arbitrary percentage as a "cut-off-point" which determines whether a country is a primary-good exporter or an industrial-good exporter and border-line cases may have an undue importance.

Correlation of Primary Product Ratio  
And Degree of Export Fluctuations

Another approach to this problem is to examine the association between the proportion of a country's exports which are primary products and the degree of instability experienced.<sup>7</sup> Cross-sectional (or cross-country) correlation analysis of the relationship between instability and primary good specialization with data for the 37 countries in Table 2:3 reveals very

low correlation coefficients which are clearly non-significant at the .05 level. They are shown in a correlation matrix below Table 2:3. Evidently very little if any of the variation between countries' export instability can be explained by the ratio of primary to total goods exported.

The probability is that instability cannot be linked strongly with such a broad division of goods into primary goods and manufactures. The experience of instability revealed by different commodities is extremely diverse as is shown in Table 2:4. A division of countries under broad Standard International Trade Classification (SITC) reveals that specialization in the export of minerals is likely to mean greater instability than specialization in manufactures. But specialization in crude materials or food (including beverages and tobacco) does not.<sup>8</sup> The important distinction is not between goods which are produced in factories and goods which are grown on the land or extracted from the earth. The crucial distinctions lie in the variability of demand and supply and in the short-run responses of demand and supply to changes in prices. These factors vary much more among primary products and among manufactures than they do between the two classes of goods. This point is taken up again below in a further discussion of instability of commodities and of the reasons for the very high instability experienced by a selected group of countries.

#### Commodity Concentration

Another commonly advanced explanation for instability in the exports of underdeveloped countries is lack of diversification. Apart from the character of their exports it is argued that they are too concentrated. A

priori it seems reasonable to expect that specialization on a limited range of goods should make for instability on the general grounds that it is always risky to put all one's eggs in a single basket. Concentration on a few products reduces a country's chances of having fluctuations in one direction in some of its exports offset or ameliorated by counter-fluctuations or stability in others.

Correlation analyses of the association between the indices of instability and the commodity concentration index in Table 2:3 yield very low correlation coefficients. These results suggest very little or no effect on the stability of export earnings from commodity concentration.

Results published by Coppock and by B. F. Massell support this conclusion. Coppock finds correlation coefficients of from +.02 to +.11 for samples of between 66 and 79 countries for the relationship between his index of instability and four different measures of export concentration.<sup>9</sup> Massell's regression coefficients for association between his two measures of export fluctuations and two measures of export concentration are also very low and clearly non-significant.<sup>10</sup>

M. Michaely, on the other hand, does find export prices and commodity concentration to be significantly correlated for a sample of 36 countries. He finds a rank correlation coefficient of .404 which is significant at above the .01 level, but still indicates a fairly low level of association. Michaely expresses surprise at the weakness of the association and suggests that it may be due to deficiencies in the measure of concentration (i.e. peculiarities in classifying products may give a misleading indication of the actual degree of concentration), or to inter-correlation in the movements of the prices of many goods as happened in the Korean boom and subsequent price declines.<sup>11</sup>

All of the measures of commodity concentration are subject to this difficulty. Nevertheless with samples of countries ranging from 36 to 79 it is unlikely that the correlation results will be seriously distorted. All of the correlation analyses yield roughly the same answer of very weak if any association between commodity concentration and export fluctuations. Since none of the samples is quite identical to another the possibility that the results are seriously distorted by the presence of a few countries whose concentration ratio is incorrect is relatively small. The other reason, inter-correlation, is probably one important explanation for the low correlation between commodity concentration and price or even proceeds instability. If the prices of most commodities move in the same direction most of the time, diversification will have little effect on stability of exports.

#### Geographic Concentration

Another possible explanation for export instability can be made in terms of regional concentration of underdeveloped countries' exports. Underdeveloped countries generally have particular trade ties with individual rich countries or groups. The exports of most Latin American countries are directed largely to the United States, those of the French Franc Area go mainly to France while most Sterling Area primary exporters sell the bulk of their exports in Britain and Western Europe. Once again this may be thought risky, as placing too many eggs in one basket. Fluctuations in demand in one region could be offset by contrary changes in demand in another consuming country if exports were regionally diversified. Regional concentration misses this

possibility. A regional spread of exports can reasonably be expected to increase stability and regional concentration to increase the probability of instability in export proceeds.

But once again statistical analysis fails to substantiate the theory. The correlation coefficients for association between export instability and geographic concentration of export destination are actually negative and one is significant at the .05 level. Data used and results are set out in Table 2:3. These correlations indicate some, though rather weak, tendency for geographical concentration to be associated with less rather than more instability of export proceeds.

Both Coppock and Massell have similar findings on geographical concentration.<sup>12</sup> All of their results show that if any association exists between geographical concentration and export fluctuations it is negative. Michaely does not examine this relationship.

Of these three characteristics, primary good specialization, commodity and geographic concentration, only one, if any, appears to be significantly correlated with instability. Moreover the correlation in this case turns out to be negative in several different analyses using different samples of countries, different measures of export instability and different measures of geographical concentration.

#### Multiple-Regression Analyses

It is, however, rather likely that these variables should have high intercorrelation. Countries which have high primary-product ratios are also likely to have high commodity concentration. In many cases geographical

concentration of exports will also be characteristic of the same countries.<sup>13</sup> In an attempt to isolate the separate influences of each of these variables, and to see how much of the variation in the degree of export instability can be explained by all three together a multiple regression analysis was carried out.<sup>14</sup> The regression equations found were:

$$(1) \quad Y = 9.69 + 0.007 X_P + 0.011 X_C - 0.036 X_{GC} \quad R^2 = 0.051$$

(0.020)      (0.031)      (0.027)

$$(2) \quad Y^1 = 24.8 + 0.135 X_P - 0.032 X_C - 0.264 X_{GC} \quad R^2 = 0.248$$

(0.069)      (0.105)      (0.091)

where  $Y$  and  $Y^1$  = instability indices for exports,  $X_P$  = primary-product ratio for exports,  $X_C$  = commodity concentration of exports,  $X_{GC}$  = geographic concentration of exports. The figures in brackets are the standard errors for the regression coefficients. Only  $X_{GC}$  appears to be related significantly to export instability (better than the .01 level) in equation (2) which uses the Coppock index and rather less firmly in equation (1) which uses the moving-average-trend-corrected index.

Considering only the equation most favourable to the hypotheses it appears that the first two variables [in equation (2)] between them explain less than 6 per cent ( $R^2 = 0.057$ ) of the variation between countries in export instability, while the addition of geographic concentration raises the total explanation to near 25 per cent ( $R^2 = 0.248$ ). These results more or less confirm the evidence of the simple correlations. Only geographic concentration appears firmly associated with export instability and in the opposite way to a priori expectation. However, the partial correlation of export instability with primary-product concentration is rather higher than

the simple correlation. When the influence of  $X_C$  and  $X_{GC}$  are allowed for  $X_P$  and  $Y^1$  have a partial correlation coefficient of  $r = 0.324$ , but this is still too low to reach the .05 level of significance. Perhaps it does suggest the existence of some slight tendency for specialization in primary products to enhance the risks of export instability.

### Countries and Commodities

If the relationship between value, price and quantity changes in the exports of underdeveloped countries and in the individual commodities which underdeveloped countries export are examined some contrast between the position of the individual country's exports and the situation of the world market for individual products emerges.

#### Individual Countries

For countries, a comparison of indices of instability for (1) total export proceeds, (2) prices and (3) quantities reveals that quantities have been more unstable than prices and that instability in total proceeds is not associated positively with instability in prices (unit values were used),  $r_{1,2} = -0.019$ , but is correlated very significantly,  $r_{1,3} = 0.596$ , (higher than .001 level) with the instability index of quantity of exports.<sup>15</sup> This seems to suggest that attempts to stabilize export prices might be worse than useless. This would not, however, be a necessary conclusion. These results are consistent with another explanation of instability. Comparatively small changes in export prices could well produce exaggerated responses in the quantity of goods exported, one, two or more years later. If this were common for underdeveloped countries' exports it could produce a high correlation

between the instability indices for quantity changes and total value, but low or even negative correlations between prices and total values. This is because each index sums up the temporal experience of each country for a large number of years, 1946-58. At most, all we can conclude is that the statistical evidence gives no support to the view that stabilization of export prices would eliminate all or most of the instability in countries' export proceeds. Indeed, it might even increase it if quantity fluctuations were due to non-economic factors. These conclusions are by no means novel and this last point has been made repeatedly, particularly by P. T. Bauer.

#### World Totals

In the case of world exports of individual commodities the degree of instability of export prices seems slightly higher on average than for quantities and the instability index for export proceeds has a higher correlation coefficient,  $r = 0.838$  with the instability index for prices (unit values) than with the instability index for quantities,  $r = 0.501$ . These are both significant at well above the .01 level. The correlation coefficient for the instability index for quantity with the instability index for unit values is only .213 which is not significant at the .05 level.<sup>16</sup>

The fact that the instability in prices seems to be the main determinant of fluctuations in the total value of world trade in commodities while not for total exports from individual countries may yield us some information. Firstly, it is consistent with what should be the normal expectation, that the part of the world exports of a good which comes from any one country is likely to be much more unstable than is the total quantity of world exports of that good. Various factors peculiar to a particular country at a particular time may produce an enormous percentage change in that country's

exports, but make only a very small dent in the total world supply. Natural disasters such as droughts, floods, pests, earthquakes added to man-made hazards of revolutions, wars and changes in economic policies may all be mainly confined in their impact to particular countries' exports of products. Secondly, it strengthens our tentative conclusion that quantity variations really were the more important determinant of fluctuations in export proceeds. For if moderate swings in prices produced sharp fluctuations in quantities they would do so for world export totals just as much as for individual countries. The country prices and the world prices will seldom differ significantly for most commodities in most countries and there are no particular reasons for expecting supply elasticities for the average underdeveloped country to be much higher than for the world total. It is really only in the case of agricultural crops that lagged responses are common and therefore the evidence of the group of commodities studied (which covers all the important traded agricultural commodities) makes this seem very unlikely.

If the foregoing argument is valid we can accept that fluctuations in export proceeds of individual underdeveloped countries have stemmed mainly from fluctuations in the quantities of goods exported. The reasons for the fluctuations in quantities remain to be established. There are many possibilities, but from our examination of instability in world trade in commodities it seems implausible to argue that the main cause of the fluctuations in the quantities of exports lay basically in price instability. However, these remarks apply only to average relationships and by no means exclude the likelihood that for some countries fluctuations in export prices due to changes in world demand have been far more important generators of

instability in export proceeds than have changes in their supply of exports.

### Conclusions

The above discussion makes it very difficult to ascribe the extra instability of underdeveloped countries' exports to large general causes. In any case, as was noted above, the actual difference between the average level of instability in underdeveloped countries' export proceeds and those of rich countries is not large.

On the basis of simple correlation and multiple-regression analyses it appears that three inherently plausible reasons for expecting the exports of underdeveloped countries to be highly unstable turn out to have very little general explanatory value. Export instability appears to be hardly related to commodity concentration at all, to be very weakly, if at all, related to the proportion of exports which are primary goods, and to be negatively related, if anything, to geographic concentration. Such lack of correspondence between general abstractions with a plausible appearance and the results of empirical analyses is by no means uncommon in economics. However, it is, perhaps, incumbent upon the writer to supply some explanation for the conflict between theory and facts.

First, the facts may be wrong. Economic data are often highly inaccurate.<sup>17</sup> For data collected in underdeveloped countries even this may be a serious understatement. However figures on exports are probably among the more reliable series for reasons of relative ease of collection and the long history of collection of such data for taxation purposes.<sup>18</sup> Secondly, the statistics calculated from these data may not accurately measure what they purport to

measure. The various indices used and quoted in this chapter have been described in the text or in footnotes. They seem to the author to be valid measures of export instability and of primary-good specialization or of concentration. Differences in commodity classification even within the SITC categories occur and they may make a few countries look slightly more or less specialized or concentrated than they are in fact. But when several different analyses using slightly different techniques and measures for different groups and numbers of countries and over different years produce rather similar results it greatly increases the probability that the statistical findings are a reasonable approximation to reality. On these grounds it seems to this writer that the empirical findings have the stronger claim to acceptance.

It could be, of course, that fluctuations in primary export proceeds have been modified by various policy measures. During the period studied (1946-58) special multilateral or bilateral arrangements have been in force which may have had the effect of reducing fluctuations in the total value of several primary exports. The International Tin Agreement and the agreement between coffee exporters started near the end of the period, 1956 and 1957 respectively. Both were in any case ineffective against year-to-year fluctuations within this period. Commonwealth Sugar Agreements and US import quotas probably moderated fluctuations in sugar prices and proceeds for a large part of the market but at the expense of destabilizing the residual free market. The International Sugar Agreement of 1953 was intended as a palliative for the problems of those exporters outside the bilateral arrangements. Sugar prices, however, fluctuated just as much from 1953 to 1960 under the Agreement as they had from 1948 to 1953 before it. Copper and aluminum prices may have been smoothed somewhat by tacit producers<sup>o</sup>

arrangements. Certain countries' tropical products have been sold at relatively stable prices in protected markets e.g. British colonies in the 1940's and early 1950's and French Franc Area territories. But such partial stabilization of a sector of a market is likely to destabilize the export earnings of countries which have to sell in unprotected markets. Most of the arrangements described here have had price support rather than moderation of fluctuations, as we have defined them, as their aim. This is also true of the Wheat Agreement which has been the longest lasting and apparently successful of the post-war international commodity agreements. However, some moderation of fluctuations in the value of some primary product exports may have resulted from the combined action of these various schemes. Section IV and Chapter 12 in particular discuss such schemes at some length in this study.

If these countries whose exports are highly concentrated should happen to have picked commodities for export whose proceeds were effectively stabilized by some international or bilateral arrangement any tendency for commodity concentration to cause instability would be averted.

Similarly special arrangements between the countries of destination, such as Britain and the US, and their trading partners would dampen any tendencies for regional concentration of exports to create instability. Such arrangements have in fact only been important for sugar. Probably of much greater importance is the relative stability of industrial production and national income which has characterised the post-war economies of the UK and the US.

One factor which bears upon this issue is that the total value of primary products exported varies much less than appears from most discussions.

Actually the prices at which primary exports are sold fluctuate rather less than the quoted prices. The latter are generally an arithmetic average of monthly or weekly prices to give an average yearly price. But what affects a country's receipts is a weighted average price, weighted by the quantity sold in each period. Usually the quantities sold at the extreme highs and lows are relatively small and a yearly average price weighted by these quantities would show far smaller fluctuations than a simple average of prices.

Another relevant fact is that in countries ranked by the percentage of their total exports in three commodities the twenty most concentrated have specialized in relatively stable goods. (See Table 2:5.) Out of the twenty countries which have highly concentrated exports (i.e. 80 per cent or more in three commodities), the only highly unstable commodity exported by any is rubber. Ten out of the twenty had either coffee or bananas as their principal export. Two of them had both and two other countries had coffee as an important second export. Petroleum was a principal export for two other countries and an important second export for a third. Thus coffee, bananas and petroleum figure very prominently among the exports of countries with highly concentrated exports. These three products have been relatively very stable in world trade compared with a mean index of instability of 14.0 for the 27 primary goods listed in Table 2:4. Of the other products which figure in Table 2:5 only cotton and cocoa show average or more than average instability.

It appears that it is not specialization in primary products or concentration on a few goods which causes instability, but specialization or concentration on particular goods which have a record of severe fluctuations. Moreover, this is neither a necessary nor a sufficient condition for severe

instability in the exports of individual countries as examination of the post-war experiences of a group of underdeveloped countries reveals.

#### Underdeveloped Countries with Severe Instability in Export Proceeds

The countries discussed in this section and which are shown in Table 2:6, have been selected on the basis of a high ranking on four different indices for export instability. The four different measures were used on the grounds that no single measure is free from criticism, but that any country's exports which are ranked as highly unstable by all four measures will be so by any reasonable standard. The four indices used were: 1. the average annual deviations from a five-year moving average (1948-58). 2. the Coppock Log. variance index (1946-58). 3. the average-annual deviations from a straight line trend fitted by least-squares regression, (1946-58). 4. the UN measure of the average-annual-percentage changes, dividing always by the higher figure (1946-58).

On four different measures of commodity concentration the exports of these countries are also on average slightly more concentrated than the averages for the exports of all the available countries in Coppock's list. However, within the 12 countries there is considerable variation, from the highly concentrated exports of Iraq to the relatively diversified Korea and Argentina. Several countries with much more highly concentrated exports than any included in this 12 have much less instability of export proceeds than they e.g. Costa Rica, Dominican Republic and Panama. Still, it remains true that the 12 countries have, on the average, slightly more concentrated exports than do all the countries included in Coppock's study.

When the individual experience of each of these countries is examined it seems clear that both general and specific factors have made for instability. In the cases of the two oil countries, Iran and Iraq, it is obvious that the causes of export instability do not lie in any general instability in world markets for petroleum, since petroleum has been almost the most stable commodity in world trade. For Iran the proximate cause has been great instability in the volume of exports (instability index = 110.2). Prices have been relatively stable (instability index = 11.6) as can be expected from the heavy concentration on petroleum. Clearly the fundamental cause of Iran's high export instability (the highest for all countries) can be attributed to the political struggle for ownership and control of the oil wells and the rather successful efforts of the oil companies in preventing the marketing of Iranian oil in the early 1950's. This is a very special cause of instability; one which raises important questions of international law and politics, but one which clearly does not fall into the generally accepted explanations for underdeveloped country export instability.<sup>19</sup>

The story in Iraq is probably much the same. Fluctuations in volume (instability index = 35.7) have been much greater than in price (instability index = 6.5) and can probably be largely attributed to internal political troubles, bargaining disputes with the oil companies and transport difficulties in the period of the Suez Crisis due to blockage of the canal and the introduction of petrol rationing in the United Kingdom. Certainly Iraq's exports fell sharply in 1956 and 1957.

The general situation in world markets for the type of products exported by Argentina has been one of reasonable stability. The instability index for the proceeds of world imports of meat (beef and veal) for the period 1948-57 was 10, and for wheat, 15, to be compared with the average for 27

commodities of 14. These, together with an instability index for wool of 17 could not, without an exceptional coincidence of experience in the markets for all of them, explain high export instability. The extra instability which they experienced was largely due to relatively severe changes in export quantities. These, in turn, stem largely from a severe drought in 1952 and the industrialisation, export bargaining policies and policies of discrimination against export industries adopted by Peron. Negotiations over bulk-purchase agreements with the United Kingdom in particular disturbed the volume of exports in this period.

Malaya, Indonesia and Vietnam are the major rubber-exporting countries in the group. For them high export instability is only to be expected, given the volatility of world markets for natural rubber. For Malaya and Indonesia prices have been highly unstable and undoubtedly are the major proximate cause of their export instability. Their situation comes much closer to the characteristic model of the literature on the export instability experienced by underdeveloped countries. Their instability seems to be a by-product of the instability in industrial countries' demands for raw materials caused by cyclical fluctuations in their economies and speculation in stock piling of strategic raw materials. Both Malaya and Indonesia had very sharp peaks in export proceeds in 1951 due to the Korean War.

Fluctuations in both prices and quantities in these two countries have been additive rather than offsetting; hence their export instability has to be attributed largely to fluctuations in demand. But, in both countries some non-price induced fluctuations must also have occurred. In Malaya, throughout the relevant period, there was a fairly active guerilla war being fought between British forces and Malayan independence fighters. In Indonesia in

the early period production was recovering from the low levels under Japanese occupation and later exports were disturbed by the struggles for independence from Dutch control and the subsequent struggle for power between rival Indonesian factions.

In Vietnam, instability in export proceeds (37.8) seems to have been due mainly to fluctuations in volume (35.9). Unit values were fairly stable (13.4). Exports are heavily concentrated, 60 per cent in rubber, and 25 per cent rice. The instability of exports from Vietnam is consistent with the orthodox model, but the close relationship between the instability in proceeds and in volume could also indicate fluctuations in rice and rubber output caused by political unrest, direct sabotage and difficulties of harvesting or collection in areas touched by fighting or guerilla activity during the long war in French Indochina.

Korea's exports are fairly widely diversified, well below the average levels of the various measures of concentration. Fluctuations in the value of its exports must have been heavily influenced by the actual war, the subsequent political revolutions and attendant changes in government economic policy.

Pakistan and Sudan are both countries whose exports are highly dependent on the world markets for natural fibres. Jute has been one of the most unstable commodities in international trade in the post-war world. Cotton, in general, has been about averagely unstable from 1948-57. In the case of both of these countries the instability of export proceeds is probably mainly explained by their concentration on these products. But some doubts do remain. Egypt, which is even more highly specialized in cotton exports has experienced almost half the instability registered by Sudan's exports. Sudan

is, however, more concentrated on the special category of 'very-long-staple cotton.' Another point of difference is that fluctuations in volume were larger than price fluctuations in Sudan, but that instability of proceeds was much greater than either. This implies few offsetting changes in prices and quantities. For Egypt the opposite holds: fluctuations in prices were the greater and fluctuations in export proceeds were partly stabilized by offsetting movements in prices and quantities of exports. This may be due to the dominant position of Egypt in world markets which allows prices to be influenced by the size of the Egyptian cotton crop. Sudan's extra instability may be due firstly, to highly unstable output caused by natural hazards and secondly, to specialization on a particular brand of cotton which is highly unstable.

The case of Ghana is another which is explicable mainly in terms of specialization on a product which has a record of sharp fluctuations in world trade. Variations in price appear to have been much larger than variations in volume and the instability index for total value slightly exceeds that for unit value. This seems to indicate a general tendency for price and quantity variations to offset each other save for occasions when world demand expands. Ghana seems to fit orthodox general explanations of export fluctuations.

Bolivia and Haiti are also countries whose instability probably stems from high specialization in commodities which have experienced average or slightly less than average instability in world markets. Probably their exports, of respectively tin and coffee, were a little more unstable than the world average. Certainly in Haiti fluctuations in quantities exported were greater than in prices while for world coffee markets the converse was true. This suggests that factors affecting Haitian output of coffee have been the most important causes of Haiti's export fluctuations.

From this quick survey of 12 highly unstable underdeveloped countries it seems that in four of them; Argentina; Iran, Korea and Vietnam, high export instability was largely due to political factors or war. In a further three; Indonesia, Iraq, and Malaya, politics and war again played a part, but a less vital one. In the remaining five; Bolivia, Ghana, Haiti, Pakistan and Sudan, export instability is more evidently the result of basic supply and demand characteristics of the types of products they export. Apart from Haiti each of these countries was very specialized in the export of commodities which were of, at least, average or more than average instability among the 27 commodities included in Table 2:4. In other words not only were they specialized on primary products, but on particularly unstable primary products. In the case of Haiti variations in supply appear to be the main explanation of export instability since coffee markets in the post-war world do not seem to have been subject to very sharp short-period fluctuations.

### Conclusions

On the basis of these cases and the earlier statistical evidence one might be justified in concluding that where high export instability has existed very specific factors have, more often than not, been the main explanation. Such theoretical explanations as specialization in primary products in general or commodity concentration may have some slight systematic tendency to produce export instability, but their explanatory value in particular cases is very small. Even when looking at the broader picture of explaining why underdeveloped countries' exports should be more unstable than rich countries' exports they are not particularly helpful. As was

pointed out above, the ratio of exports which were primary products and the commodity concentration ratio between them explained less than 6 per cent of the differences between countries in export instability.

### Policy

If it is true that short-term fluctuations in export proceeds are seriously harmful to underdeveloped countries then it may be held desirable to adopt policies to reduce instability. From our analyses and the published results of Coppock, Massell, and Michaely it seems clear that statistical evidence on instability yields little, if any, support for policies of diversification or industrialisation as means of avoiding this particular problem.<sup>20</sup> Of course, these policies may be desirable for other reasons.

Other conclusions relevant to policy are that export instability in underdeveloped countries seems to stem more from quantity fluctuations than from changes in price. This suggests that policies which aim solely at price stabilization may remove relatively little of the export instability and in some cases may even increase fluctuations in total proceeds. A recent International Monetary Fund study states that, "For the postwar period, there is a negative correlation of 0.5 between changes in export prices and changes in export quantities in the average primary producing country."<sup>21</sup> If this relationship were to continue price stabilization unaccompanied by quantity stabilization would destabilize export proceeds for many countries.

A further conclusion is that a weakening of trade ties between underdeveloped countries and their main historical trade partners through the acquisition of new markets may actually increase rather than decrease

tendencies to export fluctuation. On other counts, such as increased free trade or greater political independence, such market diversification may be, of course, highly desirable from the viewpoint of developing nations.

Table 2:1 Instability Indices  
Exports of Underdeveloped Countries, (1946-58)

Country	Total Value	Unit Value	Volume
	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>
Argentina	41.3	6.0	29.6
Bolivia	26.6	18.4	15.6
Brazil	13.8	17.4	10.7
Burma	14.7	17.9	26.6
Ceylon	13.0	15.6	5.6
Chile	20.2	16.1	22.1
China (Taiwan)	16.3	38.2	27.6
Colombia	13.4	13.9	9.4
Costa Rica	14.3	11.1	18.7
Cuba	26.0	12.4	12.4
Dominican Republic	16.9	18.9	9.5
Ecuador	25.2	15.7	20.9
Egypt	20.1	27.3	15.0
El Salvador	13.9	13.8	14.1
Ethiopia - Eritrea	24.3	12.9	14.9
Ghana	31.9	27.6	11.6
Greece	18.2	16.0	9.2
Guatemala	10.7	74.2	8.2
Haiti	26.7	17.5	21.5
Honduras	16.1	6.0	18.1
India	16.2	17.5	7.0
Indonesia	57.2	26.6	8.9
Iran	73.8	11.6	110.2
Iraq	27.2	6.5	35.7
Malaya	41.9	29.4	11.1
Mexico	11.1	16.2	9.5
Morocco	25.7	9.8	7.5
Nicaragua	14.2	17.8	17.8
Nigeria	20.9	14.0	7.6
Pakistan	36.5	24.0	17.2
Panama	9.9	9.7	8.7
Paraguay	16.0	16.7	16.5
Peru	10.0	17.7	10.1
Philippines	18.3	17.5	36.8
Portugal	15.2	8.8	12.4
Rhodesia - Nyasaland	12.5	16.0	9.4
Sudan	40.4	25.2	28.9
Syria	15.7	8.8	17.5

Continued on following page

Table 2:1 (Continued)

Country	Total Value $X_1$	Unit Value $X_2$	Volume $X_3$
Thailand	36.6	11.4	14.4
Tunisia	33.0	19.5	31.5
Turkey	19.4	12.1	22.4
Union of South Africa	10.3	14.8	27.4
Uruguay	19.7	26.1	37.9
Venezuela	16.1	3.5	8.1
Vietnam	37.8	13.4	35.9
Means	23.1	17.6	19.4
Standard Deviation	(12.9)		

Source: Coppock, 1962: Table A-2

Correlations:

	$X_1$	$X_2$	$X_3$
$X_1$	1.0000		
$X_2$	-0.0193	1.0000	
$X_3$	0.5955	-0.1010	1.0000

Table 2:2 Instability Indices  
Instability in Exports of Rich Countries

	Proceeds X <sub>1</sub>	Prices X <sub>2</sub>	Quantities X <sub>3</sub>
Australia	24.6	26.9	9.7
Austria	21.4	14.8	19.5
Belgium-Luxembourg	18.5	11.8	19.2
Canada	7.5	5.5	5.3
Denmark	10.0	4.8	11.7
Finland	30.4	23.4	11.7
France	20.9	8.3	20.1
Germany (West)	19.4	8.0	18.4
Iceland	22.1	12.7	18.7
Ireland	6.3	5.6	9.9
Israel	12.0	4.9	14.4
Italy	21.5	6.9	9.3
Japan	31.0	15.7	26.1
Norway	16.4	12.0	11.7
Sweden	15.1	15.5	8.2
Switzerland	6.2	3.0	6.8
United Kingdom	17.7	5.4	14.6
United States of America	16.8	7.0	16.7
Means	17.6	10.7	14.0
Standard Deviation	(7.1)		

Source: Coppock, Table A-2

Correlations:

	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>
X <sub>1</sub>	+1.0		
X <sub>2</sub>	+0.7329	+1.0	
X <sub>3</sub>	+0.5858	+0.1271	+1.0

Table 2:3

## Export Instability, Composition of Exports and Concentration

	<u>1.</u>	<u>2.</u>	<u>3.</u>	<u>4.</u>	<u>5.</u>
	I-I Exports (1948-58)	I-I Exports (1946-58)	Ratio Prim. Prod./ Total Exports (1954)	Commodity Concen- tration (1954)	Geographic Concen- tration (1954)
1. Argentina	12.0	41.3	87.9	28.7	32.1
2. Australia	9.2	24.6	88.3	50.8	41.2
3. Austria	6.1	21.4	32.8	27.7	31.8
4. Belgium-Luxembourg	10.2	18.5	18.8	25.5	29.4
5. Brazil	6.4	13.8	97.5	61.2	41.5
6. Burma	11.4	14.7	95.0	74.4	47.6
7. Canada	7.5	7.5	52.9	24.9	63.9
8. Colombia	6.2	13.4	98.4	85.0	79.8
9. Costa Rica	5.9	14.3	24.0	60.5	62.4
10. Denmark	3.3	10.0	74.7	27.1	41.8
11. Egypt	8.9	20.1	92.3	84.2	26.0
12. Finland	12.7	30.4	65.1	38.1	34.0
13. France	5.2	20.9	31.3	18.0	21.8
14. Germany (Federal Republic)	9.4	19.4	15.3	22.3	21.0
15. Greece	8.2	18.2	83.3	46.2	34.1
16. Honduras	7.3	16.1	94.6	62.7	78.0
17. Iceland	10.6	22.1	90.6	80.3	29.1
18. Indonesia	9.8	57.2	95.6	41.7	38.3
19. Ireland	7.5	6.3	79.7	38.3	89.7
20. Italy	8.5	21.5	36.5	20.5	21.1
21. Japan	11.4	31.0	13.7	24.8	24.0
22. Libya	11.9	22.5	89.0	34.1	47.9
23. Malaya and Singapore	19.7	41.9	72.8	49.8	26.0
24. Mexico	8.5	11.1	67.6	35.0	73.7
25. Netherlands	9.9	21.4	49.8	16.9	27.0
26. Nigeria	8.2	20.9	87.6	49.3	74.0
27. Norway	13.7	16.4	44.1	25.5	28.0
28. Panama	11.1	9.9	98.3	62.8	95.5
29. Portugal	7.2	15.2	53.0	24.7	27.4
30. Rhodesia and Nyasaland	9.2	12.5	04.0	63.6	58.4
31. Spain	5.5	10.9	77.8	31.4	29.5
32. Sweden	11.7	15.1	47.1	28.1	28.4
33. Thailand	6.6	36.6	96.0	68.3	43.5
34. Turkey	8.0	19.4	96.8	39.7	29.3
35. United Kingdom	7.5	17.7	15.0	19.2	18.7
36. United States	8.9	16.8	29.2	18.8	27.5
37. Yugoslavia	10.1	46.1	64.9	21.4	31.3

Sources: See following page.

Sources for Table 2:3

1. Instability Index: deviations from five-year moving average.  
Data from IMF, International Financial Statistics, various issues.
2. Coppock, Table A-2.
3. Calculated from UN, Yearbook of International Trade Statistics, 1955.  
Ratio of SITC 0, 1, 2, and 3 to total commodity exports.  
Estimates for Thailand and Burma who did not publish under SITC heads.
4. Michaely, Concentration in International Trade (Amsterdam, 1962), Table 1.
5. Michaely, op. cit., Table 3.

Correlations:

		Instability Index (devs. from <u>1.</u> mv. av.)	Instability Index <u>2.</u> (Coppock)
Primary Product Ratio	3.	0.0168	0.1445
Commodity Concentration	4.	- 0.0011	- 0.0754
Geographic Concentration	5.	- 0.1960	- 0.3846

Only one of these,  $R_{2,5} = -0.3846$ , is significant at the .05 level using the normal "Student's t" test with 35 degrees of freedom.

Table 2:4 World Trade in Primary Commodities:  
 Short-Period Fluctuations in Value, Unit Value and Volume  
 (Average Instability-Indices, 1948-1957; percentages)..

Commodity	Value	Unit Value	Volume
	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>
Natural rubber	30	25	7
Barley	25	15	14
Jute	21	16	16
Copra	19	16	10
Silk	18	9	19
Cocoa	17	19	7
Zinc	17	18	9
Wool	17	17	10
Coconut oil	17	17	10
Lead	16	18	14
Copper	15	15	6
Maize	15	13	10
Wheat	15	8	12
Cotton	14	13	8
Tin	14	10	15
Mutton and lamb	14	7	10
Rice	12	11	8
Tea	12	9	11
Aluminum	12	6	9
Beef and veal	10	8	13
Butter	10	7	10
Cheese	10	7	7
Coffee	9	11	7
Sugar	6	6	4
Tobacco	6	4	6
Crude petroleum	4	5	3
Bananas	4	2	4
Means	14.0	11.6	9.6

Source: UN, World Economic Survey, 1958, Table 13, p. 40

Correlations:	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>
X <sub>1</sub>	1.0000		
X <sub>2</sub>	0.8382	1.0000	
X <sub>3</sub>	0.5005	0.2132	1.0000

Table 2:5

Commodity Concentration: Principal Exports in  
the Twenty Most Concentrated Countries

1.	2.	3.	4.
Most Important Commodities	Index of Commodity's Instability	No. of Countries' Having Commodity 1 <sup>st</sup> Export	Significant 2 <sup>nd</sup> Export <sup>a</sup>
Coffee	9	7	3
Bananas	4	3	1
Petroleum	4	2	1
Rubber	30	2	1
Cotton	14	1	2
Cocoa	17	1	0
Rice	12	1	0
Sugar	6	1	0
Tea	12	1	0
Mean Index of Instability for 27 commodities	14.0		

Source: 1,3, and 4, extracted from Coppock, 1962: Table 5-1.

2, Indices of Instability from UN World Economic Survey, 1958,  
Table 13.

<sup>a</sup>By significant export we mean that it was more than ten per cent of total exports.

Table 2:6

Underdeveloped Countries with Highly Unstable Exports

(1946-58 for Most Countries)

Main Exports as Percentage of Total Export						
	1st	%	2nd	%	3rd	%
1. Argentina	Meat	26	Wheat	16	Wool	13
2. Bolivia	Tin	60	Lead	9	Tungsten	7
3. Ghana	Cocoa	62	Wood	12	Diamonds	11
4. Haiti	Coffee	61	Sisal	18	Sugar	9
5. Indonesia	Rubber	36	Petroleum	30	Tin	6
6. Iran	Petroleum products	36	Petroleum (crude)	29	Cotton	7
7. Iraq	Petroleum	88	Dates	3	Barley	2
8. Korea (1950-58)	Tungsten	14	Talc	12	Fish	6
9. Malaya	Rubber	49	Tin	11	Petroleum products	10
10. Pakistan (1948-58)	Jute	49	Cotton	21	Wool	6
11. Sudan	Cotton	47	Cottonseed	11	Gum	10
12. Vietnam (1948-58)	Rubber	60	Rice	25	Coal	3

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Source: Extracted from Coppock, 1962: Table 5-1. Basic sources, UN Yearbook of International Trade Statistics, 1957 and IMF, International Financial Statistics. Totals exclude invisible exports.

Footnotes to Chapter 2

1. For example, UN, 1952; UN, 1962: Vol. 1, pp. 48-58; UN, 1961: pp. 3-6; Ragnar Nurkse, 1958; B. Higgins, 1959: pp. 552-68.

2. Data from J. D. Coppock, 1962: Table A-2. The index of instability which he uses is a complex one which approximates closely to the average year-to-year percentage variation in earnings from exports of goods and services adjusted for a constant percentage trend. The index equals the antilog of the square root of the logarithmic variance of the series which is given by:

$$V \log = \frac{1}{N-1} \sum \left[ \log X_{t+1} - \log X_t - \frac{1}{N-1} \sum (\log X_{t+1} - \log X_t) \right]^2$$

where N is the number of years, X is the value of export proceeds and the subscripts indicate the date. See Chapter 2 of Coppock's book. He uses IMF data for the value of exports and the indices sum up the experience of each country for the period 1946-58, with a few exceptions.

3. Data from Coppock, 1962: Table A-2. Soviet bloc countries excluded. Tables 2:1 and 2:2 show the lists of countries used.

4. United Nations, 1961: p. 3. The quotation refers to average year-to-year fluctuations after allowance for trend and consequently means the same type of instability as we discuss in this paper.

5. Coppock, 1962: p. 41. He uses both his own "log variance index" and a UN index which simply takes the average percentage annual changes uncorrected for trend, but always dividing by the higher figure for each pair of years. The conclusions stand on either index.

6. Fleming and Lovasy, 1960: p. 6.

7. Food, beverages and tobacco, crude materials, mineral fuels and lubricants, SITC categories 0, 1, 2 and 3 were treated as primary and all other goods as manufactures. This involves some errors, but they are probably too small to affect the results.

8. CF., Coppock, 1962: p. 103.

9. Coppock, 1962: Table 5-3, p. 114

10. B. Massell, 1964: Table 5. Both Massell's indices of instability correct for trend. One uses the standard error of estimate for a linear regression line of export earnings on time divided by the mean of the observations. The other is an average annual percentage rate of change in exports corrected for a linear trend (pp. 49-52). The two concentration indices are Gini coefficients defined as  $C = \sqrt{\sum (x_i/x)^2}$  where  $x_i$  = the value of exports of commodity i and  $x$  = the total value of exports, but the first uses only the first digit SITC and the second uses the 3 digit SITC. They are calculated for 1959.

11. M. Michaely, 1962: pp. 72-4. He uses a Gini coefficient and a 3 digit SITC grouping for his concentration index with data for 1954. His instability index for export prices is simply an average annual percentage change uncorrected for trend. This is not unreasonable for prices as opposed to proceeds.

12. Coppock, 1962: Table 5-3, Massell, 1964: Table 5 and pp. 56-61. None of Coppock's results reach the .05 level of significance but he correlates 3 different measures of geographical concentration with export instability and all give negative coefficients ranging from  $-.13$  to  $-.20$ . He also tests association between instability and the proportion of exports going to the US and finds a coefficient of  $-.27$  for this.

13. Actual coefficients of correlation for these in our analysis were: between primary-export ratio and commodity concentration,  $r = 0.565$  (significant at .001 level); between primary-export ratio and geographic concentration,  $r = 0.378$  (significant at .05 level) and between commodity concentration and geographic concentration,  $r = 0.451$  (significant at the .01 level). Data used are in Table 2:3.

14. The data used are the same as for the simple correlations discussed above and set out in Table 2:3.

15. Correlations for 45 underdeveloped countries. Data from Coppock, 1962: Table A-2 are set out in Table 2:1. Indices relate to the period 1946-58. Trend has been eliminated.

16. Correlations calculated from data for the years 1948-57, published in UN, 1958: Table 13, p. 40. Trend has been eliminated from the data by fitting linear regression lines before the indices of instability were calculated. Reproduced here in altered form as Table 2:4

17. Cf., Oskar Morgenstern, 1963.

18. Morgenstern, 1963: p. 163 et seq finds fault with commodity trade statistics too, but mainly for lack of comparability in the reporting of the same goods by trading partners. Such discrepancies are generally due to differences in classification and should not affect the year-to-year comparability of one country's reported figures for the total value of its exports.

19. E. Penrose, 1959: discusses some of the economic, political and legal implications of this struggle.

20. The case of Puerto Rico is of interest here. Its exports were predominantly primary goods, mainly food products to the US mainland. They have been remarkably stable. Now Puerto Rico is switching to manufactures for which demand is income elastic. There is a fair possibility that this will increase the sensitivity of the Puerto Rican economy to US fluctuations. There is already some evidence of this happening though Puerto Rico has been surprisingly resistant to the effects of US fluctuations despite the close dependence on the US. See Chapter 7 of this study and W. Baer, 1962: p. 78.

21. Fleming and Lovasy, 1960: p. 8, footnote 8.

## Chapter 3

### The Short-term Consequences

In Chapter 1 some plausible reasons for expecting fluctuations in export proceeds to cause sympathetic fluctuations in income, employment, domestic prices, imports and domestic investment were set out. Employment seemed to be the least likely to be seriously affected for reasons stated there. Moreover statistical data on employment or unemployment are unavailable or extremely inaccurate in most underdeveloped countries. Analyses in this chapter will therefore omit direct consideration of employment and concentrate on the other four variables. Where possible employment and unemployment data have been used in the case studies in Section II. In the present chapter assumptions and conclusions of theories concerning export-induced domestic instability are discussed against the recent historical experience of the less developed countries.

#### Foreign Trade Orientation

The vulnerability of underdeveloped countries to export fluctuations is often thought to stem from their dependence on export earnings for a large proportion of their national income. A UN study (1953, p. 10), gives figures for the ratio of trade to income for several underdeveloped countries, compares these with some rich countries and suggests a quantitatively greater dependence on trade for the former. Hans Singer (1950, p. 473) says, "Foreign trade tends to be proportionately most important when incomes are lowest." A widely used textbook (Higgins, 1959, p. 155) claims, "Underdeveloped countries

outside the arid zone are unstable mainly because of their orientation towards exports."

This belief, that foreign trade is quantitatively more important for poor than for rich nations is not supported by the facts. The unweighted average for the ratio of trade to income for a large group of underdeveloped countries is smaller than for a large sample of rich countries. The actual ratios are 46.6 per cent for 52 underdeveloped countries and 52.7 per cent for 17 developed countries. The calculations were made from data in Coppock (1962, Table A-2), omitting communist bloc countries, whose trade is sufficiently peculiar as to justify treating them as a special case.

Correlation analysis of the association between per capita income, as a rough indicator of stage of economic development and the ratio of exports plus imports to national income yields a coefficient of .28 which seems to indicate a slight tendency for trade to be proportionately larger for rich than for poor countries though the correlation is barely significant at the .05 level. The data were drawn from the same source and cover the same 69 countries. In both tests the countries used were all those for which data were readily available.

These results are independently corroborated by findings published by Kuznets (1959 pp. 89-107) and Michaely (1962, Table 17). Kuznets, using both historical and cross-sectional analyses finds no evidence to support the view that trade formed a higher proportion of national product in underdeveloped than in developed economies. Michaely classifies 33 countries into large and small, developed and underdeveloped. Within each class his figures show that on average it is the developed countries which have the higher ratio of exports to gross national product (GNP).

A more sophisticated version of the view that exports play a larger role in generating instability in underdeveloped countries than in developed economies may be characterised as the Wallich thesis. It underlies much of the reasoning of his famous study of the Cuban economy (Wallich, 1950), but is stated more explicitly in his paper, "Underdeveloped Countries and the International Monetary Mechanism," (Wallich, 1951, pp. 16-17). There he says, "The fact that in such an underdeveloped country exports bulk much larger than investment suggests that they are the more powerful generator of fluctuations." He suggests that the ratio of exports to national income is higher than for either investment or government expenditure to income. Since the latter two factors are generally regarded as more amenable to national control the greater importance of exports is supposed to expose the economies of underdeveloped countries to the vagaries of international commodity markets. Moreover it handicaps any attempts at countercyclical policy.

C. P. Kindleberger (1962, pp. 220-21) examines Wallich's thesis briefly and finds that there is something, but not a great deal to the Wallich view.

Table 3:1 sets out data for 64 countries on exports as a percentage of investment and government expenditures respectively and together. The only reason for inclusion in the table was availability of the relevant figures. Countries were separated into large and small, with population (of 10 millions) as the dividing line. They were then subdivided into developed and underdeveloped, more on a basis of what are generally regarded as their status than on the simple criterion of per capita income.

What emerges from this table is that the importance of exports relative to investment and government expenditure is significantly related to the size of nations, but not particularly to whether they are developed or underdeveloped. Among the large countries it is clear that there is no significant difference. For countries with less than 10 million inhabitants the Wallich thesis gets a little support, but not much, particularly if the ratio of exports to the sum of investment and government expenditure is regarded as the more important indicator. The use of medians rather than the means as the measure for the typical relationship would not alter these conclusions substantially.

Of course other factors play some part in determining a country's degree of participation in international trade. The policies of its government with regard to protection of domestic industries is one, and the distance of a country from its main customers and suppliers is another such factor. Size, measured by population figures should not be expected to explain more than a part of the relative importance of trade.<sup>1</sup>

Between the analyses carried out here and the results of the other studies quoted, the weight of evidence seems sufficient to justify a conclusion of little or no significant difference between rich and poor countries in the quantitative importance of trade in a general sense. Trade may nevertheless play a key role in underdeveloped countries which makes it more important to them in particular ways e.g. through the need to pay for imports of capital goods. Such matters are explored below.

## Fluctuations In National Income

### Cross-Country Comparison

Although the assumption that exports are a larger proportion of income in underdeveloped countries than in developed countries appears to be

inconsistent with the facts such countries may still be peculiarly sensitive to export fluctuations for other reasons. Table 3:2 shows indices of instability for export proceeds and national income for 35 underdeveloped countries for the period 1946-58 with a few exceptions.<sup>2</sup> Fluctuations in income for the average underdeveloped country have been much less than for export proceeds. When the indices are compared it emerges that there is no evidence of association between the magnitude of fluctuations in income and of fluctuations in exports. Countries with relatively stable incomes have had very unstable exports and vice versa. Statistical analysis confirms this lack of association, yielding almost zero correlation for the whole sample. When the sample is limited to the 15 countries where the ratio of trade to national income is higher than average the correlation coefficient becomes slightly negative and again close to zero. It would seem that the magnitude of fluctuations in national income bears no relation to the magnitude of fluctuations in export earnings. Even when the relationship is tested for underdeveloped countries where trade is a large proportion of national income the data yield no support to the thesis that export instability is the most powerful generator of domestic instability.

A recent study by the Economic Commission for Latin America (ECLA, 1962, pp. 167-80) contains a table which ranks 18 Latin American countries by the magnitude of fluctuations in their gross domestic product (GDP) and gives the concurrent magnitude of their fluctuations in exports during 1948-59. The study comments:

"It will be obvious from an examination of the data in the two columns that there is no apparent intercountry relationship between the degree of instability in output and that of the purchasing power of exports. Cuba and Guatemala experienced the greatest degree of

annual fluctuations in output among the Latin American countries, yet fluctuations in the purchasing power of their exports were somewhat smaller in magnitude than those experienced by Colombia and Ecuador, the two countries with the greatest stability in output over the period."<sup>3</sup>

Their finding is in complete accord with our correlation analyses.

#### Time-Series Comparison

The expectation of the cross-country analyses was that high income instability would be associated with high export instability if fluctuations in export earnings were truly an important determinant of domestic instability. But, in addition to the question of the degree of instability there is the question of timing. If changes in exports are an important cause of change in domestic income then some sequential relationship should be evident. Income should tend to follow exports in the current period or with a short lag.

Table 3:3 presents statistics for 11 underdeveloped countries chosen on the basis of a high ratio of trade to income in an attempt to appraise the consistency of the timing and direction of change in the two variables, GNP and exports. The aim of the table is very simple. It seeks to ascertain the number of years on which GNP fluctuated in the same direction as export proceeds. The possible score is given for each country as data were not available for the whole period for every country. The fluctuations have been crudely adjusted for trend by calculating the average annual increase in exports and GNP and subtracting this from the actual annual change in each case.

The results tend to suggest that on a current-year basis, in such highly trade-oriented underdeveloped countries, some consistent relationship between direction of change in GNP and exports may well exist. In Burma, Ceylon, the Congo (Leopoldville), Cuba and Panama the association seems too high for coincidence. When the results for all eleven countries are pooled the score of 61 out of a possible 99 suggests a relationship slightly higher than could be expected to arise from sheer chance. When this year's GNP is related to last year's exports the result appears quite random. The possibility that the reaction may be swift in some countries and slower in others is considered by choosing the best country scores from each column but this leads to very little improvement upon the current year score. The ECLA study cited above presents charts showing the timing of annual fluctuations in gross domestic product and purchasing power of exports 1948-59 for the same 18 Latin American countries. Their comment was,

"It will be obvious from an examination of the figure that the annual concordance of movements in the two variables is not very great. Cuba and Ecuador are the only instances where the two series move in fairly close harmony." (pp. 170-71)

Given that our sample of 11 underdeveloped countries was chosen as having very high ratios of trade to GNP and consequently likely to be sensitive to short-term changes in exports the results of the two different analyses are not inconsistent. Any relationship between the direction of change in exports and GNP for the average underdeveloped country seems likely to be very weak. Our results on both cross-sectional analysis and time-series analysis are in accord with the conclusion to this section of the ECLA study. It says,

"It emerges that the relationship between short-period variations in output and the purchasing power of exports is not a very intimate

one in respect of either the magnitude or the timing of fluctuations." (p. 170)

#### Effect of a Sharp Short-Term Drop in Export Earnings

Probably most interest in the problem of export fluctuations focuses on the effects of a sudden temporary shortfall in export proceeds. It may be that even if average or typical swings in exports have little or no apparent impact on domestic income occasional severe drops such as occurred after the Korean War booms may make an obvious mark. Table 3:4 examines this possibility for the same group of 11 countries as were used in Table 3:3. The table records the periods when export earnings declined sharply for each of these countries. Where the decline was reversed in the following year only the single year's decline is recorded, but where exports declined for more than one year the total fall from the previous peak to the trough is given e.g. in Costa Rica the largest decline in exports took place over the two years from 1954 to 1956. Column 1 shows the period of these sharp drops in exports for each country. In column 2 of Table 3:4 the actual drop in exports is compared with the associated change in GNP. This may be either concurrent or lagged depending on the most probable relationship based on the whole period 1950 to 1960 for each country. The comparison is effected by dividing the absolute value of the change in GNP by the absolute value of the change in exports, both expressed in current prices in local currencies; the larger the ratio the bigger the apparent impact on GNP. On several occasions the change in GNP, associated in time with the change in exports, was in the opposite direction to the export decline. This is shown in the table by a minus sign before the recorded ratio.

The results recorded in column 2 of Table 3:4 reflect the strong upward trends in GNP in most of these countries. For six out of the eleven countries GNP continued to rise despite sharp drops in export earnings. In Peru exports actually declined slightly below the previous year in 1952, but it would be fairer to say that exports paused over 1951, '52 and '53 and thus fell below trend for that period. GNP however continued to rise. In the four remaining countries; Burma, Ceylon, Congo and Cuba, GNP fell at the same time as exports. On one occasion in Ceylon the ratio of the change in GNP to the change in exports exceeded unity and on one occasion in the Congo a similar multiplier relationship appears to have held. In the others the actual change in GNP was considerably smaller in absolute terms than the decline in exports.

In column 3 the actual changes in GNP and in export earnings have been roughly adjusted for trend by subtracting the average annual increase in GNP and exports. Association between these trend-corrected changes seems much stronger. In only two instances, Cyprus and Peru, does the ratio turn out negative. For the other occasions the ratios range from +0.26 to +2.62 with five falling below unity and five slightly above.

If exports are "the more powerful generator of fluctuations," to use Wallich's phrase, it is a little surprising to find that in these highly trade-oriented countries fluctuations in GNP appear to be quite heavily dampened. The evidence implies either low values for any foreign trade multiplier and accelerator effects, or that the operation of some other forces tended to offset the influence of exports. Such forces could have been deliberate reflationary policies undertaken by their governments in an attempt to check the deflationary impact on income, employment and prices of the fall in export earnings. Alternatively, random variations in some of the other major

determinants of GNP such as private investment or an increase in consumption of domestic goods due to a boom harvest could have acted to ameliorate the drop in exports.

If it were policy reactions to export shortfalls it would reveal a remarkably high degree of fiscal and monetary sophistication in these countries. Indeed, it would indicate a degree of success in timing and judgment in countercyclical policy which would be the envy of policy makers in practically all developed countries.<sup>4</sup> On the other hand, if it were autonomous changes in some of the other determinants of national income then their economies have been subject to a very happy series of coincidences. Although policy reactions of their governments and fortunate offsetting changes in other variables may have helped to moderate GNP fluctuations in some countries it seems implausible that they should form the main explanations of the absence or weakness of GNP fluctuations in response to export instability. It seems more probable that some systematic factors have been at work which have tended to reduce the impact of export fluctuations on GNP, even in highly trade-oriented countries. This question will be taken up again after an examination of the other possible repercussions of export fluctuations on the domestic economy.

#### Fluctuations in Investment

In underdeveloped countries it is generally thought that fluctuations in export earnings are an important factor in generating instability in domestic capital formation. The recent Crawford Report remarks,

"By and large, total domestic investment has been quite closely related to available supplies of imported capital equipment; and

partly through this relationship, the year-to-year changes in total investment have tended to reflect the instability in export proceeds or in importing power of exports."<sup>5</sup>

Supposedly, export instability leads to fluctuations in the amount of foreign exchange available to pay for imports of capital goods. This assumes that underdeveloped countries are unable to utilize reserves of foreign exchange to pay for imports when exports decline, that "non-essential" imports have already been cut to a minimum, and that domestic capital formation is quite dependent on imports of capital goods. In support of these assumptions the point is made that the output of machinery and other capital goods from underdeveloped countries is very low at present and that remaining imports are largely necessities. If these arguments are soundly based, it would seem unavoidable that a fall in export earnings should result in cuts in capital formation.

Fluctuations in exports are also said to cause sympathetic changes in savings and in the incentive to invest through their effect on GNP. In Chapter 1 some arguments were presented which suggest that fluctuations in income are likely to lead to more than proportional changes in saving. All these reasons make for a fairly strong a priori case for a relatively close relationship between fluctuation in investment and in export earnings.

#### The Evidence: Cross-Sectional Analysis

In Table 3:5 twenty underdeveloped countries are ranked by the degree of instability of the purchasing power of their merchandise exports. In the other column of the table are shown indicators of the degree of instability of their gross-domestic-fixed-capital formation over the same period. Both indices have been calculated in the same manner for the same

period. They represent the average-annual-percentage changes in each variable corrected for trend estimated by linear-regression lines fitted by "least squares." It can be seen that there is no clear association between the magnitude of fluctuation in investment and in the importing power of exports. When the countries are ranked by export instability and grouped in thirds it is the middle group which turns out to have the highest average degree of investment instability. Statistical analysis of the association is inconclusive. The resulting regression equation and correlation coefficient are shown at the foot of Table 3:5. They are not significant at even the 10 per cent level of significance. At most less than 12 per cent of the variation among countries in instability of investment seems attributable to the degree of instability of the importing power of their exports. The 'B' coefficient indicates an elasticity of investment with respect to export instability of about 0.36 which is a fairly weak response.

No matter how interpreted the data show at best a very weak relationship which must itself be regarded as "not proven."<sup>6</sup>

#### Time-Series Analysis

One step in the supposed relationship between export fluctuations and investment is the effect of the fluctuations in the purchasing power of exports on the ability of underdeveloped countries to import capital goods. If capital-goods imports fluctuate in sympathy with export proceeds and if the import content of domestic fixed investment is relatively constant, then the latter would be forced to fluctuate with some current or lagged relationship to exports.

Unfortunately information on capital-goods imports is often very imperfect, because the classifications of imports published by most countries

vary and seldom reveal very precisely what are capital goods or why they are so regarded. The same good may be quite correctly described as a capital good in one use and as a consumption good in another. An automobile may be a capital good if, for example, it is imported for use as a taxi, but a consumption good if it is for private use. However, the Economic Bulletin for Latin America (ECLA 1960: Table 14) has published some figures for imports of construction materials, agricultural equipment and machinery, industrial equipment and machinery, and transport equipment and machinery for several of the Latin American economies. Table 3:6 sets out the results of statistical analysis of the direction, but not the magnitude, of changes in the current dollar value of exports and capital-goods imports. (Table 3:6 merely summarizes the number of occasions on which exports and capital-goods imports moved in the same direction and the total number of occasions on which a similar or opposed movement would have been possible. The actual changes are set out for each country in Table 3:16 ). The crude method of correction for trend which assumes a constant absolute average annual increase or decrease in the variable over the period was adopted again. In fact, the sign pattern of the changes was relatively little altered by the correction.

On the basis of the counts recorded in Table 3:6 it appears that capital-goods imports are related very weakly, if at all, to the current value of exports. Imports of capital goods do, however, appear to have changed in the same direction as the exports of the previous year sufficiently often (64 times out of 90) to justify the belief that a fairly consistent relationship exists. The result is statistically significant at the .001 level. If we assume that in some countries the reaction is faster than in others, it may be of interest to see what mixed score would result from

taking the highest figure, current or lagged, for each country. This gives 75 out of 94. It certainly appears true that the direction of change in capital-goods imports is fairly highly correlated with the direction of change in the value of exports. But, of course, this is only direction and tells nothing about the magnitude of the influence and it is only a link in the possible chain of causation from export instability to investment instability.

In Table 3:7 similar results show the directional relationship between changes in investment and changes in capital-goods imports for all of the countries for which data could be obtained. Unfortunately series on capital formation were not available for two of the countries, and the period was severely curtailed for others. However, it does appear that there is a statistically significant relationship between capital-goods imports and investment. The direction of causation in this case is less clear than in the previous table. It is perfectly possible that changes in decisions to invest should be the determinant of capital-goods imports rather than changes in ability to pay for imports being the determinant of investment. But since fluctuations in capital-goods imports are so highly correlated with fluctuations in the value of the previous year's exports, it seems probable that the causal relationship runs from exports to investment, at least partly through the ability of the economy to obtain foreign exchange to pay for imports.

Interest in the relationships between fluctuations in exports, capital-goods imports, and fixed-capital formation is not confined to the direction of change. If investment instability is associated with export fluctuation, it is important to know how powerful the influence is. This is rather difficult

to determine, given the limitations of the data and the small number of years. However, rank correlations for each country confirm the association in the case of capital-goods imports, but reveal very little consistent relationship between export fluctuations and fixed investment. Table 3:8 lists the rank-correlation coefficients found. They are positive and significant for 8 out of the 10 countries with respect to capital-goods imports but for only 3 out of 8 possibilities with regard to investment. This emphasizes that many factors other than short-term fluctuations in exports are likely to affect the stability of investment in underdeveloped countries. Some investment may have been financed by foreign loans or use of reserves. Some countries may have consciously or unconsciously followed policies of accumulation and decumulation of stocks of capital goods. Such policies would weaken the relationship between investment and recent export proceeds much as would buffer stocks of foreign exchange. Since there are no available series of data on stocks of capital goods, this last possibility cannot be checked at present. The absolute changes in capital-goods imports which were associated with the maximum increase and decrease in exports within the period were also calculated (summing the increases or decreases over 2 or even 3 years where the direction of change was uninterrupted). Apart from Venezuela the associated absolute changes were generally very much smaller than those which took place in exports. A comparison was also made for each country of the percentage changes in investment which appeared to have a current or lagged association with the maximum upward and downward cyclical swings in exports for the years and countries where this was possible. They varied enormously and appeared to show no systematic relationship to the strength of the responses in imports of capital goods. Chance enters so

powerfully into these results, because the sample is so small (only one or two years for each country), that little reliance can be placed upon them.

In sum, cross-sectional analysis yields a non-significant correlation coefficient which is too low to support the view that the degree of investment instability can be associated with the degree of export instability. Analysis of time-series data for 10 Latin American countries shows a definite tendency in most of the countries for changes in capital-goods imports to be associated with fluctuations in exports. It also indicates a barely significant relationship between capital-goods imports and investments. But, the relationship between changes in investment and the supposed initiating force of export fluctuations is significant for only 3 out of the 8 countries for which data were available. This is scarcely sufficient evidence to support the view that investment in underdeveloped countries is seriously disrupted by export instability.

Some possible explanations for the weak relationships between GNP and fluctuations in export proceeds were very briefly suggested in the last chapter. In the case of investment we might add that there are other powerful determinants of investment at work. The policies of the government, both in its own investment programs and in its tax policies, tariff policies, and to some extent even interest-rate policies may influence the amount, direction, and timing of changes in gross fixed-capital formation. Private firms and government agencies may have stock piled capital goods and thus partially offset the effects of export fluctuations on investment. Some of the offsets may involve a country in costs, but they are probably very minor, as, for example, the interest cost on extra stocks.

## Fluctuations in Prices

It can be argued that given the inflexibility of domestic supplies which is a characteristic feature of most underdeveloped countries domestic price levels are likely to be sensitive to variations in demand induced by export fluctuations. If import restrictions, imposed for purposes of protection or for balance of payments reasons, are also common the likelihood of fluctuations affecting the domestic cost of living is enhanced. The previously quoted ECLA study puts forward another less direct reason:

"In many countries of the region, a substantial share of public revenue is derived from the export sector through one or more forms of taxation.....In this way public consumption is also tied to the variations in export proceeds or export volume.....Thus, in the face of limited revenue sources and the downward inflexibility of government expenditure in these countries, variations in public consumption--whether deliberately compensatory or not--may produce ramifications in other sectors of the economy which in the first instance are revealed in the form of price instability."<sup>7</sup>

Table 3:9 shows 21 underdeveloped countries ranked by the degree of instability of their exports for the period 1953-60 in column 2 with the indices of instability in the cost of living for the same countries in column 1. The data used were for the years 1951-62 and include most of the underdeveloped countries for which data were available for the whole period in the IMF, International Financial Statistics. Two years are lost from each end of the series in calculating the indices as average annual percentage deviations from a five-year moving-average trend.

Examination of the data in Table 3:9 reveals little or no relationship between the magnitude of short-term price instability and of export fluctuations. The Spearman's coefficient of rank correlation is low and negative,  $-0.21$ . This is clearly non-significant. On this evidence the hypothesis that the magnitude of price instability is associated with the magnitude of export instability is unsupported.

When the direction of change of exports and prices is examined no correspondence can be found between deviations from trend in exports and for the cost of living in either the same or the immediately succeeding year. Table 3:10 sets out the number of occasions on which they moved in the same direction for each of the 21 countries on a current basis and with the cost-of-living indices lagged one year behind exports. On neither basis are the results significantly different from those which chance could produce.

It is clear that the data yield no support for the view that there is a strong tendency for the domestic price level to fluctuate in sympathy with exports in most underdeveloped countries. The price data are, of course, very inadequate. Cost of living indices often relate to the consumption patterns of a very small sample of the city-dwelling populations in such countries. These are in general in the sectors of the economy which ought to be sensitive to fluctuations in foreign trade. But, such indices are often geared quite closely to import prices which would not reflect domestic demands. However, it is questionable how much of the fluctuation in exports could be expected to influence the cost of living of the small farmers who form the majority of the population in most underdeveloped countries. They generally produce food for themselves and families on their own land and such cash income as they receive is frequently either saved for major purchases such as livestock, weddings and funerals or spent on imported goods.

Recent work by Eliot Berg reveals that West African cash crop farmers spend on the average between 30 and 40 per cent of their cash income on imported goods. African workers in the cities appear to spend around 60 per cent of their income on food and about 20 per cent on imports.<sup>8</sup> Possibly an index of food prices would be more sensitive to changes in money incomes than a cost-of-living index which in some cases reflects European expenditure patterns as a hang-over from colonial times. However considerations of time prevent further pursuit of this question. For what it is worth, the best available indices of the general level of prices in underdeveloped countries show no impact from export fluctuations.

Probably the main explanation for the lack of association in this case stems from relatively low marginal propensities to consume domestically produced goods and services in many underdeveloped countries. The corollary of this is their tendency to have high marginal propensities to import as long as the high income elasticities of demand for importables are not frustrated by import controls. We turn now to the relationships between exports and imports.

#### Fluctuations in Total Imports

In the preceding sections association between income, investment, prices and export fluctuations have been examined. In considering investment some attention was given to the influence of fluctuations in the ability to import capital goods on domestic investment. However, capital goods imports may have been protected by policy against fluctuations in export earnings. If that were the case imports of consumption goods might be made more unstable. Such instability could have some impact on consumers' economic

welfare, by thwarting their desires to maintain recently achieved expenditure patterns. This would, supposedly occur, first, through variations in consumers' cash earnings and, secondly, through changes in government restrictions on imports.

Fluctuations in overall imports could be associated with fluctuations in exports for both of these reasons: changes in residents' purchases of imported goods induced by fluctuations in their incomes which were in turn due to fluctuations in exports, and changes due to import restrictions alternately tightened and relaxed as exports fall and rise, because the countries are short of foreign-exchange reserves.

Cross-country correlation analysis of export instability and import instability yields a correlation coefficient of 0.47 for 56 underdeveloped countries.<sup>9</sup> This is significant at the .001 level. The result suggests a genuine, if not very powerful, association between the two variables. Apparently some 22 per cent of the variations between countries in the degree of import instability experienced from 1946 to 1958 can be explained by fluctuations in their export earnings. This is the highest significant correlation found so far in this study.

When examined over time it also appears that movements in the imports for most countries are related to fluctuations in their export proceeds. Some evidence on this can be found in a recent IMF study (Fleming and Lovasy, 1960: pp. 58-76). Here movements in: 1. the importing power of visible exports, 2. the importing power of total export receipts and 3. actual imports, are shown on 38 charts, one for each primary producing country studied. Six or seven of these countries are actually developed. They include, for example, Australia and New Zealand. Fluctuations in imports

shown on these charts do not appear very closely related to either of the two other variables. However, they appear somewhat closer to fluctuations in total receipts than to visible exports as might be expected. The charts can reasonable be interpreted as giving a little support from time-series analysis to the conclusion gained from cross-sectional correlation.

From the case studies presented in Section II of the present work it seems that fluctuations in imports clearly move in sympathy with exports in Uganda, Pakistan and Chile, but in Tanganyika and Puerto Rico there seems to be little or no association between fluctuations in imports and either the current or previous year's exports.

Probably some, but not a very close, relationship between export variation and imports is what should be expected. While commodity exports are easily the largest item on the receipt side of the balance of payments in most underdeveloped countries, changes in other items may also be influential and may, on occasion, have offset particular changes in exports. Undoubtedly in some countries this has happened. However, according to a UN study (1952: p. 7), "Data on capital movements and invisible earnings indicated that such receipts did not compensate for instability in export proceeds (for the typical underdeveloped country)." Actually, while this statement may well be true the data presented in support of it are not very convincing. If fluctuations in the other items did not compensate at all one would expect fluctuations in total receipts to be larger, at least in absolute terms, than fluctuations in visible exports alone. While no evidence is given on the absolute changes it appears from Table 45 of the UN study that in percentage terms there was no significant difference between the experience of countries in total receipts' fluctuations and merchandise exports' fluctuations.<sup>10</sup>

Since total receipts are seldom much larger than visible exports in most underdeveloped countries the percentage figure is a reasonable guide to the absolute changes.

However, figures presented by the Fleming and Lovasy paper (1960: Table 3) tend to confirm the greater instability of total receipts including capital flows. Their general comments are:

"In some countries, external receipts fluctuate less than export proceeds, possibly because capital movements include elements of a compensatory or equilibrating character, or because the amount of profits transferred abroad varies with exports. In the majority of countries, however, external receipts fluctuate more than export proceeds alone. Year-to-year variations in the importing power of external receipts amount in the average primary producing country to 13.2 per cent, against 12.1 per cent for those of exports alone, and average deviations from trend amount to 10.0 per cent for external receipts, against 8.5 per cent for export proceeds alone. While movements in net receipts from invisibles, including capital items, show little or no consistent relation to exports, fluctuations in external receipts are in most countries dominated by, and are therefore broadly similar in timing to, those in export proceeds alone."<sup>11</sup>

The lack of consistency in the relationship of fluctuations in exports and these other items when added to the possible use of a country's own reserves of foreign exchange explains some of the variation between countries in import instability which is left unexplained by fluctuations in merchandise exports alone. But the Coppock index of export instability used in the cross-country correlation analysis presented at the beginning of this section

is for exports of goods and services, only net borrowing on long and short-term account plus variations in reserves are omitted from the index.

### Reserves

So far little evidence of severe impact upon domestic variables has been found. Perhaps underdeveloped countries have succeeded in compensatory policies using their reserves of foreign exchange as a cushion against the shock of import fluctuations. Accordingly it may be of interest to inquire as to how much underdeveloped countries could have and actually have made use of their reserves to cushion the impact of fluctuations on their economies. Two lines of inquiry suggest themselves. Firstly, how ample are their reserves and secondly, have their reserves fluctuated in sympathy with fluctuations in export earnings?

One reasonable rough measure of reserve adequacy is the ratio of the gold and convertible currency assets to average annual imports. It neglects many other possible determinants of a country's need for international liquidity such as the degree of instability of its foreign receipts and payments, the duration of likely balance of payments deficits and the banking laws or conventions of the society among others. However, these vary greatly among countries and in a large sample their influence should tend to cancel out.

Michael (1962: Table 20) calculates the average ratio of reserves to imports for 1950-57 for underdeveloped countries and developed countries and finds that the average underdeveloped country held considerably larger reserves than the average developed country. He finds a mean ratio of 70 per cent for 14 underdeveloped countries and of 42 per cent for 18 rich countries. These are perhaps a little misleading. Medians calculated from the data which he presents suggest a much smaller difference between the typical underdeveloped country and developed country. The median figures are respectively 46.6 and 36.0.

Calculations based on data for 1956-57 ratios of reserves to imports published by Coppock (1962: Table A-2) yield the following results for 41 underdeveloped countries and 20 developed countries:

	<u>Mean</u>	<u>Range (lowest to highest)</u>	<u>Median</u>
Underdeveloped countries	45.6	3 to 147	36
Developed countries	40.6	12 to 161	29

Between them these calculations suggest that the typical underdeveloped country holds rather higher reserves, around 20 per cent more, than the typical developed country. However, the spread is very wide in both cases so that talk in terms of a typical underdeveloped country for this relationship, as for many others, would be misleading. Even if it is accepted as a rough guide, indicating that most underdeveloped countries have more reserves than most developed countries, it cannot be assumed that underdeveloped countries have no problem of international liquidity. The greater export instability experienced by the average underdeveloped country makes it likely that they should require more reserves than the average developed country.

The quantity of reserves held, however, does not appear to be significantly related to the degree of instability of exports either for underdeveloped countries or for all countries. Our analysis, limited to 38 underdeveloped countries, gives a correlation coefficient of .13 which is non-significant. Coppock (1962: Table 5-3) gives a correlation coefficient of .02 for the relation between export instability and the ratio of reserves to annual imports for 62 countries.<sup>12</sup> Neither result suggests that countries which normally experience relatively severe export fluctuations hold larger reserves than countries where export instability is less.

Perhaps short-term changes in imports unrelated to exports, or autonomous changes in capital flows have exerted as important an influence on the need for reserves. Alternatively countries which have relatively high export instability have the misfortune to possess no more reserves than other countries and simply put up with the inconvenience of import controls, fluctuating exchange rates or fluctuations in incomes and prices. But, of course, our reasons for examining relationships between export instability and reserves stem largely from the apparent lack of impact on incomes and prices.

Perhaps, even though they possess little or no extra reserves, countries which have high export instability make more use of their reserves. Michaely (1962: p. 120) finds an insignificant rank correlation of .115 between short-term, trend-corrected fluctuations in the terms of trade and similar fluctuations in reserves for a sample of 32 countries. However, it is questionable whether an index of instability which measures percentage changes is appropriate here if no allowance is made for the adequacy of reserves. If a country has very large reserves in relation to imports a large percentage change in the balance of payments could be met by a small percentage change in reserves. Where reserves are small the opposite would hold. It would seem essential to deflate the quantity of reserves by some factor such as the level of imports. Changes in the terms of trade, of course, may not be a good guide to the need to use reserves and this may be another weakness in the analysis. Fluctuations in the total value of exports, at least for most underdeveloped countries, should be a better indicator of the need to use reserves than mere changes in the relative prices of exports and imports.

Coppock (1962: Table 5-3) gives a correlation coefficient of .07 for the association between the magnitude of fluctuations in export earnings and of fluctuations in the ratio of reserves to imports for 63 countries. This meets our criticism of Michaely but is still clearly non-significant and confirms his finding that there is very little association between the two variables.

It seems that for most countries there is no clear association between the degree of instability of exports and of foreign exchange reserves. But for individual countries it is possible that changes in both direction and magnitude of reserves should be highly correlated over time with exports. As a check on this possibility Table 3:11 sets out annual dollar values of export proceeds and of reserves for 10 countries chosen for high export instability, and for Latin America as a whole. The direction of change in the annual values of exports and reserves were compared. When the results for all ten countries are pooled it appears that the two variables moved in the same direction in 56 out of a possible 79 occasions. On this evidence they are significantly related for direction of change. A Chi-square test gives a significance greater than the .01 level for this statistical result.

Rank correlation analysis of the actual values of the positive or negative changes in exports and reserves for each of the 10 countries and for Latin America as a whole yields only two significant correlation coefficients, for the Sudan and Iran. The results were:

Argentina,	R = 0.37	Iraq,	R = 0.07
Bolivia,	R = 0.26	Korea,	R = 0.40
Ghana,	R = 0.38	Malaya,	R = 0.66
Indonesia,	R = 0.62	Pakistan,	R = 0.53
Iran,	R = 0.83	Sudan,	R = 0.89

Latin America, R = 0.52

It seems that while the direction of change in reserves has generally been compensatory the amount of the changes in reserves has seldom corresponded closely to the increases or decreases in export proceeds. However, the mere fact that they were in the correct direction would form a partial explanation of the imperfect association between exports and imports.

A possible second line of reserves exists in the form of short-term borrowing from the IMF, the U.S. Export-Import Bank, bilateral intergovernmental arrangements and arrangements with private banks or companies which deal in exports or imports from certain underdeveloped countries. During the period with which this study is mainly concerned, 1946-58, few underdeveloped countries made much use of the IMF. Moreover, according to Fund testimony fluctuations in the payments side of the balance of payments were a more common reason for an approach to the Fund than shortfalls in exports (Fleming and Lovasy, 1960: p. 24). This has probably also been true of several of the borrowers from the U.S., Export-Import Bank. Brazil and India, for example, have not experienced a high degree of short-term instability in their exports, but figure largely in the Bank's accounts. A few underdeveloped countries have probably succeeded in obtaining short-term finance from commercial banks or from large expatriate concerns such as the oil companies.

Between these several different means of obtaining finance some underdeveloped countries have probably succeeded in maintaining relatively stable imports in the face of export fluctuations. Despite this it remains true that fluctuations in imports seem to be more closely associated with export fluctuations than any of the other national variables examined.

## A Rationale for Domestic Insensitivity

The evidence presented in this chapter indicates at most rather weak and uncertain relationships between fluctuations in exports and fluctuations in domestic income, investment, and prices. Out of the variables studied only imports appear to be significantly related to export instability. At the very least the various hypotheses linking domestic variables to export fluctuations which were stated in the introduction have been found to be unsupported by the post-war data. If the statistical evidence is accepted then it is clear that strong formulations of these hypotheses must be abandoned and the explanation of domestic fluctuations becomes more complex. However, the a priori reasoning in favor of a powerful and systematic relationship between export instability and domestic fluctuations did seem rather convincing. Is some reconciliation between the theory and the apparent facts possible? Perhaps not, but at least some explanations for the lack of domestic response to export fluctuations in most underdeveloped countries can be suggested.

In some countries policy reactions by their governments must have had some stabilizing influence. Several countries, for example, imposed or increased export taxes at the time of the peak Korean War prices. If government expenditures did not increase to match these increased receipts the domestic impact of the rise in export values would be reduced. In several others marketing boards or similar devices helped to absorb peak export earnings and attempted to moderate the swings in producers' incomes. They were not always particularly successful in smoothing producers' incomes from year to year. The Cocoa Marketing Board in Ghana and the Coffee Marketing Board in Uganda, for example, probably caused producer incomes to fluctuate more than the export proceeds from their crops.<sup>13</sup> Some may have successfully manipulated the government budget so

as to offset export instability, but from the evidence of the case studies in Section II below and from the discussion of monetary and fiscal policies in Chapter 11 it seems unlikely that many were in fact able to do this. Consequently, it seems improbable that more than a small part of the explanation of the lack of correlation between internal and external instability stems from effective counter-cyclical policies in underdeveloped countries. Equally, as we argued earlier, random factors, such as a coincidental increase in a main food crop, may have tended to raise GNP at the same time as a decline in the value of exports tended to reduce it. But, again, this is unlikely to explain much of the apparent weakness in the effects of export instability on the internal economies of underdeveloped countries.

What seems much more likely is that the character of the economies of underdeveloped countries is such that there are various systematic offsets to fluctuations in the values of their main exports. Instead of being peculiarly vulnerable to export fluctuations it may be that they have a "natural" resistance to its effects.

Before setting out what we consider to be these built-in-stabilizers, two other points should be got out of the way. Most underdeveloped countries turn out from our study to be much less likely to be specially affected by export fluctuations than the argument of Chapter 1 suggested, for two reasons: 1) Many underdeveloped countries have, in fact, relatively stable export proceeds and even the average underdeveloped country's exports are only slightly more unstable than those of the average developed country. 2) For several very large and important underdeveloped countries, containing the greater part of the population of the world, foreign trade is a relatively small proportion of GNP. India, Pakistan, Brazil, Indonesia, the Republic of Korea, Turkey and, if a communist bloc country is included, Mainland China, are clear examples.

For these countries export instability may still have some important consequences, but they are unlikely to be of the macro-economic type which several UN reports <sup>14</sup> have emphasized.

But apart from these factors many underdeveloped countries have particular characteristics which are likely to dampen the influence of export fluctuations. In many, the largest and most important firms in the foreign trade sector of their economies are, or were until recently, expatriate firms. This is clearly true of almost all the oil countries. It is generally true also of most of the important mineral exporting countries e.g. copper in Chile, Northern Rhodesia, Cyprus and the Belgian Congo, tin in Malaya, aluminum or bauxite from several African territories and the West Indies. It is also characteristic of many of the plantation products, such as rubber from Malaya and Indonesia, sugar from Indonesia and Cuba, sisal from Tanganyika, bananas and sugar from several Latin American countries. In most African and Asian countries the purchase and export of most crops are, or were, in the hands of expatriate firms. The significance of this important and widespread feature of underdeveloped countries, in the context of export instability, is that there may be relatively little connection between the year-to-year receipts from exports of these companies and their current expenditures within the countries in which they operate. This is very clear in the case of Chile. In Chapter 8 below it is shown that the operations of the copper companies seem in general to have tended to mitigate the impact of fluctuations in the value of copper exports through variations in their remitted profits and through their inventory policies.

Profits are almost certain to fluctuate in line with fluctuations in the total value of export proceeds in such companies. Provided this means that repatriated profits are larger in good export years and smaller in bad years, the foreign-exchange receipts of these countries, net of profits, are made relatively more stable. Their repatriated profits will fluctuate the more, the more stable are these companies' payments to the government and factors of production in the countries in which the firms operate. In many cases factor incomes are unlikely to vary much in the short run. Continually to lay off and recruit labour and to shut down and reopen mines or processing plants is often uneconomical and many firms find it preferable to produce for stocks in conditions of slack demand and to run these down in boom periods. In plantations this may be less true - particularly where labour is casual and migratory, but prices will seldom be so low that crops will not be harvested and in fact most calculations of short-run supply elasticities for plantation crops are sufficiently close to zero as to suggest little flexibility in output or employment. This is true even of rubber where the rate of tapping can be varied.<sup>15</sup> Reasons suggested for this are rather similar to the ones put forward in regard to mining. Chan Kwong Wah puts forward some possibilities in a recent article in The Malayan Economic Review:

"The cost structure of most estates might be such that to maximize long-run returns on the capital invested, it was better to maintain a steady and a high rate of production year in and year out rather than maximizing short-term gains in some years at the expense of future output through overtapping and under-utilizing productive capacity in other years."

He also argues that overheads involved in providing housing, medical facilities and other social services for estate workers and their families make it uneconomical to take on and lay off workers in response to short-term price-changes. <sup>16</sup>

In the short-run the principal input in plantations is labour and very inelastic production must imply relatively little response in the numbers employed. However, in some plantation industries wages are partly geared to market prices for the crop and in these cases wage incomes may tend to reflect some of the fluctuation in export proceeds. <sup>17</sup>

In any case it is fairly clear that the private sector of the economy is partially cushioned against the shocks of export fluctuations through the existence of these large-scale expatriate-owned enterprises in a great many underdeveloped countries. As the governments in these countries seek larger and larger percentages of the profits of these concerns through export and corporation taxes government revenues become more sensitive to export instability. But this impact on government revenue will only lead to domestic instability if the government allows it to do so. Technical incompetence, institutional or political factors may result in governments spending the entire increase in revenues when exports rise and cutting spending proportionately when exports fall, but these are not necessary consequences of export instability. In actual fact, in these countries included in the case studies in Section II neither government revenues nor expenditures appeared to be closely related to fluctuations in exports.

Probable explanations for this in countries where government

revenues are heavily dependent on the income of the export sector are varying time lags in the collection of revenue and in adapting expenditures to it. Even where balanced budgets were probably intended export instability does not seem to have been reflected in fluctuations in government expenditures. For example, suppose fifty percent of government revenue came from the export sector, half from taxes on exports and half from taxes on company profits. Then if export taxation is collected in the current period, but corporate income and profits taxes are collected in arrears the effect on government revenue of an export boom following on an export slump may be almost undetectable. This year's revenue from export taxes may be up but revenue from income and profits taxes which reflect last year or the year before's exports may be well below trend levels. The effect of the varying lags would clearly in this case produce a relatively stable government tax revenue from the unstable export sector. If import duties are a substantial source of revenue and follow exports with a one year lag as they appear to do in many underdeveloped countries then a similar offsetting movement in changes in revenue from exports and import duties could ensue. 18

Apart from the true expatriate owned firms large sectors of the economy in many underdeveloped countries are often owned and operated by a class which is very clearly separated from the mass of the people and whose tastes and outlook are closer to the upper middle classes of Europe and America than to those of the general indigenous population. Their needs for imported consumer goods and for foreign travel result in such privileged groups having very high income elasticities of demand

for goods and services which have to be paid for in foreign exchange. Fluctuations in the incomes of such people result in relatively little change in their consumption of domestically produced goods. Rather it is their savings and demand for imports which fluctuate in sympathy with export proceeds. If, indeed their marginal propensity to consume domestically were close to zero the secondary effects of a contraction in their incomes would be negligible. It is unlikely that their marginal propensity to consume domestically should in fact be close to zero for it is probable that income elasticities for better quality housing are fairly high and this may be true of some other domestic goods and services. But even in housing, it is probable that the import content of luxury housing and its furnishings should be high in many underdeveloped countries.

Outside of Africa the distribution of income within most underdeveloped countries is extremely unequal. Even in African territories in general there are sharp differences between the incomes of one class consisting of the merchants and bureaucracy and the other of the unskilled workers.<sup>19</sup> This reinforces the point made in the previous paragraph. Since the vast majority of the population scrape a bare subsistence income, very little of it in cash, in most underdeveloped countries most fluctuations in cash income are concentrated on the relatively rich. The latter spend increases in income mainly on imports and the marginal propensity of the society as a whole tends to be very high because of the combination of the skewed distribution of income and the Western tastes of the rich. But even among the relatively poor increases in income are often spent on such imported consumer goods as

textiles, footwear, bicycles and even transistor radios.

The average expenditure in one African country, The Congo (Leopoldville) has been estimated to follow the pattern shown in Table 3:12. The average propensity to import indicated is fairly high and while the average propensity to save seems low it is probable that the marginal propensities in both cases should be much higher. In which case the leakage from an initial change in domestic income is likely to be very large and secondary repercussions severely dampened. The previously cited findings of Berg (1964) of average expenditures of 30 to 40 per cent of West African farmers' incomes on imports and of 20 per cent or above of African urban workers, leads to expectations of even higher marginal propensities to import.

The savings of the expatriates and the well-to-do indigenous inhabitants are frequently invested abroad rather than in the internal economy. Thus an increase in the savings of the community because of an export boom does not lead automatically to any increase in local investment. It depends on the general prevailing political and economic climate, including attitudes to private investment and profits as well as on prospects for financially profitable local investment. The accelerator principle, which is used to explain investment in many models of growth and stability, has found little empirical verification even in studies of developed economies. In underdeveloped countries the relationship between changes in income and induced changes in investment seems likely to be even weaker. If anything does exist it is likely that it should be changes in stocks of imported goods that would be affected by changes in income (or expectations of such changes). Investment in stocks

of imports would have no secondary repercussions on domestic income.

As Augustine Tan Hui Heng has pointed out, the import content of some exports from some underdeveloped countries may be quite high. He deduces a fourth component of the elasticity of export supply for Malayan rubber - "The elasticity of imports of rubber for re-export purposes." In the case of Malaya in 1960 imports of rubber apparently amounted to almost 10 per cent of gross rubber exports by volume.<sup>20</sup> He argues that this is a positive supply elasticity which would suggest that when world demand for rubber exports from Malaya increases, Malaya's imports of rubber increase at the same time. This would mean that the increase in total value of exports of rubber should be reduced by the value of the increase in imports of rubber for re-export to arrive at the figure for rubber export proceeds which accrues to individuals and companies resident in Malaya (before deduction of repatriated profits).

This phenomenon is not confined to Malaya. In many African territories trade across the land frontiers, legal and illegal, is frequently substantial in commodities which are subsequently exported to industrial countries. For example cocoa, cotton and groundnuts have frequently been smuggled from one territory to another because of price controls or marketing board policies which make it profitable to sell in a neighbouring territory.<sup>21</sup> However, the importance of imports for re-export is likely to be relatively small in most underdeveloped countries.

Industries which produce for the domestic market often require imported inputs so that any increase in demand for their outputs leads to an automatic increase in imports - usually of fuel, raw materials

or components. Where they are simply assembly plants for reassembling knocked down imported transport equipment the import content of the final good may be 90 per cent or even more. It is not at all uncommon for commercial vehicle imports into many underdeveloped countries to be in this form because of tax policies of the importing countries.

#### The Relative Importance of the Leakages.

It seems clear that the main explanation for low sensitivity to export fluctuations in underdeveloped countries stems from their characteristically high marginal propensities to import. That they should have high marginal propensities to import is inherently likely from the structure of the economies of most underdeveloped countries, is widely believed by economists and gains empirical support from our finding that imports were the only variable significantly related to fluctuations in exports.

However, even the primary effect of a change in the gross value of exports is likely to be considerably less than it seems at first blush. The gross value which appears in the national accounts or the balance of payments is subject to certain deductions: first and most important, repatriated profits; second, the import content of exports should be deducted; third, normal export taxation plus taxation on profits generated in the export industries and royalties. All of these deductions are probably elastic in response to changes in the gross value of exports, i.e. they will tend to increase more than proportionally to an increase in export proceeds.<sup>22</sup> The consequence of such deductions is to moderate fluctuations in the net income from

exports of the private sector of the economy.

After these deductions from the primary change in export incomes come the familiar leakages of imports, saving and other taxation from the foreign trade multiplier. Together these primary and secondary leakages from export proceeds potentially exert a very powerful dampening influence on the domestic impact of export fluctuations on the private sector of the economy in most underdeveloped countries. In any particular country the actual influence depends on the numerical values which can be attached to these propensities to leak export income. But intuitively one can see here a likely explanation for the unexpectedly low domestic income responses of underdeveloped countries which were in fact heavily involved in foreign trade - for generally it is in such countries that the leakages will be large. Between them these primary and secondary leakages could explain insensitivity of domestic income and prices to short-term export fluctuations both as regards timing and the degree of instability.

#### Low Multipliers

The foreign trade multiplier in most underdeveloped countries may be much lower than it would seem from the reasoning of Chapter 1. What values seem plausible on the basis of the evidence of this chapter and the argument of the immediately preceding section? The following numerical discussion of the values of the foreign trade multiplier in underdeveloped countries is intended only to be illustrative. The marginal propensities used are mere guesses based on average propensities and what seem to the author to be reasonable

assumptions about the economic characteristics of underdeveloped countries.

In simple form, ignoring foreign repercussions, the change in the level of income arising from a continuous change in exports can be represented by:-

$$\Delta Y = \Delta X \cdot \frac{1}{m + s + t}$$

where domestic investment and government expenditures are assumed to be constant and the symbols are defined as Y = income, X = exports, m and s the marginal propensities to import and save, and t = the proportion of increases in domestic income which accrue to the government.

However, from our discussion the formulation should be a little different. Instead of merely the change in exports as the multiplicand a more complex multiplicand is required. This would be smaller by the amount of export proceeds which are a direct deduction as repatriated dividends and profits, as the values of import inputs in exports, e.g. Indonesian rubber exported from Malaya, and as a deduction for taxes levied directly on the revenues of the export sector. These will include export duties, royalties and profits taxes in so far as these respond to changes in the value of export proceeds.

The multiplier formula for export induced changes in national income becomes:

$$\Delta Y = \Delta X (1 - p_x - m_x - t_x) \cdot \frac{1}{m_y + s_y + t_y}$$

Where  $p_x$  = the proportion of export proceeds repatriated to foreigners,  $m_x$  is the proportion of export proceeds paid to imports which were

re-exported in natural or processed form,  $t_x$  is the proportion of export proceeds which accrues to the government through taxes on exports and on exporter's incomes, and where  $m_y$ ,  $s_y$  and  $t_y$  are the proportions of the change in domestic income which are spent on imported goods and services, which are saved and which accrue to the government through taxes whose revenues respond to changes in domestic income and expenditure. As previously, domestic investment and government expenditure are assumed constant. We have stated reasons for believing that domestic investment is unlikely to be sensitive to short-term changes in income. The assumption that government expenditures are not a function of short-run changes in exports is not unreasonable. The governments may have consciously had compensatory budget policies. Or they may have held expenditure relatively constant. Either policy would moderate fluctuations in domestic income. Alternatively governments may have attempted to maintain balanced budgets, but through lags in collection revenues may have remained relatively stable despite fluctuations in exports or expenditures may have proved too inflexible to follow export revenues closely. The assumption that governments hold their expenditure constantly on its average trend is the closest to a neutral assumption that we can make - neither deliberately compensatory nor disequilibrating.

For some underdeveloped countries these adjustments to the concept of the foreign trade multiplier may make little difference. For others the difference may be significant. For a few the effect would be quite large. Figures for the average ratios of imports to

income, general taxes to income, export taxes to exports and investment  
income paid abroad to exports published in a recent IMF study<sup>22</sup> for  
29 underdeveloped countries enable some rough estimates to be made.  
Six countries where the data suggest rather low multipliers are Ghana,  
Iran, Iraq, Jordan, Malaya and Venezuela. All have rather high ratios  
of foreign trade to national income, and four of them, the first three  
and Malaya have experienced severe export fluctuations in the period  
1946 - 58. If we substitute the average values for the average ratios  
for these six countries in the adapted multiplier formula and assume  
a relatively low import content for exports and a low marginal  
propensity to save the calculated value of the multiplier becomes  
close to unity, 1.02.<sup>24</sup> The secondary repercussions of a change in  
exports, even if given time to work themselves out fully would be  
negligible. The ratios for  $p_x$ ,  $t_x$  and  $m_y$  are all average, not  
marginal propensities. It seems probable that changes in these  
variables, particularly savings and imports in response to changes  
in exports or income should be higher than the average propensities  
for reasons discussed above on pp.00. If this were so, the final  
change in domestic income in response to an initial change in the  
level of exports would be a fraction rather than a multiple of the  
export fluctuation. Export instability would be very heavily  
dampened. In any case, before the repercussions of the initial  
change in exports had worked their way through the various rounds  
of expenditures and receipts further changes in exports or in  
other determinants of income would be being felt and would obscure  
the small ripples left by the original change in exports.

For the average underdeveloped country in the whole IMF sample of 29 underdeveloped countries the multiplier calculated as in footnote 24, using the IMF average ratios and assuming the same low values for the import content of exports and for saving the multiplier would be 1.6 which still indicates relatively small secondary repercussions. These low values for the foreign trade multiplier together with the dubiety attaching to the existence of the accelerator in underdeveloped countries could account for much of the insensitivity of domestic incomes and prices to export fluctuations. However, it would appear to do so partly by emphasizing the sensitivity of imports. In turn, this could mean that anything which was fairly dependent on imports would also tend to fluctuate in sympathy with exports: in particular investment. But, in fact as we shall find in the next chapter there are two links in the chain between fixed capital formation and imports. These are the ratio of capital-goods imports to total imports and the ratio of imported capital-goods to total fixed capital formation. Neither are constants. Both have varied over time in both directions. It is, therefore, quite feasible for exports and imports to be significantly correlated while investment and exports are not.

Finally, if investment has somehow been insulated against fluctuations it may have been at the expense of the consumer of imported goods. If the investment component of imports has sometimes been maintained while imports as a whole fluctuated presumably consumer imports were made additionally unstable. Such an effect would be likely where underdeveloped country governments used import controls when exports declined and relaxed the restrictions when exports boomed.

A policy of this sort would actually increase the importance of the import leakage as a stabilizing influence on income and prices, but could lower consumers' welfare by destabilizing their consumption of imports. Whether the loss of welfare would be significant is a matter of judgment in the absence of quantitative information. In my view the loss is likely to be minor in relation to short-term fluctuations. Only marginal purchases are affected and in many cases the classes most affected would be relatively affluent.

### Conclusions

It seems that most of the anticipated short-term effects of export fluctuations are unsubstantiated by the post-war data. Put in formal statistical language - the null hypothesis that fluctuations in various domestic variables: income, prices and investment are unrelated to fluctuations in export proceeds is not contradicted by the data. Put at its weakest this means that the views stated in Chapter 1 must be regarded as "not proven". It seems likely that any causal relationship which does exist between either the degree of instability of the variables or in the consistency of timing and direction of fluctuations must be very weak. In the final section of this chapter we have argued that the apparent weakness and inconsistency of the relationship can only be partly explained by random changes in other variables and by policy reactions of governments. It seems probable that the economies of many underdeveloped countries have built-in-stabilizers which tend to moderate the internal impacts of export fluctuations. The main

stabilizer is probably the high marginal propensity to import characteristic of many underdeveloped countries. This may be reduced as these countries increase their domestic industries and produce more substitutes for imports. But their demand for imports in general and in particular of sophisticated manufactures will probably be maintained or even increased by the process of economic development. <sup>25</sup>

Table 3 : 1 Ratios of Exports to Investment & Government Expenditure  
(1958-59) Averages

Large Countries (over 10 million)				Small Countries (less than 10 million)			
A. <u>Developed</u>	$\frac{X}{I}$	$\frac{X}{G}$	$\frac{X}{I+G}$	A. <u>Developed</u>	$\frac{X}{I}$	$\frac{X}{G}$	$\frac{X}{I+G}$
1. Canada	76	131	48	1. Australia	59	159	43
2. France	75	93	42	2. Austria	115	184	71
3. W. Germany	107	169	65	3. Belgium	193	279	114
4. Italy	68	95	40	4. Denmark	189	260	228
5. Japan	48	128	35	5. Finland	96	181	63
6. Netherlands	209	352	131	6. Iceland <sup>a</sup>	88	28	67
7. South Africa	134	260	88	7. Ireland	221	237	114
8. United Kingdom	133	121	64	8. Israel	47	61	27
9. United States	27	24	13	9. Luxembourg <sup>a</sup>	336	654	222
Average	97.4	152.5	58.4	10. New Zealand	122	308	79
Median			45.0	11. Norway	133	147	93
				12. Sweden	123	147	67
				13. Switzerland	131	25	87
				Average	142.5	211.5	98
				Median			75

Table 3 : 1 (continued)

Large Countries (over 10 million)				Small Countries (less than 10 million)			
B. Underdeveloped	$\frac{X}{I}$	$\frac{X}{G}$	$\frac{X}{I+G}$	B. Underdeveloped	$\frac{X}{I}$	$\frac{X}{G}$	$\frac{X}{I+G}$
1. Algeria	77	55	32	1. Barbados <sup>a</sup>	171	491	126
2. Argentina	59	88	35	2. Br. Guiana <sup>a</sup>	189	322	119
3. Brazil	48	64	27	3. Ceylon	268	212	118
4. Colombia	111	313	82	4. Chile	129	144	68
5. Congo (Leopoldville)	209	240	112	5. China (Taiwan)	74	61	33
6. India	34	72	23	6. Costa Rica <sup>a</sup>	141	205	83
7. Indonesia	312	---	---	7. Cuba (1957-58)	189	33	129
8. Korea	19	17	9	8. Cyprus <sup>a</sup>	268	179	107
9. Mexico	100	271	73	9. Ecuador	147	162	77
10. Nigeria	124	291	87	10. Federation of Malaya	529	358	213
11. Pakistan	59	66	31	11. Ghana	200	328	124
12. Philippines	143	138	70	12. Greece	54	86	33
13. Spain	30	48	18	13. Guatemala	134	145	70
14. Thailand	108	181	68	14. Honduras <sup>a</sup>	155	214	90
15. Turkey	27	36	16	15. Jamaica	134	307	93
16. Burma	97	120	54	16. Malta <sup>a</sup>	250	385	153
Average	97.3	134	49.1	17. Mauritius <sup>a</sup>	259	345	148
Median			33.5	18. Panama	202	244	110
				19. Peru	124	---	---
				20. Portugal	107	152	63

Table 3 : 1 (continued)

<u>Small Countries (less than 10 million)</u>			
b. <u>Underdeveloped</u>	$\frac{X}{I}$	$\frac{X}{G}$	$\frac{X}{I+G}$
21. Puerto Rico	230	348	138
22. Rhodesia and Nyasaland	151	369	107
23. Tanganyika	178	267	107
24. Trinidad and Tobago <sup>a</sup>	238	681	177
25. Uganda	243	180	103
26. Venezuela	122	187	74
Average	185	251	105.5
Median			107.0

<sup>a</sup> These countries had populations of less than 1 million people in 1958.

(Population estimates from U.N. Demographic Yearbook)

Investment figures are for fixed capital only as data on stocks are very unreliable and in many underdeveloped countries consist largely of imports or exports valued at unrealistic prices.

Source: Table 3:13

Table 3:2 Indices of Instability for 35 Underdeveloped Countries  
for National Income and Export Proceeds (Corrected for Trend)

	$X_1$	$X_2$
	I-I National Income	I-I Export Proceeds
1. Argentina	8.7	41.3
2. Belgian Congo <sup>a</sup>	9.1	10.7
3. Brazil	4.3	13.8
4. Burma <sup>a</sup>	8.7	14.7
5. Cambodia	8.5	25.0
6. Ceylon <sup>a</sup>	9.0	13.0
7. Chile	12.2	20.2
8. China (Taiwan)	13.4	16.3
9. Colombia	53.4	13.4
10. Costa Rica <sup>a</sup>	1.6	14.3
11. Cuba <sup>a</sup>	12.2	26.0
12. Dominican Republic	2.7	16.9
13. Ecuador	4.1	25.2
14. Egypt	8.3	20.1
15. Ghana <sup>a</sup>	6.6	31.9
16. Greece	14.6	18.2
17. Guatemala	11.8	10.7
18. Honduras <sup>a</sup>	4.4	16.1
19. India	5.7	16.2
20. Iraq <sup>a</sup>	6.0	27.2
21. Lebanon <sup>a</sup>	3.7	25.9

Table 3:2 (continued)

	$X_1$	$X_2$
	I-I National Income	I-I Export Proceeds
22. Mexico	7.3	11.1
23. Pakistan	30.0	36.5
24. Panama <sup>a</sup>	9.6	9.9
25. Paraguay	21.1	16.0
26. Peru <sup>a</sup>	14.8	10.0
27. Philippines	66.8	18.3
28. Portugal	3.2	15.2
29. Puerto Rico <sup>a</sup>	6.0	9.2
30. Rhodesia & Nyasaland	8.3	12.5
31. Thailand	13.0	36.6
32. Turkey	11.0	19.4
33. Union of South Africa <sup>a</sup>	4.8	10.3
34. Venezuela <sup>a</sup>	4.1	16.1
35. Yugoslavia	8.9	46.1
Average	11.9	19.5
Standard Deviation	7.9	17.6

Source: Coppock, 1962: Table A-2

<sup>a</sup> These countries had higher than average ratio of Trade/GNP.

Regression equations:-	(1)	$X_1 = 11.5 + 0.02 X_2$	$R = .015$	$R^2 = .0002$	Sample Size
		(.25)			35
	<sup>a</sup> (2)	$X_1 = 14.2 - 0.25 X_2$	$R = -.15$	$R^2 = .02$	15
		(.44)			

Table 3:3 Direction of Fluctuations in Export Proceeds and in  
Gross National Product for Underdeveloped Countries and  
Average Ratios of Trade to G N P (1950-1960 in most cases)

	Ratio Trade/GNP %	<u>Current</u>		<u>Lagged</u> (GNP for following year)	
		Same	Total	Same	Total
Burma	51	8 out of	10	7 out of	9
Ceylon	72	7 " "	10	5 " "	9
Congo (Leopoldville)	99	6 " "	8	5 " "	7
Costa Rica	57	3 " "	10	5 " "	9
Cuba	70	6 " "	8	4 " "	7
Cyprus	108	4 " "	7	4 " "	6
Honduras	48	4 " "	8	3 " "	7
Panama	95	7 " "	10	2 " "	9
Peru	50	5 " "	8	2 " "	8
Rhodesia and Nyasaland	121	5 " "	10	3 " "	9
Venezuela	85	6 " "	10	5 " "	9
<hr/>					
Pooled result for 10 countries		61 " "	99	45 " "	89
<hr/>					
Best mixed score: 63 out of 97 (See text)					
<hr/>					

Source: Table 3 :14 gives data for each country, year-to-year changes adjusted for trend. See sources listed there for the basic data and description of method. The data for Burma, Congo and Panama in

Table 3:3 (continued)

national income were found to be particularly unreliable by J. Brode,  
"The Service Sector in National Income" (mimeoed, Harvard, 1963).  
This may weaken the significance of their results particularly if  
the ease of collection of the export sector data biases the  
statisticians estimates of changes in other components of GNP.

[for 61 out of 99,  $\chi^2 = 6.442$  which makes it significant at the  
.05 level]

Table 3:4 Ratios of Changes in GNP to Changes in Export Earnings During Periods of Sharp Declines in Export Earnings Between 1950 and 1960 for Eleven Underdeveloped Countries. Ratios of Unadjusted and Adjusted-for-Trend Data

Country	1 Period	2	3
		Ratio $\frac{\Delta \text{GNP}}{\Delta \text{EXP}}$ Unadjusted Data	Ratio $\frac{\Delta \text{GNP}}{\Delta \text{EXP}}$ Adjusted Data
Burma	1957-58	0.35	1.20
Ceylon	1951-52	0.72	1.25
	1955-56	2.04	2.62
Congo	1952-53	1.12	0.48
	1957-59	0.37	1.09
Costa Rica	1954-56	-5.23	0
Cuba	1951-54	0.68	1.51
Cyprus	1956-57	-4.00	-0.51
Honduras	1953-54	-0.31	0.92
Panama	1957-58	-0.96	0.56
Peru	1951-53	<u>nil</u> <sup>a</sup>	-0.44
Rhodesia and Nyasaland	1956-58	-0.48	0.74
Venezuela	1957-60	-3.09	0.26

Source: Table 3 : 14

<sup>a</sup> On the only occasion on which exports declined Peru's GNP rose. The resulting ratio would be -23.0 which is too extreme for inclusion.

Table 3:5 Relationship between Fluctuations in Export Earnings and  
Fluctuations in Investment

Country	X <sub>1</sub> (1950-59) (with exceptions) <sup>a</sup>		X <sub>2</sub> (1950-59)	
	Fluctuations in GD Fixed-Capital Formation		Fluctuations in Importing Power of Merchandise Exports	
1. Ecuador	9.3		14.1	
2. Chile	7.8		12.8	
3. Congo '58	10.7		12.5	
4. Cuba '57	12.6	8.49	11.7	12.16
5. Ceylon	8.4		11.6	
6. Ghana '54-'58	4.6		11.4	
7. Costa Rica '58	6.0		11.0	
8. Burma '58	6.7		10.9	
9. Brazil '58	10.3		10.5	
10. Honduras '57	11.9	8.57	10.1	9.52
11. Panama	9.7		10.0	
12. Philippines	11.3		8.5	
13. India '50-51 to '57-'58	7.8		8.3	
14. Portugal	2.2		8.3	
15. Mexico '58	7.1		7.8	
16. Greece	12.3		7.0	
17. Union of South Africa	4.2	6.83	6.3	6.27
18. Colombia	10.2		6.1	
19. Peru '57	2.2		5.5	
20. Venezuela	5.0		5.0	

Table 3:5 (continued)

<sup>a</sup>

Where either the beginning, terminal or both dates differ from the full period 1950-59 the actual dates are given beside the country's name.

Source: Division of General Economic Research and Policies of the U.N. Secretariat.

Correlation coefficient  $r = \underline{0.3433}$

Regression equation:  $x_1 = 4.0415 + 0.4198 x_2$   $R^2 = 0.1179$   
(.2707)  $F \text{ Ratio} = 2.40$

Table 3:6

Number of Occasions on which Capital-Goods Imports Changed in the Same Direction as Exports, on a Current-Year Basis and with Capital-Goods Imports Lagged One Year: 1948-58 in Ten Latin American Republics

Countries	Current	Lagged One Year
Argentina	4 out of 10	6 out of 9
Bolivia	8 " " 10	4 " " 9
Brazil	4 " " 10	8 " " 9
Chile	7 " " 10	5 " " 9
Colombia	7 " " 10	6 " " 9
Cuba	9 " " 10	6 " " 9
Mexico	5 " " 10	6 " " 9
Peru	5 " " 10	7 " " 9
Uruguay	3 " " 10	9 " " 9
Venezuela	6 " " 10	7 " " 9
Pooled result in		
10 countries	58 out of 100	64 out of 90
Best possible mixed score: 75 out of 94		

Source: Table 3:15

Significance of results:

1. On current basis  $\chi^2 = 2.96 < .05$  significance level
2. With one-year lag  $\chi^2 = 16.04 > .001$  significance level
3. Mixed best scores  $\chi^2 = 33.36 > .001$  significance level

Table 3:7 Changes in Gross Fixed-Capital Formation (in Constant Prices)  
and Changes in Capital-Goods Imports

Country	Current	Lagged
Argentina	6 out of 8	4 out of 8
Brazil	2 " " 4	3 " " 5
Chile	3 " " 9	7 " " 10
Colombia	7 " " 8	5 " " 8
Cuba	5 " " 6	2 " " 5
Mexico	4 " " 6	2 " " 7
Peru	5 " " 8	4 " " 8
Venezuela	4 " " 8	4 " " 9
8 countries	36 out of 57	31 out of 60

Sources: Table 3:15

On current basis 36:57 gives  $\chi^2 = 3.948, > .05$  level.

Table 3:8 Correlation Coefficients Between Export Fluctuation,  
 (1) Capital Goods=Imports, and (2) Fixed=Capital Formation <sup>a</sup>

Country	(1)	(2)
Argentina	.41 <sup>b</sup>	.39
Bolivia	.94 <sup>b</sup>	n.a.
Brazil	.82 <sup>b</sup>	-0.5
Chile	-.12	.20
Colombia	.66 <sup>b</sup>	.81 <sup>b</sup>
Cuba	.66 <sup>b</sup>	.31
Mexico	.05	.81 <sup>b</sup>
Peru	.47 <sup>b</sup>	.59 <sup>b</sup>
Uruguay	.82 <sup>b</sup>	n.a.
Venezuela	.33 <sup>b</sup>	.13

Source: Table 3:15

<sup>a</sup> The coefficients are for whichever gave the higher correlation,  
 current or one-year lagged data.

<sup>b</sup> Positive and significant at >.05 level of significance

Table 3:9

Indices of Instability in the Cost of Living and in Export Proceeds.  
(Average-annual-percentage deviations from a five-year-moving average  
trend in each case). 1951-62

Country	Instability Index of Cost of Living	Export Instability Index
Venezuela	2.0	2.5
Brazil	8.3	3.3
Philippines	12.2	3.4
Burma	6.4	4.1
Argentina	12.1	4.6
India	3.1	4.6
Portugal	7.6	4.7
Colombia	3.3	5.3
Greece	2.8	5.7
Indonesia	12.7	6.7
U.A.R.	1.5	6.9
Ghana	1.7	7.3
Thailand	2.3	7.5
Peru	2.2	8.2
Pakistan	3.7	8.5
Chile	10.4	8.6
Honduras	2.2	9.4
Bolivia	27.4	9.9
Iraq	3.2	10.0

Table 3:9 (continued)

Country	Instability Index of Cost of Living	Export Instability Index
Malaya	1.7	14.4
Iran	2.7	16.5

Spearman's rank correlation coefficient,  $R = - 0.21$  ( $t = 0.937$ )  
non-significant at 10 % level.

Source: calculated from IMF, IFS, 1962.

Table 3:10

Number of Occasions on which the Cost-of-Living Index Deviated from Trend in the Same Direction as (1) Current Exports and (2) the Previous Year's Exports.. 1951 - 62 in 21 Underdeveloped Countries.

<u>Countries</u>	<u>(1) Current Exports</u>	<u>(2) Previous Year's Exports</u>
Argentina	4 out of 8	2 out of 7
Bolivia	7 " " 8	4 " " 7
Brazil	5 " " 8	2 " " 7
Burma	5 " " 8	5 " " 7
Chile	7 " " 8	3 " " 7
Colombia	2 " " 8	3 " " 7
Ghana	3 " " 8	5 " " 7
Greece	2 " " 8	1 " " 7
Honduras	5 " " 8	3 " " 7
India	3 " " 8	6 " " 7
Indonesia	5 " " 8	3 " " 7
Iran	3 " " 8	4 " " 7
Iraq	3 " " 8	3 " " 7
Malaya	2 " " 8	5 " " 7
Pakistan	4 " " 8	1 " " 7
Peru	3 " " 8	2 " " 7
Philippines	3 " " 8	4 " " 7
Portugal	6 " " 8	3 " " 7
Thailand	3 " " 8	5 " " 7

Table 3:10 (continued)

Countries	(1) Current Exports	(2) Previous Year's Exports
U.A.R.	7 out of 8	3 out of 7
Venezuela	2 " " 8	3 " " 7
Pooled result in 21 countries	84 out of 168	70 out of 147

Source: calculated from IMF, IFS, 1962.

Table 3:11

Annual Dollar Values of Exports and Foreign Reserves for 10 Highly Unstable Countries and for Latin America. 1951 - 59.

	1951	1952	1953	1954	1955	1956	1957	1958	1959
Argentina: Exports	1169	688	1125	1027	929	944	975	994	1009
Reserves	520	420	532	524	457	382	286	129	349
Bolivia : Exports	121	107	84	70	76	81	74	50	59
Reserves	35	29	25	12	7	1	6	7	3
Ghana : Exports	234	216	225	293	243	222	229	263	286
Reserves	374	379	409	514	532	484	434	450	427
Indonesia: Exports	1292	934	840	867	946	802	969	755	872
Reserves	511	314	212	248	307	255	224	217	300
Iran : Exports	590	100	100	160	372	512	650	738	760
Reserves	196	177	185	186	205	230	246	254	214
Iraq : Exports	183	278	392	488	519	478	360	567	606
Reserves	114	129	181	233	294	354	261	288	296
Korea : Exports	n. a.	28	40	24	18	25	22	16	19
Reserves	n. a.	83	109	108	96	99	116	146	147
Malaya : Exports	1104	697	522	531	774	739	712	616	809
Reserves	400	424	379	428	473	514	494	502	650
Pakistan : Exports	763	532	439	359	401	340	358	302	321
Reserves	638	356	376	360	397	415	359	312	400
Sudan : Exports	227	133	128	116	145	192	148	125	192
Reserves	240	185	178	170	152	192	121	88	158
Latin America: Exports	7806	7056	7620	7886	7976	8643	8662	8199	8320
Reserves	2980	3005	3295	3130	3175	3675	3815	3105	3000

Source: IMF, International Financial Statistics, January 1962. Reserves figures from Table of Official Gold and Foreign Exchange Reserves.

Table 3:12

African and Non-African Patterns of Consumption in Congo (Leopoldville)  
in Percentages in 1958

	<u>African</u>	<u>Non-African</u>
Subsistence	27	--
Domestic Goods	40	8
Imports	22	24
Services	5	38
Taxes, Savings and Other	<u>6</u>	<u>30</u>
	100	100

Source: Reproduced in ECA, 1962: Table 15, p. 26 from  
Ady and Courcier, 1960

Table 3:13

Investment, Government Expenditure and Exports in Current Market Prices

(1958 plus 1959)

Country	Fixed Capital Formation	Government Expenditure	Exports	Currency
Algeria	6.6	9.3	5.1	M.new francs
Argentina	180.7	122.1	107.0	Bil.de pesos
Australia	3,433.0	1,278.0	2,028.0	M.E A.
Austria	59.1	37.0	67.5	M.de shillings
Barbados	65.6	22.7	113.2	M.BWI dollars
Belgium	188.1	129.8	363.3	M.de francs
Brazil	469.0	349.9	223.1	M.de cruzeiros
British Guiana	109.4	63.9	206.4	M.BWI dollars
Burma	2,138.0	1,723.0	2,073.0	M.kyats
Canada	16,608.0	9,633.0	12,622.0	M.dollars
Ceylon	1,488.1	1,884.0	3,991.3	M.rupees
Chile	714.9	643.4	924.3	M.escudos
China (Taiwan)	14,859.0	18,094.0	11,032.0	M.NT dollars
Colombia	7,247.0	2,566.0	8,050.0	M.pesos
Congo (Leopoldville)	25,350.0	22,110.0	53,140.0	M. francs
Costa Rica	855.4	587.9	1,214.3	M. colones
Cuba (1957 & 1958)	950.0	540.0	1,796.0	M. pesos
Cyprus	28.1	42.3	74.7	M. £
Denmark	12,802.0	9,313.0	24,192.0	M. kroner
Dominican Republic	223.5	222.3	---	M. pesos
Ecuador	3,250.0	2,946.0	4,766.0	M. sucres
Federation of Malaya	884.0	1,307.0	4,678.0	Malayan dollars

Table 3:13 (continued)

Country	Fixed Capital Formation	Government Expenditure	Exports	Currency
Finland	633.3	336.3	607.9	Bil. markkaa
France	90.2	73.1	68.1	Bil. new franc
Republic of Germany	107,400.0	67,340.0	113,850.0	M. dtch. mark
Ghana	136.0	83.3	272.4	M. £G.
Greece	34,703.0	22,038.0	18,852.0	M. drachmas
Guatemala	181.5	168.1	244.2	M. quetzales
Honduras (1957 & 1958)	186.1	135.1	288.6	M. lempiras
Iceland	3,525.0	1,099.0	3,084.0	M. kronor
India	44.29	20.66	14.86	Bil. rupees
Indonesia	17.2	---	53.6	M. rupiah
Ireland	158.9	147.5	351.1	M. £
Israel	1,897.0	1,476.0	900.0	M. £ I.
Italy	7,267.0	5,196.0	4,953.0	Bil. lire
Jamaica	93.5	41.0	125.6	M. £
Japan	5,928.5	2,241.2	2,868.9	Bil. yen
Kenya	80.3	---	---	M. £
Korea	484.4	544.9	92.7	Bil. hwan
Luxembourg	10,474.0	5,405.0	35,306.0	M. francs
Malta	20.0	12.8	50.1	M. £
Maritius	238.0	179.0	617.0	M. rupees
Mexico	35,162.0	12,950.0	35,226.0	M. pesos
Netherlands	17,160.0	10,237.0	35,922.0	M. guilder
New Zealand	503.0	272.0	615.0	M. £ N.Z.

Table 3:13 (continued)

Country	Fixed Capital Formation	Government Expenditure	Exports	Currency
Nigeria	214.2	91.4	264.8	M. £
Norway	17,985.0	7,853.0	24,000.0	M. kroner
Pakistan	5,290.0	4,781.0	3,168.0	M. rupees
Panama	115.2	95.4	231.6	M. balboas
Peru	15,316.0	9,323.0	18,899.0	M. soles
Philippines	1,827.0	1,897.0	2,618.0	M. pesos
Portugal	20,431.0	14,290.0	21,772.0	M. escudas
Puerto Rico	642.3	424.8	1,480.3	M. U.S.dollars
Rhodesia & Nyasaland	269.3	110.2	405.9	M. £
South Africa	2,114.0	1,085.0	2,833.0	M. rand
Spain	141.9	86.8	42.2	Bil.pesetas
Sudan	74.3	58.6	6.3	M. £ S.
Sweden	24,402.0	20,439.0	29,866.0	M. kronor
Switzerland	15.3	7.9	20.1	Bil. francs
Tanganyika	54.0	35.8	96.2	M. £
Thailand	14.1	8.4	15.2	Bil.baht
Trinidad & Tobago	414.8	145.3	987.0	M.BWI dollars
Turkey	12,705.0	9,564.0	3,490.0	M.Turkish liras
Uganda	36.6	50.5	89.6	M. £
United Kingdom	7,117.0	7,824.0	9,505.0	M. £
United States	152,893.0	172,234.0	41,027.0	M. dollars
Venezuela	12,460.0	8,234.0	15,290.0	M. bolivares

Table 3:13 (continued)

- Sources: 1) U N , National Accounts Yearbook 1961
- 2) U N , Economic Survey of Asia and the Far East 1961, pp.172-3
- 3) I M F , International Financial Statistics, March 1962
- 4) National Sources
- 5) U N , Demographic Yearbook, 1961

Table 3:14

Fluctuations in Exports and Gross National Product in 11 Underdeveloped Countries

Burma (M.kyats) current prices

	GNP	$\Delta$ GNP	$\Delta$ GNP <sup>b</sup>	Exports	$\Delta$ EXP	$\Delta$ EXP <sup>b</sup>
1960	5972	+414	+129	1266	+177	+123
1959	5558	+199	- 86	1089	+105	+ 51
1958	5359	- 92	-377	984	-261	-315
1957	5451	+301	+ 16	1245	+ 13	- 41
1956	5150	+338	+ 53	1232	+ 67	+ 13
1955	4812	+215	- 70	1165	+ 52	- 2
1954	4597	- 25	-310	1113	-233	-287
1953	4622	+543	+258	1346	+192	+138
1952	4079	+397	+112	1154	+134	+ 80
1951	3682	+558	+273	1020	+292	+238
1950	3124	---	---	728	---	---

Table 3:14 (continued)

Rhodesia and Nyasaland (M. £s) current prices

	GNP	ΔGNP	ΔGNP <sup>b</sup>	Exports	ΔEXP	ΔEXP <sup>b</sup>
1960	538.8	+28.6	- 2.5	251.8	+23.4	+10.7
1959	510.2	+78.1	+47.0	228.4	+50.9	+38.2
1958	442.1	+10.7	-20.4	177.5	-18.4	-31.1
1957	431.4	+ 6.5	-24.6	195.9	-17.2	-29.9
1956	424.9	+40.5	+ 9.4	213.1	+ 9.9	- 2.8
1955	384.4	+48.7	+17.6	203.2	+19.2	+ 6.5
1954	335.7	+37.8	+ 6.7	184.0	+11.6	- 1.1
1953	$\frac{270.4^a}{242.6}$	+29.4	- 1.7	$\frac{167.6^a}{146.0}$	+ 8.6	- 4.1
1952	213.2	+ 0.7	-31.8	137.4	+14.3	+ 1.6
1951	178.5	+29.6	- 1.5	123.1	+25.0	+12.3
1950	148.9	---	---	98.1	---	---

Honduras (M. dempiras) current prices

	GNP	ΔGNP	ΔGNP <sup>b</sup>	Exports	ΔEXP	ΔEXP <sup>b</sup>
1958	715.8	+29.0	- 8.7	149.6	+10.6	+ 7.4
1957	686.8	+46.8	+ 9.1	139.0	-17.9	-21.1
1956	640.0	+12.0	-25.7	156.9	+43.9	+40.7
1955	628.0	+51.7	+14.0	113.0	- 6.5	- 9.7
1954	576.3	+ 8.7	-29.0	119.5	-28.2	-31.4
1953	567.6	+79.8	+42.1	148.7	+ 9.8	+ 6.6
1952	487.8	+22.9	-14.8	138.9	- 4.0	- 7.2
1951	464.9	+50.5	+12.8	142.9	+18.7	+15.5
1950	410.4	---	---	124.2	---	---

Table 3:14 (continued)

Cuba (M.pesos) current prices

	GNP	Δ GNP	Δ GNP <sup>b</sup>	Exports	Δ EXP	Δ EXP <sup>b</sup>
1958	2688	-166	-243	858	- 80	- 99
1957	2844	+373	+296	938	+167	+148
1956	2471	+203	+126	771	+ 11	- 8
1955	2268	+ 78	+ 1	670	+ 67	+ 48
1954	2190	- 1	- 88	613	- 87	-106
1953	2191	-253	-330	700	- 21	- 40
1952	2444	+123	+ 46	721	- 81	-100
1951	2321	+399	+322	802	+135	+116
1950	1922	---	---	667	---	---

Costa Rica (M. colones) current prices

	GNP	Δ GNP	Δ GNP <sup>b</sup>	Exports	Δ EXP	Δ EXP <sup>b</sup>
1960	2655	+125	- 11	690	+ 44	+ 10
1959	2530	+ 80	- 56	556	- 2	- 36
1958	2450	+163	+ 27	658	+ 62	+ 27
1957	2287	+165	+ 29	596	+119	+ 85
1956	2122	+ 90	- 46	477	- 46	- 82
1955	2032	+182	+ 46	531	- 6	- 40
1954	1846	+146	+ 10	537	+ 32	- 2
1953	1700	+180	+ 44	505	+ 38	+ 4
1952	1520	+110	- 26	<u>450<sup>a</sup></u> 412	+ 56	+ 22
1951	1410	+112	- 24	356	+ 44	+ 10
1950	1298	---	---	312	---	---

Table 3:14 (continued)

Ceylon (M. rupees) current prices

	GNP	$\Delta$ GNP	$\Delta$ GNP <sup>b</sup>	Exports	$\Delta$ EXP	$\Delta$ EXP <sup>b</sup>
1960	6301	+305	+ 80	2079	0	- 36
1959	5996	+374	+149	2079	+167	+101
1958	5622	+291	+ 66	1912	+116	+ 80
1957	5331	+243	+ 18	1796	-150	-186
1956	5088	-459	-684	1846	-225	-261
1955	5547	+596	+371	2071	+157	+121
1954	4951	+260	+ 35	1914	+148	+112
1953	4691	+203	- 22	1766	+139	+103
1952	4488	-246	-471	1627	-341	-377
1951	4734	+687	+462	1968	+351	+315
1950	4047	---	---	1617	---	---

Venezuela (bil.bolivares) current prices

	GNP	$\Delta$ GNP	$\Delta$ GNP <sup>b</sup>	Exports	$\Delta$ EXP	$\Delta$ EXP <sup>b</sup>
1960	24.0	- 0.3	- 1.7	7.4	- 0.1	- 0.5
1959	24.3	+ 1.8	+ 0.4	7.5	- 0.3	- 0.7
1958	22.5	+ 1.9	+ 0.7	7.8	- 0.7	- 1.1
1957	20.6	+ 2.6	+ 1.2	8.5	+ 1.6	+ 1.2
1956	18.0	+ 2.0	+ 0.6	6.9	+ 1.0	+ 0.6
1955	16.0	+ 1.2	- 0.2	5.9	0	- 0.4
1954	16.8	+ 1.0	- 0.4	5.9	+ 1.2	+ 0.8
1953	$\frac{14.3^a}{13.3}$	+ 1.2	- 0.2	4.7	+ 0.2	- 0.2
1952	12.1	+ 1.1	- 0.3	4.5	+ 0.3	- 0.1
1951	11.0	+ 1.3	- 0.1	4.2	+ 0.6	+ 0.2
1950	9.7	---	---	3.6	---	---

Table 3:14 (continued)

## Cyprus (M. pounds) current prices

	GNP	△ GNP	△ GNP <sup>b</sup>	Exports	△ EXP	△ EXP <sup>b</sup>
1960	84.0	- 2.2	- 5.4	38.8	+ 0.9	- 1.7
1959	86.2	- 1.7	- 4.9	37.9	+ 1.1	- 1.5
1958	87.9	- 4.6	- 7.8	36.8	+ 2.6	0
1957	92.5	+ 5.2	+ 2.0	34.2	- 1.3	- 3.9
1956	87.3	+14.4	+11.2	35.5	+10.0	+ 7.4
1955	72.9	+ 4.6	+ 1.4	25.5	+ 0.5	- 2.1
1954	68.3	+ 6.2	+ 3.0	25.0	+ 6.2	+ 3.6
1953	62.1	---	---	18.8	---	---

## Panama (M. balboas) current prices

	GNP	△ GNP	△ GNP <sup>b</sup>	Exports	△ EXP	△ EXP <sup>b</sup>
1960	423.1	+21.2	+ 5.2	113.0	- 4.0	0
1959	401.9	+26.2	+10.2	117.0	+ 2.4	+ 6.4
1958	375.7	+ 9.2	- 6.8	114.6	- 9.6	-13.6
1957	366.5	+33.1	+17.1	124.2	+ 4.8	+ 0.8
1956	333.4	+10.9	- 5.1	119.4	+ 2.2	- 1.8
1955	322.5	+21.3	+ 5.3	117.2	+ 7.1	+ 3.1
1954	$\frac{301.2^a}{256.7}$	+13.3	- 2.7	$\frac{110.1^a}{103.8}$	+19.1	+15.1
1953	243.4	- 0.5	-16.5	84.7	+ 6.7	+ 2.7
1952	243.9	+16.9	+ 0.9	78.0	+11.8	+ 7.8
1951	227.0	+ 8.0	- 0.8	67.2	- 0.2	- 3.8
1950	219.0	---	---	67.9	---	---

Table 3:14 (continued)

Congo (Leopoldville) (bil. francs) current prices

	GNP	△ GNP	△ GNP <sup>b</sup>	Exports	△ EXP	△ EXP <sup>b</sup>
1959	60.9	+ 1.3	- 2.1	28.0	+ 2.8	+1.4
1958	59.6	- 0.6	- 4.0	25.2	- 2.2	-3.6
1957	60.2	- 1.0	- 4.4	27.4	- 2.4	-4.1
1956	61.2	+ 3.4	0	29.8	+ 3.1	+1.7
1955	57.8	+ 3.7	+ 0.3	26.7	+ 2.0	+0.6
1954	54.1	+ 2.8	- 0.6	24.7	+ 3.1	+1.7
1953	51.3	+ 1.9	- 1.5	21.6	- 1.7	-3.1
1952	49.4	+ 4.5	+ 1.1	23.3	+ 2.3	+0.9
1951	44.9	+11.2	+ 7.8	21.0	+ 5.7	+4.3
1950	33.7	---	---	16.3	---	---

Peru (bil. soles) current prices

	GNP	△ GNP	△ GNP <sup>b</sup>	Exports	△ EXP	△ EXP <sup>b</sup>
1959	42.2	+ 5.3	+ 2.2	10.6	+ 2.3	- 1.5
1958	36.9	+ 3.2	- 0.1	8.3	+ 0.9	- 0.1
1957	33.7	+ 2.1	- 1.0	7.4	+ 0.3	- 0.5
1956	31.6	+ 3.1	0	7.1	+ 0.9	+ 0.1
1955	28.5	+ 3.4	+ 0.3	6.2	+ 0.4	- 0.4
1954	25.1	+ 3.5	+ 0.4	5.8	+ 1.2	+ 0.4
1953	22.6	+ 1.6	+ 1.5	$\frac{4.6^a}{3.7}$	+ 0.1	- 0.7
1952	21.0	+ 2.3	- 0.8	3.6	- 0.1	- 0.9
1951	18.7	+ 3.6	+ 0.5	3.7	+ 0.9	+ 0.1
1950	15.1	---	---	2.8	---	---

Table 3:14 (continued)

Footnotes

- <sup>a</sup> Break in series probably due to change in system of compilation.
- <sup>b</sup> Adjusted for trend by subtracting the average annual increase in GNP or Exports from the actual increase or decrease in each case. This is not claimed to be an accurate trend correction, but simply a commonsense method of allowing for the considerable growth of exports and GNP in this period. Its validity is improved by the fact that the percentage increase in both of these variables is declining for most of these countries over the period 1950-60.

Sources: U N Yearbook of National Accounts 1961, 1960 and 1957.

I. M. F. I F S. 1962 and 1957.



Table 3:15 (continued)

Country		1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Cuba	(1)	724	593	668	806	694	675	563	611	695	845	763	
	(2)	78.2	75.8	74.1	107.9	99.1	74.8	83.1	125.8	150.3	204.4	193.7	
Mil. pesos (current prices)	(3)					320	239	276	358	458	486	464	
Mexico	(1)	486	463	521	629	656	585	656	807	880	727	735	
	(2)	215.1	176.9	197.6	320.5	290.8	293.0	296.0	347.1	425.1	472.5	473.1	
Mil. Pesos (current prices)	(3)					8166	7854	9765	12260	13720	15057	17346	17816
Peru	(1)	157	151	189	248	234	219	245	268	308	320	281	
	(2)	157.1	72.9	67.1	99.9	118.1	134.1	105.7	119.2	157.5	171.4	134.2	
Mil. soles (1954 prices)	(3)			(2813)	(4556)	(5256)	5448	5351	5363	5500	5390	5295	(4082)
Uruguay	(1)	148	192	254	236	209	270	249	183	211	128	139	
	(2)	71.0	50.6	63.8	113.0	78.1	57.3	88.8	67.5	53.2	65.3	24.1	
	(3)	(not available)											
Venezuela	(1)	1040	1003	1161	1353	1450	1445	1690	1873	2116	2366	2321	
	(2)	370.7	382.5	251.5	325.2	397.6	407.7	452.9	488.6	632.9	1114.3	825.3	
M. Bolivares (1957 prices)	(3)			2886	3197	4192	4784	5466	5161	5597	5950	6098	6789

Table 3:15 (continued)

Source: (1) Exports: I M.F , International Financial Statistics, various issues,  
(2) Capital Goods; United Nations, Economic Commission for Latin America,  
Economic Bulletin for Latin America, Vol. V., No. 1, March 1960,

Table 14

- |  |   |                               |
|--|---|-------------------------------|
| (a) Construction materials               | } | = total capital goods imports |
| (b) Agricultural equipment and machinery |   |                               |
| (c) Industrial equipment and machinery   |   |                               |
| (d) Transport equipment and machinery    |   |                               |

Statistical supplement to Vol. IV contains series for more Latin American countries -- all in 1955 prices: 1948-1958, Table 32, p.89.

Statistics for other countries in Latin America are available from 1953-1958 in the same table.

- (3) Fixed capital formation: U N Yearbook of National Accounts Statistics, 1961 and earlier issues. Figures in brackets are estimates arrived at by splicing an earlier series with a different year's prices onto the basic series.

Table 3:16

Changes in Exports and Capital Goods Imports on Current US Dollars and Gross Fixed Capital Formation in Local Currencies in Constant Prices where obtainable.

Argentina (Strong Inflation)

	current U.S. dollars				1950 Prices B. Pesos	
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	-473	-432	-215	-181	---	---
1950	+427	+468	- 85	- 51	---	---
1951	-192	-151	+ 31	+ 65	-0.2	-0.6
1952	-481	-440	- 38	- 4	-2.0	-2.4
1953	+437	+478	- 60	- 26	-0.5	-0.9
1954	- 98	- 57	+ 6	+ 40	+2.3	+1.9
1955	- 98	- 57	+ 44	+ 78	+0.9	+0.5
1956	+ 15	+ 56	+ 12	+ 46	-0.9	-1.3
1957	+ 31	+ 72	+ 26	+ 60	+3.0	+2.6
1958	+ 19	+ 60	- 63	- 29	-0.1	-0.5
1959					-2.5	-2.9

Bolivia (Strong Inflation)

	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	+ 5	+ 9.7	+ 5.3	+ 3.4	no data	
1950	-28	-23.3	- 9.7	-11.1		
1951	+46	+50.7	+ 6.9	+ 5.5		
1952	-14	- 9.3	+ 4.7	+ 3.3		
1953	-23	-18.3	- 9.2	-10.6		
1954	-14	- 9.3	+ 1.5	+ 0.1		
1955	+ 6	+10.7	+ 8.3	+ 6.9		
1956	+ 5	+ 9.7	+ 6.8	+ 5.4		
1957	- 7	- 2.3	+ 0.1	- 1.3		
1958	-23	-18.3	- 0.8	- 2.2		

Table 3:16 (continued)

Colombia (Mild Inflation)

	M. pesos, mkt prices 1958					
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	+ 32	+ 14.8	- 19.7	-23.2		
1950	+ 75	+ 57.8	+ 15.2	+11.7		
1951	+ 67	+ 49.8	+ 17.2	+13.7	+ 601	+ 385
1952	+ 10	- 7.2	+ 15.0	+11.5	+ 363	+ 147
1953	+123	+105.8	+ 75.9	+72.4	+1089	+ 763
1954	+ 61	+ 43.8	+ 45.2	+41.7	+ 779	+ 563
1955	- 77	- 94.2	+ 15.8	+12.3	+ 266	+ 50
1956	+ 19	+ 1.8	+ 4.6	+ 1.1	- 252	- 468
1957	- 88	-105.2	-128.3	-131.8	-1172	-1388
1958	- 50	- 67.2	- 16.3	- 19.8	- 173	- 389
1959					+ 249	+ 33

Cuba (Stable prices)

	M. of pesos, current prices					
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	-131	-135	- 2.4	-14.0		
1950	+ 75	+ 71	- 1.7	-13.3		
1951	+138	+134	+33.8	+22.2		
1952	-112	-116	- 8.8	-20.4		
1953	- 19	- 23	-24.3	-35.9	-81	-105
1954	-112	-116	+ 8.3	- 3.3	+37	+ 13
1955	+ 48	+ 44	+42.7	+31.1	+82	+ 58
1956	+ 84	+ 80	+24.5	+12.9	+100	+ 76
1957	+250	+246	+54.1	+42.5	+28	+ 4
1958	- 82	- 86	-10.7	-22.3	-22	- 46

Table 3:16 (continued)

Mexico (Mild Inflation)						
Bil. pesos, current prices						
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	- 23	- 48	- 38.1	- 63.9		
1950	+ 58	+ 33	+ 20.7	- 5.1		
1951	+108	+ 83	+122.9	+107.1		
1952	+ 27	+ 2	- 29.7	- 55.5		
1953	- 71	- 96	+ 2.2	- 23.6	-0.7	-2.1
1954	+ 71	+ 56	+ 3.0	- 22.8	+1.9	+0.5
1955	+151	+126	+ 51.1	- 25.3	+2.4	+1.0
1956	+ 73	+ 48	+ 88.0	+ 62.2	+1.9	+0.5
1957	-153	-178	+ 47.4	+ 21.6	+1.8	+0.4
1958	+ 8	- 17	+ 0.6	- 25.2	+0.8	-0.6
1959					+1.8	+0.4

Peru (Mild Inflation)						
M. soles (1954 mkt prices)						
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	- 6	- 18	-84.2	-81.9		
1950	+38	+ 26	- 5.8	- 3.5		
1951	+59	+ 47	+32.8	+35.1	+1743	+1602
1952	-15	- 27	+18.2	+20.5	+ 700	+ 559
1953	-15	- 27	+16.0	+18.3	+ 192	+ 51
1954	+26	+ 14	-28.4	-26.1	- 97	- 238
1955	+23	+ 11	+13.5	+15.8	+ 12	- 129
1956	+40	+ 28	+38.3	+40.6	+ 137	- 4
1957	+12	0	+13.9	+16.2	- 110	- 251
1958	-39	- 51	-37.2	-35.9	- 95	- 236
1959					-1213	-1354

Table 3:16 (continued)

Uruguay (Strong Inflation)						
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	+14	+18	-20.4	-15.7		no data
1950	+62	+66	+13.2	+17.9		
1951	-18	-14	+49.2	+53.9		
1952	-27	-23	-34.9	-30.2		
1953	+61	+65	-20.8	-16.1		
1954	-21	-17	+31.5	+36.2		
1955	-66	-62	-21.3	-16.6		
1956	+28	+32	-14.3	- 9.6		
1957	-83	-79	+12.1	+16.8		
1958	+11	+15	-41.2	-36.5		
Venezuela (Stable)						
M.bolivares, 1957 mkt prices						
	$\Delta$ EXP	$\Delta$ EXP <sup>a</sup>	$\Delta$ CGM	$\Delta$ CGM <sup>a</sup>	$\Delta$ GFC	$\Delta$ GFC <sup>a</sup>
1949	- 37	-165	+ 11.8	- 33.8		
1950	+158	+ 30	-131.0	-176.6		
1951	+192	+ 64	+ 43.7	+ 28.1	+311	- 79
1952	+ 97	- 31	+ 74.4	+ 28.8	+995	+605
1953	- 5	-133	+ 10.1	- 35.5	+592	+202
1954	+145	+ 17	+ 45.2	- 0.4	+682	+292
1955	+183	+ 55	+ 35.7	- 9.9	-305	-695
1956	+243	+115	+144.3	+ 98.7	+436	+146
1957	+250	+122	+481.4	+435.8	+353	- 37
1958	- 45	-173	-289.0	-334.6	+148	-142
1959					+691	+301

Source: Calculated from Table 3:15

<sup>a</sup> Adjusted for trend by subtracting a constant annual average change from each country from each year's actual change.

Footnotes to Chapter 3

1. In some of the lower income countries some investment in the subsistence sector is frequently omitted or underestimated in the national accounts e.g. the construction of farm buildings by unpaid family labour, or the bringing into cultivation of virgin land. Where agriculture is large such omissions may give a downward bias to estimates of gross-fixed-capital formation in underdeveloped countries.

2. These are log. variance indices which measure instability after correcting for a constant percentage increase or decrease in the variable considered over the period 1946 - 58.

3. ECLA, 1962: p. 169 and Table 1. The measure of instability used is the average-annual-percent deviation from a straight-line trend, fitted by least-squares regression to the data from 1948 to 1959. The export figures have been divided by an index of import prices to give a figure which approximates their purchasing power in terms of imports. The study gives no results of correlation analysis, but relies on visual comparison of the indices.

4. Chapter 11, "Fiscal and Monetary Policies" contains discussion of the possible uses and limitations of government policy in underdeveloped countries in countering export induced instability. Their effectiveness seems very limited in most underdeveloped countries at present. In Burma, however, the State Agricultural Marketing Board fixed producers' prices and may have reduced fluctuations in their incomes.

5. UN, 1961:pp.11-12. Similar statements can be found in UN, 1958: pp. 60-64; UN, 1959: pp. 66-73 and Fleming and Lovasy, 1960:p. 14.

6. UN, 1961: pp. 11-13 and chart 2 presents this data in the form of a scatter diagram and comments, "the year-to-year changes in total investment have tended to reflect the instability in export proceeds or in importing power of exports (see chart 2)". Actually the points are widely scattered on the chart and it requires a certain boldness to fit any regression line by eye to them. The calculated regression, as we have seen, is non-significant.

7. ECLA, 1962: p. 172.

8. Berg, 1964.

9. Data from Coppock, 1962: Table A-2.

10. On 26 occasions total receipts fluctuated more than merchandise exports, on 10 occasions fluctuations were equal in each and on 29 occasions total receipts fluctuated less than merchandise exports. The average annual percentage change in total receipts was 15.6, while for exports alone it was 17.2 per cent. See UN, 1952: Table 45, p.73.

11. Fleming and Lovasy, 1960: p. 12. They define "external receipts" as "the net balance of all items other than imports and compensatory financing."

12. Data for both of these cross-country correlations are from Coppock, 1962: Table A-2.

13. See Chapters 5 and 10 below.

14. UN, 1961: pp. 3-15, UN, 1953: pp. 6-21, UN, 1962: p.51, for example.

15. Wah, 1962: pp. 84 - 94. He actually finds a negative regression coefficient for production on current prices. He comments, p. 93, "Within the period studied production by Malayan rubber estates did not respond to current year prices changes." Sterne, 1963, pp. 16-17, finds low or zero rubber supply elasticities even when stock responses are included.

16. Wah, 1962: p. 93

17. However, in some countries the wages of export industry workers are fixed by law. This apparently was the case in Ceylon tea estates. Levin, 1960: p. 187.

18. The sources of government revenue in a typical underdeveloped country may resemble the following: 23 per cent direct taxes, probably mainly paid by large businesses, 26 per cent import duties, 15 per cent export duties, 19 per cent other indirect taxes, and 17 per cent non-tax revenues. These are averages for 15 underdeveloped countries in Africa calculated from ECA, 1962, Table 14.

19. "Leaving aside the subsistence sector, the differences in levels of income between different social groups within the monetary sector are immense. A convenient distinction can be drawn between a high-income and a low-income group, the former consisting of the merchant and the business class in urban areas, together with holders of senior positions in both public and private sectors." ECA, 1962:p.25

20. Tan, 1962: p. 14

21. Nigeria and the French Niger, Ivory Coast and Ghana, Eastern Nigeria and the Cameroons and the Congo have seen large quantities of export crops moved across the border to take advantage of higher prices. See Berg, 1964 a: pp. 26-27.

22. The taxes on profits surprisingly may be less responsive in many underdeveloped countries because of inefficiencies in tax administration and tax evasion. See Chapter 11, pp. 00 - 00, below.

23. Fleming, Rhomberg and Boissoneault, 1963: Table 13, p.144.

$$\begin{aligned} 24. \quad \Delta Y &= \Delta X (1 - p_x - m_x - t_x) \cdot \frac{1}{m_y + s_y + t_y} \\ &= \Delta X (1 - 0.19 - 0.05 - 0.29) \cdot \frac{1}{0.32 + 0.05 + 0.09} \\ &= \Delta X \cdot 0.47/0.46 \\ &= \Delta X \cdot 1.02 \end{aligned}$$

This assumes a neutral fiscal and monetary policy on the part of the government. It does not allow the money supply to change or government expenditure to change as a consequence of the export fluctuations.

25. Maizels, 1963: p. 415.

## Chapter 4

### Economic Growth

Probably the most important question in this study is whether export fluctuations have any adverse direct or indirect effects on the ability of underdeveloped countries to achieve rapid and stable economic growth. This forms the subject of inquiry in the present chapter. The main focus is on the accumulation of capital and the relative efficiency of its use. Any economic phenomenon which retards the accumulation of capital, distorts its allocation or otherwise reduces its efficiency strikes at the interests of an underdeveloped country. Sharply fluctuating export proceeds seem a very proper subject for concern as a possible influence on the rate and efficiency of investment. They have in fact, for reasons discussed in Chapter 1, fallen under strong suspicion of damaging prospects for economic growth in underdeveloped countries. A statement by Ragnar Nurkse (1958:p.143), exemplifies the apprehension of those who consider export fluctuations to be seriously detrimental:

“The instability of export markets for primary commodities makes any steady development policy difficult; discourages investment in primary production itself; generally limits the 'economic horizon', and destroys the continuity so necessary in private as well as public planning. 'People have learned out of the past that wealth comes quickly in Brazil through a boom, and that a sudden turn of events may bring disaster.' The violent fluctuation of the export trade may well be a major cause of the speculative attitude and the 'get-rich-quick' mentality so widespread among businessmen in underdeveloped countries.

Through the cyclical instability of foreign trade it may be that dynamic growth in the advanced countries has tended in this way to impede the progress of the poorer countries."

This is a complex statement containing several ideas, but it is evident that Nurkse thought that both the quantity and quality of investment were likely to be adversely affected in countries where export instability is relatively severe. Some insight into the actual relationships may be obtained by starting off the analysis with very simple, indeed crude hypotheses and subsequently modifying these. One such hypothesis is that countries which have highly unstable exports tend to invest a smaller proportion of national income than do countries with stable exports. Clearly there are many other factors which may affect investment, but if these other factors are unrelated to export instability it is possible that their effects should be random allowing the effect of instability, if it is powerful, to be revealed by simple correlation analysis.

To test this first hypothesis simple correlation analysis of the relationships between indices of fluctuations in the importing power of merchandise exports and the ratio of investment to income cumulated over the period 1950-58 for the 21 underdeveloped countries for which data are shown in Table 4:1 was carried out. Data for investment and income are in constant 1950 prices in this and all subsequent statistical analyses in this chapter. The correlation coefficient found was  $+.05$  which is non-significant and has the wrong sign. As far as the hypothesis is concerned the coefficient should be significantly negative.

A second hypothesis, that countries with relatively unstable exports tend to have a slower rate of growth of fixed capital formation likewise gains no support from correlation analysis. For 25 underdeveloped countries listed in Table 4:1 the correlation coefficient was  $+.17$  which again has the wrong sign, but is well below the  $.05$  level of significance. Some support for the possibility of a positive association between export instability and the rate of growth of fixed capital is revealed when the 25 countries are ranked by the degree of instability and grouped in thirds as in Table 4:2. It appears from the table that the higher the average degree of export instability the faster the average rate of growth of investment.

These simple cross-country correlations evidently yield no support to the view that export instability deters investment. It would not be very surprising to find a very low correlation between investment and a single explanatory variable such as the degree of instability of exports. It is a little surprising, however, that the signs for these coefficients should be positive rather than the negative signs suggested by the two hypotheses. Crude though they are, these results at least indicate that other variables are probably rather more important determinants of a country's investment than the degree of instability of its exports. Of course, it remains possible that export instability does have an adverse effect on either or both the level and rate of growth of investment but that this is swamped by other more powerful influences.

Some of these influences are social, cultural and institutional: the savings habits of the society, the proportion of saving and investment carried out by the government, the tax policies and levels of protection against imports of consumer goods are potentially important. However,

given that the average underdeveloped country relies on imports of capital goods for approximately 40 per cent of its domestic fixed investment<sup>1</sup> the sources of foreign exchange would seem likely to be significant determinants of capital accumulation in most underdeveloped countries. Proceeds from the rate of merchandise exports remain by far the most important of these (UN, 1962: Table 1-6), but invisible transactions, private and official capital movements play a significant role in some countries. Moreover, the trend or rate of increase in the purchasing power over imports of the sum of these items may be the most important determinant of the ability of underdeveloped countries to increase their rate of fixed investment. The social institutional and cultural determinants are less likely to change significantly in the span of less than a decade. They are probably more influential on the level of savings and investment as a proportion of GNP but less useful as an explanation of the rate of growth of investment than is the rate of growth of import capacity. They are in any case very difficult to measure. No doubt in principle a classification or crude indexing of such factors could be carried out and their introduction as qualifying variables would improve our explanation of fixed investment, but in practice it is doubtful if it could be done. Certainly it would require a much more intimate knowledge of each of the countries used than the author could acquire. If it is true that in general they tend to be fairly stable over the period of time considered here, then it is probably more justifiable to omit social and institutional determinants from a model which attempts to explain the rate of growth of fixed capital formation than one explaining proportion of income devoted to

investment. In fact the rate of growth of import capacity is correlated much more closely with the rate of growth of fixed investment than with the average ratio of fixed investment to GDP for the whole period 1950-58 when the influence of other variables is taken into account. In any case the major concern of this study is with the impact of external events on the domestic economy.

#### Multivariable Analysis of Investment

In the first model formulated to explain the rate of growth of investment in underdeveloped countries the independent variables were: (1) the rate of growth of import capacity, i.e. the total value of exports plus net invisibles and net capital transfers, divided by an index of import prices, (2) the instability of importing power of merchandise exports, and (3) the rate of increase (or decrease) in reserves of gold and foreign exchange over the period. The group of countries was the maximum number of underdeveloped countries (25) for which data were available. The figures are shown in Table 4:1. The multiple regression equation found was:

$$\dot{I} = -5.62 + 1.09X_1 + 1.21X_2 - 0.14X_3 \quad R^2 = 0.30$$

(0.39)    (0.70)    (0.16)

where  $\dot{I}$  is the rate of growth of fixed-capital formation,  $X_1$  the rate of growth of total import capacity,  $X_2$  the instability of importing power of merchandise exports, and  $X_3$  the rate of increase in foreign-exchange reserves. Of these only the coefficient of  $X_1$ , the rate of growth of total import capacity, was significant at the .05 level. The variable in which we are particularly interested,  $X_2$ , once again seems to have a positive, though weak, relationship with the rate of

investment, not the significant negative relationship required by the hypothesis of deterred investment. The equation as a whole does not reach the .05 level of significance.

However, when two further variables are added to the regression analysis, the resulting equation becomes highly significant and appears to explain over 80 per cent of the variation in the rate of growth of investment among these countries. The two further explanatory variables are:  $X_4$ , the percentage change in the ratio of capital-goods imports to domestic fixed capital formation, and  $X_5$ , the percentage change in the ratio of capital-goods imports to total imports. Data for each and definitions are shown in Table 4:1. The reasons for adding these variables are fairly obvious. Despite suggestions that underdeveloped countries have already cut their ordinary imports to a minimum and are unable to produce capital goods at home,<sup>2</sup> many have in fact done both of these things and thus enhanced their potential to increase investment. The simple correlation coefficients between each of these and  $\dot{I}$  are sufficiently high to justify their inclusion in the multiple-regression analysis (-0.37 for  $X_4$  and +0.62 for  $X_5$ ). With the addition of these variables the new equation found was:

$$\dot{I} = -4.59 + 0.71X_1 + 0.95X_2 + 0.10X_3 - 0.19X_4 + 0.16X_5 \quad R^2 = 0.81$$

(0.24)    (0.39)    (0.10)    (0.04)    (0.03)

This equation is statistically highly significant as a whole, and each of the coefficients is significant at least at the .05 level except for  $X_3$ , the reserves. The variable,  $X_3$ , was dropped, and the final regression equation was:

$$\dot{I} = -4.14 + 0.84X_1 + 0.85X_2 - 0.19X_4 + 0.15X_5 \quad R^2 = 0.81$$

(0.19)    (0.38)    (0.04)    (0.02)                      F-Ratio = 20.87

These four variables seem to explain over 80 per cent of the variation in the rate of growth of investment among the 25 underdeveloped countries examined. The variable in which we are particularly interested is  $X_2$ , the instability of the importing power of exports. It would seem from our analysis that it is associated significantly, better than the .05 level, with the rate of growth of investment. But this association is positive: the greater the instability, the higher the rate of fixed-capital formation. These statistical findings simply cannot support belief in the detrimental effect of export fluctuation.

The multiple-regression analysis was repeated, but with average investment to average income for the whole period as the dependent variable instead of the rate of growth of investment. This gave a very poor explanation of I/Y:

$$I/Y = 12.36 + 0.03X_1 + 0.038X_2 + 0.05X_4 - 0.05X_5 \quad R^2 = 0.105$$

(0.04)    (0.081)    (0.07)    (0.05)

though a slight improvement on the simple correlation with  $X_2$ . The coefficient of  $X_2$  was again positive, but well below the .05 significance level. At the very least, the view that investment should be lower with high export instability is not upheld. If anything, the tendency appears to be the other way.

Both the simple correlations and the multiple regressions yield no support to either of our first hypotheses. Statistical analysis has certainly not established that instability in exports is a deterrent to either the quantity or rate of growth of fixed-capital formation in underdeveloped countries. To go further and argue that fluctuations in exports would actually lead to higher investment was no part of our intention. But it is interesting to speculate a little on why this

actual or apparent relationship might exist.

One possibility is that export booms generate optimism leading to increased investment which is not matched by disinvestment in years of export slumps. This view gains some support from Clark Reynold's study of the Chilean economy. His findings suggest that:

"Investors in the export industry regard upswings as beginnings of trends rather than as temporary phenomena, and behave accordingly; downswings, on the other hand, are apparently considered short-run phenomena, since no major disinvestment occurred for any of the companies even during the severe depression of the 1930's." (Reynolds, 1963, p.100).

Sir Sidney Caine, commenting on an article by Ragnar Nurkse says:

"There is in fact plenty of evidence on the other side in, for example, the high level of investment which has prevailed in such countries as Malaya and Indonesia during periods of very sharp fluctuation in the prices of their principal products." (Caine, 1958: p. 188).

A more general and theoretical objection to the view of fluctuation as detrimental may be raised. This is that people whose incomes are subject to large fluctuations are likely to hold a larger amount of reserves against contingencies than are others whose income is relatively stable. In order to do this they must at some time increase their saving, which in turn releases resources for investment.<sup>4</sup> In economies where there is constant pressure on available investment resources such acts of saving are likely to lead to investment by someone - perhaps the government -

unless the cash accrues to deposits in banks overseas and so reduces foreign exchange reserves. There is therefore a case to be made out in support of our statistical finding of a positive, if rather weak, relationship between fluctuations in exports and the rate of growth of investment.

Another possibility exists, however. The relationship may be spurious and derive mainly from increased costs of capital goods or loss of efficiency in investment in underdeveloped countries which suffer from high export instability. This is not simply a question of inflation raising the monetary prices of capital goods, since our data for these are in constant prices. It is rather more a question of the effects of instability on the quality and allocation of investment. Perhaps we can characterize these as qualitative effects and consider them in the following section.

#### Possible Qualitative Effects on Investment

1. Those countries which have suffered much export instability may have often had repeated devaluations with a corollary increase in the domestic price of their capital-goods imports. The raised domestic prices would inflate the value of capital goods towards the end of the period. This would apparently increase the rate of growth of investment and raise the proportion of investment to income. The apparent increase would be spurious for the physical assets would be the same or even less.
2. Countries with unstable exports will have had unstable "stop-go" investment policies enforced upon them which tend to lower their efficiency and increase construction costs of capital projects.

3. Repeated shortages of foreign exchange imposed by fluctuations might lead to diversion of demand towards home-produced -- more costly and less efficient -- capital goods.
4. Increased uncertainty created by fluctuations could increase risks of investment and of lending in such a way as to increase risk premia on loan rates of interest and thus to raise costs of capital projects. Where economic planning is important, increased uncertainty could render it less efficient and more costly. A high degree of uncertainty could also affect the pattern of investment and might favor more costly and less productive types.
5. Instability in exports tends to generate inflation which in turn is likely to affect the allocation of resources between different types of investment goods and may lower productivity.<sup>5</sup>

Bringing these effects under scrutiny, the first possibility, the effects of devaluation, seems a very dubious explanation for the positive correlation found between growth of investment and export instability. Most underdeveloped countries which have devalued their currency have found that their domestic price levels soon readjusted upwards via more inflation so that the increased cost in local currencies of imported goods was rapidly overtaken. If this generalization is true, then the use of deflated figures for capital formation, as was done, should eliminate all or most of the effects of devaluation in raising the costs of capital formation. In any event, in our sample only two countries with high export instability associated with rapid growth in capital formation have experienced devaluations within the period.

These are Colombia, which has had frequent devaluations associated with prolonged and fairly rapid inflation, and Turkey, which devalued in 1957 and 1958 at the end of the period. Turkey, however, is one of the countries where trade is a tiny part of national income; exports plus imports amounted to a mere 7 per cent of the Turkish gross national product in 1957, and Turkish capital-goods imports averaged in the two years 1957 and 1958 only 21 per cent of domestic fixed-capital formation. These are the only years which could have been affected in our study.

The remaining possibilities could be checked in detail only by a very close examination of actual investment projects and by surveys of types of investment undertaken under different experiences of stable and fluctuating export earnings. Data on the composition of investment are very scarce and chronically inaccurate. Many countries publish no breakdown of fixed-capital formation or only under the very broadest headings. However, if it were true that severe instability in export earnings affected the composition of investment, one area which would probably reflect this is the ratio of stocks to total capital. This is particularly likely if the export instability causes or is accompanied by inflation. Instability is deemed to make for uncertainty for investors. Given a mood of uncertainty, investors will seek liquidity, normally in the form of cash or readily encashable assets which enable investors to seize opportunities for profitable investment in fixed assets as they arise. However, in an inflationary context money or assets whose values are fixed in money terms become unattractive. Their purchasing power may dwindle rapidly and inflict serious capital loss

upon their owners. In these circumstances stocks of storable goods become an attractive compromise. They can fairly readily be converted into cash, but they also have the merit of holding their value in real terms (barring obsolescence or alterations in consumers' tastes). The combination of instability in export proceeds with secular inflation which is made to proceed at alternating fast and slow speeds by the export instability would produce, if ever they are going to be produced at all, conditions under which a relatively high ratio of investment in inventories to total investment would prevail.<sup>6</sup>

Before examining the effect on stocks it may be worthwhile examining the association between export instability and inflation. Inflation itself is suspect as an adverse factor in the economic growth equation. Whether inflation in fact damages prospects for growth is a subject of controversy, but recent empirical studies by members of the IMF staff have produced evidence which is at least suggestive of adverse effects from inflation on growth.<sup>7</sup> This increases the importance of a possible causal relationship between short-term fluctuations in exports and secular inflation in underdeveloped countries.

#### Export Fluctuations and Domestic Inflation

Export instability may certainly increase the difficulties of avoiding inflation. If one social group achieves an increase in income through a fortuitous increase in world prices or through a good harvest other groups may be unwilling to concede this relative worsening of their position. If those whose interests are damaged are organized and powerful they may succeed in obtaining increased incomes which are unmatched by any rise in the overall productivity of the economy. Where

this happens inflationary pressure will be generated.

Inflation may also result from a kind of ratchet effect on money incomes produced by fluctuations in export earnings. A possible sequence of events could run as follows: export earnings rise generating increased incomes in the export sector, unionized labor in this sector demands a share in the increased profits and obtains a wage increase. When export earnings subsequently fall, wage incomes do not fall in turn and some risk of unemployment threatens. This leads the government into efforts to support domestic incomes to avoid the economic and political troubles attendant on unemployment. However, the constant drain upon reserves of gold and foreign exchange which would result from the continued demand for imports at the supported level of income would force the government to restrict the quantity of imports by controls. This could tend to divert demand to home-produced goods raising their prices, increasing the cost of living and perhaps setting off a further sequence of wage-price increases. These eventualities are unlikely in any but the richer and more economically developed of the underdeveloped countries.

The government's own policies may lead it into increasing inflationary pressure. The increased foreign exchange available during the export boom, together with increased government revenues from taxation, particularly export and import duties, may lead the government to embark upon fairly expansionary policies such as investing in construction work. These works will require sustained expenditures upon them and perhaps capital-goods imports for some time after the export boom has receded into the past. This may force the government to adopt discriminatory controls upon imports -- restricting those for private consumption to

enable it to husband its foreign exchange for the purchase of capital goods from abroad. The maintenance of the domestic expenditures combined with the controls on imports of consumption goods are once again likely to increase inflationary tendencies at home. A devaluation in this context would also tend to increase inflationary stresses.

Whatever the actual mechanism which may relate instability of export earnings to inflation in underdeveloped countries the statistical evidence yields some support for believing in the relationship. Table 4:1 sets out the data on which calculations were based. When all 29 of the underdeveloped countries in the sample were used to correlate their average rates of inflation (average-year-to-year per cent change in their cost-of-living indices) with their instability of importing power of exports the correlation was low and insignificant, but when the ex-British territories of Malaya, Ghana, and Ceylon were left out of the sample the correlation become 0.5 and is statistically significant at the .01 level. Omission of the ex-British territories may be justified on the basis that under the currency-board system which governed their economies for most of the post-war period colonial and trust territory governments were fairly effectively prevented from adopting inflationary policies. If all 29 of the countries are ranked by export instability from highest to lowest and grouped into three groups of ten, ten and nine the average indices of instability and inflation for each group show some positive association. The group with the highest export fluctuations have an associated mean rate of inflation of 10.6. The second group's average inflation rate is 4.7 and the group with the least instability of

exports has the lowest mean rate of inflation, 2.2 per cent per annum.

But even if the association is taken as established it remains a matter of opinion whether the export fluctuations are a fundamental or merely a proximate cause of the inflation; or indeed, if a causal relationship exists. In Argentina probably both the inflation and the export instability were the results of the government's economic policies for rapid industrialization. In Chile the effects of export instability are greatly reduced by the intervention of the expatriate copper firms and the inflation can be largely explained by persistent government budget deficits.<sup>8</sup> In Brazil exports form less than 7 per cent of GNP, so it seems unlikely that their instability could be an important cause of inflation. These three countries weigh very heavily in the correlation as Table 4:1 shows.

#### Investment in Stocks and Construction

Since inflation is itself a possible cause of investment in stocks it is introduced as a qualifying variable in analyzing the possible influence of export instability on secular inflation. A multiple-regression analysis of the relationships among the ratio of stocks to total capital, the instability of the importing power of exports and the average annual increase in the cost-of-living index was carried out with Table 4:1 data for sixteen underdeveloped countries for which figures were available. The simple correlation coefficient between stocks/investment and instability of the importing power of exports is -0.186, the partial correlation coefficient, allowing for the influence of inflation, is +0.0035.

The change of sign together with the smallness of the r values makes the existence of an association improbable.

$$\text{The regression equation is: } Y = 8.4 + 0.0082X_2 - 0.1408X_6 \quad R^2 = 0.198$$
$$(.6524) \quad (0.0864)$$

Where Y = the ratio of stocks to total investment, X<sub>2</sub> = the instability of exports and X<sub>6</sub> = the rate of inflation. These results give some suggestion of an inverse relation between the ratio of stocks to fixed capital and the rate of inflation, but it is non-significant at the .05 level. The instability of importing power of exports and the ratio of stocks to total investment seem quite unrelated.

#### Construction

It is sometimes suggested that uncertainty and inflationary conditions tend to create incentives for investment in the construction of luxury housing; diverting resources to this from more socially approved tasks. It is also held that such distortion lowers the possible rates of growth in economies where it occurs. Without accepting the validity of this argument it may nevertheless be interesting to inquire whether export instability does influence the allocation of investment in this way. Unfortunately data on construction as a proportion of total capital formation could be found for only twelve underdeveloped countries. They are set out in Table 4:1. When a multiple-regression analysis of the association of the ratio of construction to total investment with export instability and the rate of inflation was carried out no significant relationships were found. The equation found was:

$$Y = 67.5 + 0.14X_2 - 0.29X_6 \quad R^2 = 0.23$$
$$(1.46) \quad (0.20)$$

Where  $Y$  is the ratio of construction to investment and  $X_2$  and  $X_6$  have the same meanings as before. Neither export instability nor inflation appears to be significantly related to construction as a proportion of investment. But of course the data are unreliable and the sample of countries small.

### The Productivity of Capital

A further possible way of measuring changes in the allocation and efficiency of investment is suggested in the study of inflation and investment by Shaalan (1962: pp. 255 et seq.) This is an examination of changes in the marginal output-to-capital ratio. "If changes in output/capital ratios are examined, one may obtain not a measure of the structure of investment but an approximation to an index of the efficiency of investment. Other things being equal, a high marginal output/capital ratio would suggest that recent investment by the economy had been highly productive (and vice versa)." Shaalan uses this technique to examine the efficiency of investment during different inflation periods between 1950 and 1959 for Argentina, Chile and Colombia. We, however, use it in cross-sectional analysis which may be even less legitimate. The hypothesis which we test is of the form: -- those countries which have high export instability will tend to have lower average values for their marginal output/capital ratios over the period examined (1950-58). In fact we could only arrive at conclusions about the relative efficiency of investment if a great many 'other things remained equal': no differential change in the degree of utilization of existing capacity in different countries, similar

industrial structure and pattern of change (e.g., an increase in mineral extractions may mean a vast increase in capital, but nevertheless be very profitable, because labor costs are low) similar changes in technology, etc.

However, for the sake of completeness this relationship was examined. Data were analysed for some twenty-four underdeveloped countries. The simple correlation coefficient between the average incremental capital/output ratio (i.e., inverse of the marginal output/capital) and the degree of instability of the importing power of exports was +0.425 which is just barely significant at the .05 level. This correlation and its significance hang largely upon the data for one country, Argentina, which has an exceptionally high marginal capital/output ratio over this period. With the omission of Argentina the correlation is quite insignificant. When the countries were ranked by degree of foreign trade instability and grouped into thirds the averages for the groups showed only an insignificant association. The mean capital/output ratios for the groups when ranked highest to lowest by degree of export instability were: 4.45 per cent, (omitting Argentina, 3.24 per cent), 2.98 per cent and 2.98 per cent.

A multiple-regression analysis including the rate of inflation as a qualifying variable lowered the degree of association with export instability.

The regression equation was:

$$Y = -0.35 + 0.4457X_2 + 0.0528X_6 \quad R^2 = 0.2415$$

(0.2705) (0.0407)

where Y is the incremental capital/output ratio and X<sub>2</sub> and X<sub>6</sub> have the same meanings as before.

The regression coefficient for  $X_2$ , the instability of importing power of exports is non-significant at the .05 level. Argentina was included in the regression analysis. The results would have much lower values were it omitted. Since this period was one of a deliberate governmental policy to build up industry at the expense of agriculture in Argentina it would not be surprising to find that the very high average incremental capital/output ratio was due to the high initial investments required in setting up industry and the low value of output caused by lack of incentives to agriculture and disruption of normal production by the political and economic struggles of that time. In addition, Argentina suffered a severe drought in 1952 which lowered agricultural output severely. Given that the relationship is non-significant even when Argentina is included, it seems reasonable that we should regard the hypothesis, that marginal capital/output ratios in countries with relatively high export instability tend to be higher than in countries with stable exports, as not confirmed by the evidence.

The foregoing analyses of the effects of export instability upon the proportion of investment in stocks, in construction and upon the marginal capital/output ratios yield little or no support to the view that these effects have been significant and damaging to economic growth. Admittedly the lack of data has limited the size of the samples and the data is probably subject to serious inaccuracies so that too much weight should not be put on this evidence. Nevertheless, it cannot be completely ignored and it does cast some doubt upon the view that, even if investment is not lower, it will be less efficient in countries where export instability is high. The burden of proof is shifted back to the

proponents of that view.

#### Growth of Gross Domestic Product

As a final and more general check, the relationship between foreign trade instability and economic growth in underdeveloped countries was examined more directly. Simple correlation analysis for twenty-two underdeveloped countries using Table 4:1 data yielded a correlation coefficient of  $-0.29$  which is well below the  $.05$  level of significance and explains only 5 per cent of the variation in the rates of growth between the countries. When the countries were ranked by the degree of instability of exports and grouped in thirds the inverse correlation appears confirmed, but it is evidently very weak. The most unstable group is associated with the lowest rate of growth, 5.24 per cent per annum; the mid-group 5.37 and the least unstable group with the highest growth rate 5.46. But the differences are less than 0.1 per cent per annum.

When the qualifying variable of the rate of growth of exports was introduced the regression coefficient for the instability of importing power of exports became tiny and clearly non-significant. The rate of growth of exports was associated significantly (at  $.01$  level) with income growth. When the ratio of foreign trade to income and the rate of growth (or decline) in reserves were added the multiple-regression equation became much less significant. Changes in reserves appear to be of very little value in explaining growth in these countries. The empirical results are shown in the regression equations below. The data are from Table 4:1 save for T which is from Coppock, 1962: Table A-2.

$$(1) \quad \dot{Y} = 3.6 - .0082 X_v + 0.4278\dot{X} \quad R^2 = .4285 \quad F \text{ Ratio } 7.12$$

$$\quad \quad \quad (.2811) \quad (.1267)$$

$$(2) \quad \dot{Y} = 4.1 - .0089X_v + 0.3021\dot{X} + 0.0002T + 0.1028 \Delta R \quad R^2 = .4837 \quad F \text{ Ratio } 3.98$$

$$\quad \quad \quad (.2833) \quad (.1580) \quad (.0186) \quad (.0828)$$

The variables used are defined as:  $\dot{Y}$  = rate of growth of output (1950/51 - 57/58),  $X_v$  = instability of importing power of exports (1948-58),  $\dot{X}$  = rate of growth of import capacity (1950/51 - 57/58), T = ratio of foreign trade/income (1957),  $\Delta R$  = change in reserves of foreign exchange and gold (1950/51 - 57/58). In neither equation is  $X_v$ , the instability of exports significantly related to the growth of GDP. It seems that for these twenty-two underdeveloped countries, chosen only on the basis of available data, little or no relationship exists between short-term instability in their export proceeds and the rate of growth of their national incomes. However, there are several other possible ways in which growth could be affected which we should examine.

#### Instability in Producers' Incomes and Specialization

One suggestion is that instability of primary producers' incomes will inhibit specialization. The uncertainty created by fluctuations in the income derived from the production of cash crops for export may act as a serious disincentive to specialization in these lines. Uncertainty is always a serious problem in agricultural production, but in low income countries the risks become much more vital. The individual farmer producing for the market runs three risks: (1) the risk of a bad crop, (2) the risk of a fall in the price of his crop, (3) the risk of a rise in the price of the food he needs to buy to support his family. The subsistence producer runs only the first of

these risks. It can therefore be argued that, in areas like East and West Pakistan where the cash crops, jute or cotton respectively, are grown on land which can be used for rice or other food grains, uncertainty can deter specialization and encourage subsistence farming. This adds a rational argument to the widely used arguments of ignorance, laziness and traditional and religious obstacles to the entrance of peasant producers into the money economy.<sup>9</sup> Intuitively this is an appealing argument in the context of Pakistan. Prices of staple foods have varied widely and frequently in the opposite direction to prices of the main export crops -- jute and cotton.<sup>10</sup> However, where farmers are rather less poor and have already developed savings habits, e.g. the Yoruba cocoa farmers, described by Galletti, Baldwin and Dina (1956), the converse may hold true. The storage property of money may reduce considerably for the individual the risks of dependency upon his own food crops. If the peasant can save in good years to support his standard of living in bad years his position is more secure than that of the subsistence farmer. Sir Sydney Caine says,

“Private individuals living in primary producing countries are naturally not unaware that prices fluctuate, and they are perhaps more prudent than economic theorists give them credit for, so that they do not spend the whole of the higher incomes received in good times as soon as they are received. They do in fact put a certain amount away, as shown by the evidence of bank deposits and other forms of short-term saving, and they draw on those reserves in periods of lower prices, so maintaining a good deal more

stability of consumption and expenditure than crude figures of income might suggest. I have myself lived in Malaya during a period of considerable fluctuation in the prices of rubber, when the highest price was nearly three times the lowest, without its being possible to observe either by ordinary inspection of people's habits or from public statistics any striking change in the levels of private expenditure and consumption." (1958: p. 189)

There is a further possibility, that once peasants have entered the cash sector they may acquire tastes for products which can only be obtained by earning money. If this happens their reaction to a fall in prices of their cash crops may be an increase in output. They may also have to pay taxes in cash which may force increased efforts to maximize cash income when prices fall. If the reaction to increased prices is to expand production while the reaction to reduced prices is also to expand production, or at least not to contract it, the result of instability would be increased specialization.

Almost the whole gamut of reactions by producers in underdeveloped countries to changes in their prices and/or incomes can be postulated with more or less degrees of scepticism. Unfortunately there is little or no evidence available on this save in specific cases. Generalizations on this problem in our current state of knowledge are impracticable.<sup>11</sup>

#### Foreign Trade Instability and Foreign Exchange Reserves

It may be argued that because of their relatively greater instability of exports underdeveloped countries are forced to hold larger reserves than do rich countries, and this imposes a serious burden upon their economies.

It can also be argued that this is a partial explanation for the apparently minor domestic impact of export instability. Utilisation of reserves may have acted as a cushion between external fluctuations and their internal economies.

However, it does not appear to be true, at least among underdeveloped countries, that there is a strong tendency for the countries with very unstable exports to hold the larger reserves. Analysis of the relationship between these two factors yields a very low correlation (0.128) for 38 underdeveloped countries.<sup>12</sup> It appears that underdeveloped countries on the average hold only a very slightly higher ratio of reserves to imports than do rich countries. For some 41 underdeveloped countries the average holding over 1956 and 1957 was 45.9 per cent, while for some 20 rich countries the average was 41.2 per cent.<sup>13</sup> Given these statistical results it is hard to maintain either that underdeveloped countries have in fact held so much larger reserves than rich countries that this is a serious burden, or that their utilisation of these extra reserves could be an important explanation for the apparent lack of response in their internal economies to external instability. In our earlier analyses of both investment and national income growth changes in reserves of foreign exchange proved to have no significant relationship to either. (See pp.00 to 00and 00above).

#### Instability of Export Prices and Long-Term Demand for Exports

One final link between export instability and economic growth which should, perhaps, be included in this discussion is the question of a stimulus to the production of substitutes in importing countries or rival exporting countries which may be promoted by unstable commodity

export prices. It can be argued that high commodity prices may increase the search for synthetic substitutes in the advanced countries or lead to adaptations of plant and equipment to use other materials which involve firms in capital investment and make their return to the use of the traditional material, even when its prices fall, much less likely. This is not an area in which general conclusions can easily be found and the issue is not at present capable of general statistical proof or disproof. It is a widely held belief, particularly in the field of textiles and rubber, that this has happened and is happening. How much of the substitution can be attributed to actual short-term instability of raw material prices is, however, very difficult to establish. The problem is overlaid by other determinants of substitution: cost-reducing innovations in synthetics, quality improvements, changes in consumers' tastes and the development of new products. In the case of jute there is some evidence of its happening.<sup>14</sup> At this stage all that can be said is that for some products price instability may have played some part in encouraging substitution, but compared to the other factors at work its influence seems likely to have been small..

All in all, our search for evidence demonstrating the adverse influence of short-term instability of export earnings on the prospects of growth in underdeveloped countries has turned up little in support of that thesis. Almost every chain of reasoning leading to the conclusion that serious damage is inflicted by instability has been found wanting when confronted with analyses of UN and IMF data. Put at its weakest, the case for believing export instability to be a severe deterrent to economic growth in most underdeveloped countries is not

proven. Moreover, for certain of the ways in which it is supposed to affect growth, e.g. through the quantity of investment, the weight of evidence is against. I would emphasise that this does not deny that for individual underdeveloped countries it may very well be important. Indeed, it may be possible to demonstrate that for some underdeveloped countries short-term export instability has seriously reduced their ability to achieve high rates of economic growth, but for underdeveloped countries in general the evidence seems to indicate that this has not been an important obstacle to their economic development.

A brief, purely statistical study of relationships between export fluctuations and economic growth by Brode and MacBean (1964) using slightly different techniques and including rich industrial countries in the study reaches similar conclusions to these found here. Neither cross-country nor time-series analyses there reveal significant relationships between income or investment and export fluctuations.

Table 4:1

Variables Used in Statistical Analyses in Chapter 4

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$\dot{I}$	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$\dot{Y}$	I/Y	$\dot{p}$	$\Delta K/\Delta O$	S/K	C/K
Argentina	2	- 2.9	11.8	-12.1	0	- 3	1.7	22	31	12.9	- 0.5	61
Bolivia	6	- 2.5	11.2	-20.9	0	8	n.a.	n.a.				
Brazil	2	2.3	8.1	- 2.9	-31	-16	4.8	14	20	2.9	6.2	
Burma	15	6.5	9.6	- 3.4	0	73	5.6	17	0	3.0	10.2	72
Ceylon	5	1.5	7.9	1.8	0	9	9.0	10	0	3.6	5.8	74
Chile	3	2.6	8.8	0	30	5	2.4	10	40	4.2	1.6	52
Colombia	9	7.2	8.8	3.9	0	9	5.2	22	7	4.2	7.6	64
Congo	9	- 0.1	6.9	7.3	-24	- 9	n.a.	n.a.			6.6	
Costa Rica			7.5						1			
Cuba	11	1.1	7.3	- 1.5	-16	26	2.2	15	- 2 <sup>e</sup>	6.8	1.5	
Dominican Rep.			7.2						0			
Ecuador	9	5.7	9.7	1.1	0	- 9	5.1	12	2	2.4	14.4	50
Egypt			16.8				3.3	12	- 1	3.6		
El Salvador			6.8						1 <sup>f</sup>			
Finland			11.0						4			
Ghana	10	2.3 <sup>a</sup>	10.3	2.1	-36	-18	3.8	12	1	3.2		65
Greece			6.7				6.9	15		2.2		71
Guatemala	8	7.5	6.9	5.7	25	27	4.9	10 <sup>b</sup>	1	2.0		
Honduras			7.8						1			
Iceland			7.6						4			
India	13	2.4	5.0	-11.4	0	79	n.a.	7	3	2.1		
Indonesia			10.3						12			

Table 4 : 1 (continued)

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$\dot{I}$	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$Y$	$I/Y$	$\dot{p}$	$\Delta K/\Delta \theta$	$S/K$	$C/K$
Iraq	29	10.6	9.0 <sup>b</sup>	11.4	-33	35	11.1	14		1.3		
Israel	3	4.7	7.5	7.6	0	13	9.9	17 <sup>d</sup>		1.7		74
Malaya			19.8						- 2			
Mexico	6	3.6	7.7	4.6	0	-4	5.5	15	8	2.7	13.7	
Morocco	- 9	3.8	3.2	19.3	0	-56	n.a.	n.a.				
Nicaragua			8.5						5			
Peru	7	9.6	6.6	-6.8	0	-4	4.3	20	7	4.7	8.4	
Philippines	9	2.4	7.6	-16.2	0	40	6.7	7	1	1.0	13.1	60
Portugal	6	4.3	6.5	3.2	0	- 6	3.9	15	1	3.8	6.0	69
Rhodesia & Nyasaland	9	2.5	8.7 <sup>c</sup>	6.7	0	3	7.0	31		4.4	4.7	
Sudan			5.9						1			
Thailand	7	2.6	5.9	-0.4	0	8	5.0	14	5	2.8	11.2	
Turkey	16	3.2	8.4	3.4	-43	2	7.8	12		1.5		
Union of South Africa	4	3.1	5.4	-4.5	0	6	5.1	21		4.1		58
Uruguay			14.4						17			
Venezuela	10	14.4	3.6	16.3	32	24	10.3	22	0	2.1	6.5	

Table 4 : 1 (continued)

- Sources: (1)  $\dot{I}$  : Annual rate of growth of fixed capital formation 1950-51 to 1957-58, UN, 1959: Table 2-1.
- (2)  $X_1$ : Rate of growth of import capacity, (Merchandise exports, net services, private and official donations, private capital and long-term official capital divided by import price index), 1950-51 to 1957-58, calculated from UN, 1959: Column 1 of Table 2-7.
- (3)  $X_2$ : Fluctuations in the importing power of exports (percentage deviations from trend fitted by a five-year-moving average of merchandise exports deflated by an index of import prices) 1948-58, Fleming and Lovasy, 1960: Table 2.
- (4)  $X_3$ : Annual rate of increase of foreign exchange reserves, 1950-51 to 1957-58, calculated from IMF, IFS, 1962.
- (5)  $X_4$ : Percentage change in the ratio of capital goods imports to gross domestic fixed capital formation, 1950-51 to 1957-58, calculated from UN, 1959, Table 2-5.
- (6)  $X_5$ : Percentage change in the ratio of capital goods imports to total imports, 1950-51 to 1957-58, calculated from UN, 1959: Table 2-7.
- (7)  $\dot{Y}$  : Compound annual rate of growth of gross domestic product, 1950-51 to 1957-58, UN, 1959: Table 2-9.
- (8)  $I/Y$ : Gross domestic fixed capital formation as a percentage of gross domestic product, both cumulated over the whole period 1950-58, UN, 1959: Table 2-9

Table 4 : 1 (continued)

- Sources: (9)  $\bar{P}$  : Average year-to-year percentage change in the cost-of-living index, 1951-59, IMF, IFS, 1962: p.31
- (10)  $\Delta K/\Delta O$ : Average incremental capital/output ratio, 1950-58, UN, 1959: Table 2-9.
- (11) S/K : Average ratio of investment in stocks to gross capital formation, 1951-59, UN, Accounts, 1959 and 1960 and Statistics of National Income and Expenditure, various issues.
- (12) C/K : Ratio of construction to gross fixed capital formation, 1950-58, UN, 1959: Table 2-13.

Footnotes to Table 4 : 1

- |   |                  |   |                       |
|---|------------------|---|-----------------------|
| a | Export Earnings  | d | including inventories |
| b | Estimate 1950-55 | e | Estimate 1951-57      |
| c | Estimate 1950-57 | f | Estimate 1952-59      |

Table 4 : 2

Association Between Export Instability and Growth of Investment Groups  
Ranked by Degree of Export Fluctuation.

	Average Instability of Importing Power of Exports (1948-58)	Rate of Growth of Fixed Capital Formation in constant 1950 prices (1950-51-57/58)
Top third (8 countries)	9.90	10.04
Middle third (8 countries)	7.90	7.64
Lowest third (9 countries)	5.75	6.11

Source: Table 4 : 1

Footnotes to Chapter 4

1. UN, 1959: Table 2 - 5 gives evidence for this statement.

2. "The realization of an increasing volume of investment has generally continued to depend closely upon a corresponding expansion in imported supplies of capital equipment." UN, 1959: p. 68. This implicitly denies the importance of our variables  $X_4$  and  $X_5$ , but they turned out to be highly significant in our analysis.

3. The  $t$  ratios on the coefficients are:

$X_1 = 4.42$	Significance	$> .001$
$X_2 = 2.24$	"	$> .05$
$X_4 = 4.75$	"	$> .001$
$X_5 = 7.50$	"	$> .001$

The F ratio for the equation is 20.87, significance  $> .01$

4. Cf. Michaely, 1962: p. 118

5. Bernstein and Patel, 1951: pp. 363-98; Shaalan, 1962: pp. 243-61; Dorrance, 1963: pp. 1-44.

6. Cf. the more extensive argument along these lines on domestic inflation in Shaalan, 1962.

7. Dorrance, 1962; Wai, 1960; Shaalan, 1962.

8. Reynolds, 1963 and Chapter 8 below.

9. This argument is derived from a very interesting analysis of peasant production by Walter P. Falcon, 1962 and 1964. It is discussed again below in Chapter 9.

10. See appendixes to FAO, 1958.

11. A recent study by M. Yudelman, 1964: Part III, Chapter 4, discusses these questions in the African context in some detail; Mrs.K.Nair, 1962, comments on the enormous variety of reactions in India.

12. Data from Coppock, 1962: Table A-2. Correlation is for instability of exports and the ratio of reserves/imports.

13. Calculated from Coppock, 1962: Table A-2.

14. MacBean, 1962: pp. 258-9 and Chapter 9 below.

## Section II

### Five Cases

#### Introduction and Summary

The following brief studies of particular underdeveloped countries are an attempt to carry the analysis a little more deeply into the affairs of individual countries in the hope of discovering relationships which may be obscured by the cross-sectional analyses and brief time-series analyses carried out in Section I. Africa, Asia and Latin America are represented. Uganda was chosen as illustrating a peasant agriculture specialised on two primary products which are fairly unstable, coffee and cotton. Tanganyika was chosen because it has a plantation system for its main export, sisal. This is largely expatriate owned and implies some dualism for the economy. Puerto Rico was chosen as an example of extreme economic dependence. Almost all of its trade is with U.S.A. and it is rapidly developing manufactured exports. Since this is a likely trend for other underdeveloped countries its implications for export instability are of considerable interest. Chile represents dualism once more. This time the export is a mineral, copper, which has a record of high instability. Effects of expatriate ownership upon the internal impact of export instability are the main focus here. Finally, Pakistan illustrates peasant production for export of a very unstable product, jute. Its other main export, cotton has also been subject to severe fluctuations. Because of the divided nature of the economy, into East and West Pakistan, data are available which allow some exploration of the regional impact of fluctuations.

This is seldom possible in underdeveloped countries.

Some readers may prefer to omit some or all of these case studies, at least on a first reading, since they mainly provide supplementary evidence on the questions of causes and consequences of export instability discussed in Section I. For those most interested in the general policy issues considered in Sections III and IV the case studies may be rather specialised. However, the main findings and the reasons for them have been summarised under the heading of "conclusions" in the last few pages of each of the five chapters. On the whole they confirm the results of Section I. Only one country, Uganda, shows much sensitivity to fluctuations in export proceeds. The reasons for Uganda's sensitivity and the other countries' relative insensitivity to export instability bear out the suggestions on the determinants of domestic income response made at the end of Chapter 3. The case studies serve another useful purpose. They remind us of the very great diversity of economic conditions which exist in those countries we are apt in general discussion to throw into one mold under the label underdeveloped.

## Chapter 5: Uganda

Uganda closely approximates the model underdeveloped country implicit in many discussions of export fluctuations. Its economic characteristics are such that export instability seems certain to have internal repercussions. Total exports form 27 per cent of GDP. Foreign trade, exports plus imports, exceeds 45 per cent of GDP and over 64 per cent of the GDP of the money economy. 75 to 80 per cent of the export proceeds are derived from two cash crops, coffee and cotton, which are almost entirely produced by small-scale, family-run farming units. The national product is generated largely in agriculture and ancillary activities. Industry is, as yet, minute and elementary, with the corollary that manufactures and capital equipment must be imported from abroad and paid for mainly by exports. Moreover, the exports on which Uganda depends are highly unstable (Chart 5:I). Measured by the average annual deviations from trend they have an instability index of 21.1 compared with Ghana's 10.8, Indonesia's 9.8 or Brazil's 6.4.<sup>(1)</sup> Finally, with an average per capita income of only \$65 per annum few of Uganda's inhabitants can be expected to have much of a reserve against contingencies.<sup>2</sup>

### Domestic Consequences

#### Income

Fluctuations of the magnitude which Uganda has experienced in her export earnings could be expected to have a fairly sizeable impact upon national income. The indigenous nature of the production for export and the lack of any possible stabilising monetary policy due to the existence of the Currency Board monetary system make it even more probable that short-term export instability should be reflected in the country's income. Chart 5:II, drawn on the same scale as Chart 5:I, shows the movements of the best (albeit

very imperfect) indicators of national product provided by the statistics of the Uganda economy.<sup>3</sup> The solid lines indicate the movements in net domestic product 1950-56 and of gross domestic product 1954-61. The dotted lines reproduce both of these, minus the estimate for subsistence production. As should be expected this cash domestic product shows considerably more sensitivity to changes in the value of exports. Annual percentage changes in export proceeds and in cash domestic product for 1950-60 are highly correlated ( $r = 0.95$ ), but the degree of response of income to export change seems not unmodified. The regression coefficient of 0.54 suggests a 5 per cent response of cash GDP to a 10 per cent change in exports. The dampening effect is increased when the subsistence sector is added in as shown by columns 2 and 3 in Table 5:1 and Chart 5:II. The multiplier suggested by the data is only slightly larger than unity.

#### Imports

One explanation for the damped response of income could lie in the influence of a high marginal propensity to import. Changes in exports might be associated with large changes in imports thus reducing the multiplier effects of the initial change in exporters' incomes. Short-term changes in imports do seem to have followed export fluctuations. When movements in imports and exports about trend are compared from 1948 to 1959 in Table 5:2 it is only in two years, 1949 and 1958, that the direction of change was not the same for both. The correlation coefficient was 0.50 which is significant at the .05 level, 7.4 as against 12.0. It seems probable that fluctuations in imports tended to absorb some of the fluctuations in exports and helped to reduce the impact on domestic income.

### Investment

In some countries shortages of foreign exchange have probably forced temporary cuts in capital goods imports. Balance of payments pressure due to a decline in export proceeds may in this way frustrate investment. In Uganda this was no problem in the period studied. The colonial monetary system ensured that the country always had sterling reserves. Inconvertibility into sterling from Uganda currency was impossible.

The third line of Table 5:2 shows the percentage deviations from trend for machinery and transport equipment imported by Uganda from 1951 to 1958. Export proceeds and imports of these items in the same year show no association, but when related to the previous year's export earnings they seem quite closely associated, with a rank correlation coefficient of 0.68 which is significant at the .01 level.

Figures for gross-fixed-capital formation for Uganda are available only from 1950 to 1960. Year-to-year changes in these, as shown in Table 5:1, were in the same direction as the previous year's exports in 7 years out of a possible 9. The peaks and troughs seem to be reasonably closely related and at least suggestive of some measure of association between fluctuations in exports and in investment. Capital formation and capital goods<sup>0</sup> imports move in very close sympathy, confirming the relationship between investment and exports. However, it should be noted that in many underdeveloped countries investment figures are largely estimated from the balance of trade figures for imported machinery and other capital goods. Investment in private housing, farm buildings and in agricultural activities tends to be underestimated. If they were fully represented investment might show a less close relationship to exports.

### Prices or Cost of Living

Instability in export proceeds could well have an impact upon the prices of goods and services consumed in Uganda. If a rise in export incomes affects domestic purchasing power it could stimulate demand for home produced and imported goods and services. If any inelasticity of supply exists for these, their prices would tend to rise. Conversely a fall in export proceeds could depress domestic prices.

Chart 5:III plots two indices for Uganda prices against export proceeds. They can only be regarded as very rough indicators of changes in price levels in Uganda, but are the only available figures. The more important one is the African index since it reflects changes in the cost of living of unskilled Africans in Kampala which is probably the largest group of Uganda natives who are completely within the market economy. Most farmers, by far the greatest part of the population, obtain almost all of their food and even beer from their own crops. This African price index shows little or no relationship to fluctuations in export proceeds either in the current or previous year. The sharp rise in 1953 was due to a poor harvest at the end of 1952.<sup>4</sup> The European index seems almost completely insensitive to fluctuations in export incomes. On the basis of this evidence, inadequate though it may be, the only conclusion possible is that there seems to be no direct relationship between short-term instability in exports and the domestic price level in the period 1952-61 for which data are available. Probable explanations for this include a high elasticity of supply of imports in normal times, moderately elastic food supplies, possibly relatively low income elasticities of demand for home-produced consumption goods and services and the relatively stable national income over most of this period. (See Table 5:1).

### Employment

The top line in Chart 5:III plots the total African employment. This is, of course, only a fraction of the true working force for most Africans in Uganda work in family units in agriculture and are not wage labourers. Others are migrant workers from Ruanda Urundi or native Ugandans. Unofficial estimates place these at over 80,000 wage workers who are largely omitted from the government figures. (Elkin, 1960). However, on the average, 225,000 Africans were recorded as in paid employment, many of them in agriculture and allied occupations such as cotton ginning. Some association between export incomes and employment might be expected. But even the percentage changes in this labour force, at least after 1951, have been relatively small, as shown by the graph, and any association between these changes and the current or previous year's export earnings has been slight and on occasion perverse: e.g. 1951-52, 1952-53, and 1959-60.

### Government and Marketing Boards

As is normal in underdeveloped countries most of Uganda's government revenue is derived from indirect taxation and within that mainly from export taxes and customs duties. In 1950 more than half of government revenue came from these two combined, \$17.2 million out of total revenue of \$30.8 million. By 1959-60 it was lower, \$26.6 million out of total revenue of \$61.4 million. Also the importance of export taxes had been reduced relative to customs duties: from a ratio of 2:1 in 1950 to 1:1.4 in 1959-60. Income tax has become nearly as large a source of revenue as export taxes, \$10.1 million to \$11.2 million in 1959-60.

Given the dependence on export taxes throughout the period, and to a lesser extent, the importance of customs duties on imports, fluctuations in exports seem likely to affect government revenue in a fairly direct and consistent manner. Table 5:3 and Chart 5:IV depict total export proceeds and total government revenue. There is evidently a close association in their trends, but fluctuations seem to be less closely associated. Between 1952 and 1953 government revenue rose despite a sharp fall in exports. Between 1955 and 1956 it rose again despite a moderate decline in exports. Between 1956 and 1957 it declined despite an increase in exports. Between 1957 and '58 and 1959 and '60 revenues rose despite constant or declining exports. If it is thought that a one-year-time-lag should be introduced the revenue graph can be shifted one place to the right, but the contradictory movements in exports and revenue remain. The data, as plotted on the graph from 1954 onwards, already have a built-in six month lag, since the revenue and other budget data from 1954 onwards are on a July '54 to June '55 basis and these figures were plotted against the first year of the pair in each case.

The Uganda Budget seems to have been successfully operated as a force for cyclical stabilisation over the whole period, but for year-to-year adjustments its use as a stabilising force in the economy has been fairly slight e.g. the period 1952-53 saw the largest single decline in exports, but the budget remained in surplus. Net domestic product, especially cash product, declined sharply in that year (Chart 5:II). In the next year exports rose substantially, but the budget went into deficit. There seems to be very little systematic relationship between the overall budget surplus or deficit and the injection of income from exports. These surpluses or deficits in the budget are shown in the chart 5:IVa by the unshaded blocks.

The shaded blocks indicate the surpluses and deficits in the reserves of the Cotton and the Coffee Marketing Boards from 1950 to 1960. Their behaviour has been very similar to that of the budget. In each year the sum of the Board surplus or deficit with the government budget surplus or deficit gives the net official impact of the official organs on the total level of demand in the economy. On the whole, this seems to have operated in a disinflationary manner up to 1954 and a reflationary manner subsequently. On a year-to-year basis neither the Boards' net position nor the total net effect of official funds upon the economy seems to have been closely synchronised with export earnings.

#### Incomes of Farmers

In an economy like Uganda the impact of export instability on the cash crop farmers may be crucial. They are an important section of the community, are scarcely affluent, may suffer severely from fluctuations in their income and through variations in their expenditures they affect others. A major motive for setting up Marketing Boards was to insulate their incomes against the full impact of fluctuations in world prices for their crops. How successful were the Boards in smoothing producers' incomes? Total coffee export proceeds and growers' incomes are compared in Table 5:4. Instability, measured by percentage deviations from a five-year-moving average over the period 1949-59, is greater for African growers' incomes at 19.6 per cent than is the index for coffee export earnings at 16.6 per cent. If the simpler measure of year-to-year percentage change in incomes is used, the conclusion is verified: exports varied by 23.5 per cent on average and producers' incomes by 28 per cent. As far as short-term instability of income is concerned the effects of the Coffee Marketing Board were adverse.

Although coffee producers' incomes have been at least as unstable as export proceeds, their timing and direction of changes have not always coincided. In three years: 1952, 1953 and 1958, the direction of change was opposite and in other years the proportion of the change differed markedly: 1950, 1954, 1955 and 1957.

The Cotton Marketing Board, on the other hand, appears to have had some success in moderating fluctuations in producers' incomes as is shown in Table 5:5. Whether measured on the simple annual basis or correcting for trend, cotton producers' incomes seem to have been less unstable than cotton export proceeds. Changes have generally been in the same direction, but with several exceptions: 1950, 1957 and 1958.

Taken together, the Boards have on the average neither alleviated nor exacerbated the effect of unstable export earnings on producers' incomes on a year-to-year basis.

#### Causes of Short-term Instability in the Exports of Uganda

It was evident from Chart 5:I of this chapter that the instability of Uganda's total export earnings was largely derived from the instability in coffee and cotton export proceeds. Any explanation of Uganda's export instability requires analysis of the reasons for their instability.

For both of these products Uganda's relative share in world supply is small enough to make it highly unlikely that any change in her supply alone will lead to any significant change in world coffee and cotton prices. In cotton, Uganda produces about 305,000 bales out of a total African production of 4.2 million, and of a world production of 47.7 million. Even within the category of long-staple cotton Uganda production forms only

6 per cent of world output. It is, therefore, reasonable to assume that the price elasticity of demand for Uganda's cotton is close to infinity and that Uganda's exports will have little or no impact on world prices. Uganda's share of world coffee exports averaged only 3.8 per cent 1956-60,<sup>5</sup> but the robusta variety, which predominates in Uganda's output of coffee, is not perfectly substitutable for Brazilian and Colombian coffees. Even within the robusta variety Uganda's exports probably amount to much less than 20 per cent. Here again, it is probable that the volume of Uganda's exports has relatively little effect on their price.

Given this relatively high price elasticity of demand for Uganda's main exports, instability in export proceeds must stem mainly from shifts in demand for exports and/or changes in Uganda's supply. Correlation analysis of the coffee data in Table 5:6 yields the following results: the total value of Uganda coffee exports is associated more closely with volume ( $r = 0.77$ ) than with unit value ( $r = 0.40$ ). The unit value of Uganda's coffee seems to have a higher inverse correlation with the volume of world coffee exports ( $r = -0.41$ ) than with Uganda's coffee exports ( $r = -0.20$ ). Although neither of these relationships can be regarded as strong, or even as firmly established--they tend to confirm the view that prices for Uganda's coffee are largely determined by world supply and demand and only very slightly by what happens in Uganda. The positive associations between total export value and either volume or current unit value are also consistent with this view. The closer relationship between proceeds and volume suggests that changes in output rather than in prices have been the principal cause of fluctuations in the total value of Uganda's coffee exports. Variations in the quantity of coffee exported have tended also to be larger than fluctuations in their

price. Calculated as the average percentage deviation from a five-year moving average the instability index for volume is 16.1, while that for unit value is 11.0, from 1949 to 1958.

There remains the possibility that the changes in output were themselves induced by changes in prices in previous years. There are two distinct points to be made on this problem. First, the relevant prices would be those paid by the Coffee Marketing Board to producers. Presumably it is only prices paid to producers which affect their production decisions. But producer prices have not followed export prices very closely. The second point is that the supply of coffee from Uganda could hardly be expected to follow prices at all closely because Ugandan stocks of coffee are very small and output cannot be expanded in the short run. Two to four years are required before new plantings begin to bear if seedlings are used, and four to five years if plantings are from seeds. "Substantial crops cannot be expected until, say, 5 to 8 years (after planting)."<sup>6</sup> Moreover, the vicissitudes of weather and pests produce sharp variations in yields. But some guide to the effect of prices on the production intentions of farmers may be derived from study of area figures. (Table 5:7) In the post-war period these have shown a remarkably steady percentage increase in the face of both rising and falling prices, indicating very weak response to short-term price changes.

Apart from altering the area under cultivation few methods are available to the farmer for varying current costs and outputs in Uganda. Although the use of fertilizers and pesticides is on the increase it remains small. The inescapable conclusion is that random variations in production have been the main cause of instability in Uganda's coffee export proceeds with fluctuations in world demand a secondary and less important cause.

In the case of cotton, the total value of Uganda's cotton exports was more closely associated with their unit value ( $r = 0.896$ ) than with their volume ( $r = 0.603$ ). The strong positive relationship between total value and unit value is supporting evidence for the existence of a fairly high price elasticity of demand for Uganda's cotton exports. The positive and reasonably high correlations between total value and both volume and unit value suggest that instability in the total value of Uganda's cotton exports results mainly from shifts in world demand combined with an inelastic world supply of cotton, but is also influenced by variations in the supply of Uganda's cotton exports. The instability of the unit values for cotton exports has in fact been much larger than that for volume, 13.4 as against 6.7.

The fluctuations in the quantities of cotton and coffee exported have reflected the fluctuations in their production. Uganda held stocks of these products are too small to affect this significantly and, in any case, examination of the figures for annual production make this evident. In the case of coffee the fluctuations in production stem almost entirely from variations in the yield.

For cotton, fluctuations in production have been moderate. Area has fluctuated rather more than that under coffee, but changes have been relatively minor around the trend. In the case of cotton the prices paid to farmers might be expected to influence acreage and production intentions. The Marketing Board announces producer prices in advance of the cotton planting season with the intention of influencing area and production in accord with its views of prospective demand for Ugandan cotton. Cotton acreage, however, shows little influence from prices over the period

1945-59. Some cotton, particularly in Buganda, competes with coffee, so an attempt was made to relate cotton acreage to the ratio of cotton to coffee prices in the current year. But no relationship could be shown to exist in this period. Perhaps deflation of the cotton price by prices of competing food crops would yield some relationship, but no such series for producer prices are available and variations in cotton area and output must be taken as due to random or so far unexplained causes.

On balance, it appears that instability in the export proceeds of Uganda's two major cash crops are about equally due to changes in external demand and changes in domestic output and supply.

#### Conclusions

The questions which this analysis has sought to answer are: how serious is export instability to the internal economy of Uganda and what are its causes? The data which have been examined, while subject to serious limitations in their accuracy, enable some conclusions to be drawn. The domestic income of Uganda has fluctuated in sympathy with export earnings. But the degree of instability in gross domestic product was not unduly severe. The largest decline was 4.4 per cent in domestic product in 1952-53 (11.3 per cent in cash product), when export proceeds fell by 29.5 per cent. Imports actually rose in that period. However, in general imports also fluctuated in sympathy with exports, but, again the fluctuations were dampened. Year-to-year changes in capital-goods imported and in domestic capital formation show some evidence of a systematic relationship to the previous year's export earnings. Neither domestic prices nor employment can be shown, from the admittedly very limited data available, to have fluctuated in sympathy with exports. It is frequently suggested

that instability in exports seriously disturbs government revenues and thus affects expenditure on economic development. There is no evidence that this has occurred in Uganda. Government revenue has been fairly stable about its trend and year-to-year changes have no systematic current, or one-year-lagged, relationship to exports.

The existence of the Marketing Boards and of export duties has tended to break the connection between export proceeds and producers' incomes and has held producers' incomes well below the peak proceeds. However, in the case of coffee they did not succeed in making producer incomes more stable than coffee export earnings. With cotton a little more success was achieved. It is impossible to say whether producers' incomes would have been more or less liable to short-term instability in their absence. The major point of interest here, however, is--what effect does instability of prices and incomes have on cotton and coffee producers? Does it cause significant hardship and does it have any adverse effect upon their production and investment?

The data on acreages and production analysed above show no systematic relationship to prices paid to producers in either coffee or cotton. The remarkably steady expansion of the acreage directed to coffee shows evidence of the working of much more powerful factors than price. Coffee is a new crop in Uganda and probably the expansion is related more to the spread of knowledge of its potentialities as a cash crop than to its year-to-year price changes. Although the area under cotton did fluctuate there is no evidence of this being connected systematically with variations in prices.

It may be that given more and better statistics of prices of competing crops or some other indicators for the opportunity costs of

growing coffee and cotton sophisticated statistical analysis could reveal relationships between production intentions and short-term fluctuations in prices, but on the present evidence it is very doubtful. Investment and output in the short-run seem very insensitive to prices in these two crops in Uganda.

It is impossible to arrive at any conclusions about the effects of short-term instability in the exports of Uganda on the growth or allocation of capital without a period of comparative stability with which the present rate of accumulation could be compared.

Do producers suffer serious hardship as a result of export instability? The answer depends upon the degree of specialisation of producers, the absolute size of their incomes and the relative importance to them of variations in their cash income. Even in the 1950's almost all African farmers in Uganda retained enough food crop production for their own use. "Not only did the country as a whole remain self-sufficient in respect of its basic food supply, but each household still endeavoured to grow its own food in addition to whatever crops it produced for sale."<sup>7</sup> In Buganda there was rather more specialisation. "Many farmers now planted only such quantities of food crops as would be sufficient for their requirements in a normal year, covering the deficit in unfavourable seasons with maize flour which they bought from the shops."<sup>7</sup> Some of these people might suffer real hardship if a fall in cash income coincided with a bad food crop. But for most farmers basic requirements were met without resort to cash purchases. Fluctuations in their cash income would bear mainly on "luxuries" or postponable expenditures e.g. saving for marriage, for dowries or for purchases of durable consumer goods.

It may be argued that the uncertainty created by unstable cash incomes was the reason for their failure to specialise fully on cash

crops, with a consequent loss of efficiency. However, the loss, if any, is probably minor. "In the existing state of communications and distributive machinery, and considering that coffee and bananas, cotton and millet fit very well together in farming system, this policy, though in theory questionable, was in practice almost certainly sound." (Wrigley, 1959: p. 76).

In the end, the question of hardship could only be settled if at all by an investigation "on the spot," but the evidence outlined here suggests that it is unlikely to be very serious.

As to the causes of Uganda's export instability the analysis indicates a close approximation to the model implicit in most discussions of instability in poor countries. It stems mainly from specialisation on two crops, coffee and cotton, which are themselves subject to unstable world prices and rather unstable production. In the case of coffee, supply has been more important than demand in generating unstable export incomes; vice versa in the case of cotton. On balance, changes in supply and changes in demand have been roughly equally responsible. Stabilisation measures should take this into account.

The general inference of the analysis of the impact of export instability on Uganda's economic welfare is that some, but not much, real harm can be shown to have occurred. It may be that adjustments in other items in the balance of payments--invisibles and capital flows--compensated to some extent for the fluctuations in merchandise exports, but lack of data on Uganda's balance of payments prevents examination of this. Figures on grants and loans to Uganda were obtained and are shown in Table 5:9. They show little sign of having compensated for changes in exports and

apart from 1961 and 1962 were exceedingly small in comparison with the absolute size of variations in exports.

It is not at all surprising that Uganda is affected by export instability. Its economy offers few of the built-in-stabilizers that we suggested, in Chapter 3, exist in many underdeveloped countries. Rather, the degree of resistance to externally-induced instability apparently shown by Uganda's economy is an occasion for wonder.

Chart 5 : I

Uganda's Exports: Total, Coffee and Cotton. L Millions. 1948-60.

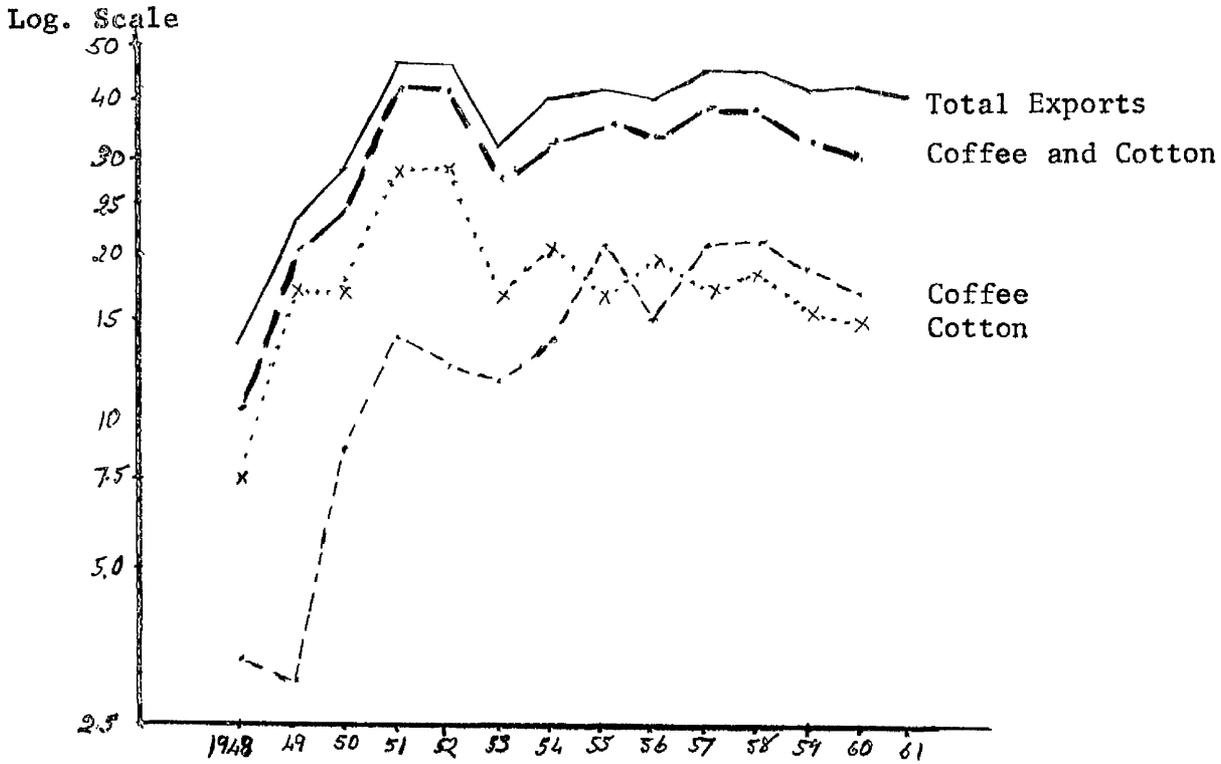
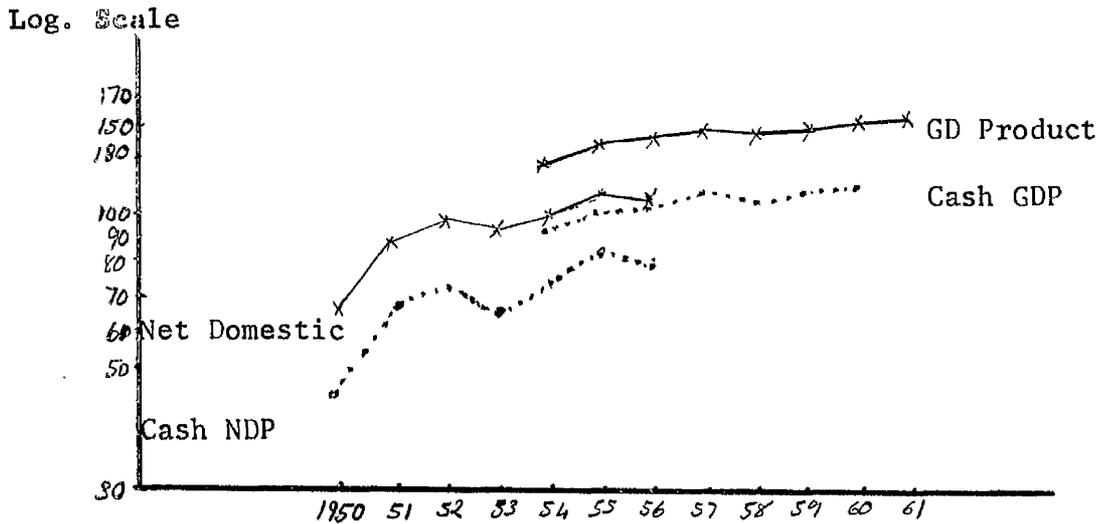


Chart 5 : II

National Income. Millions. (current factor cost) 1950-61.

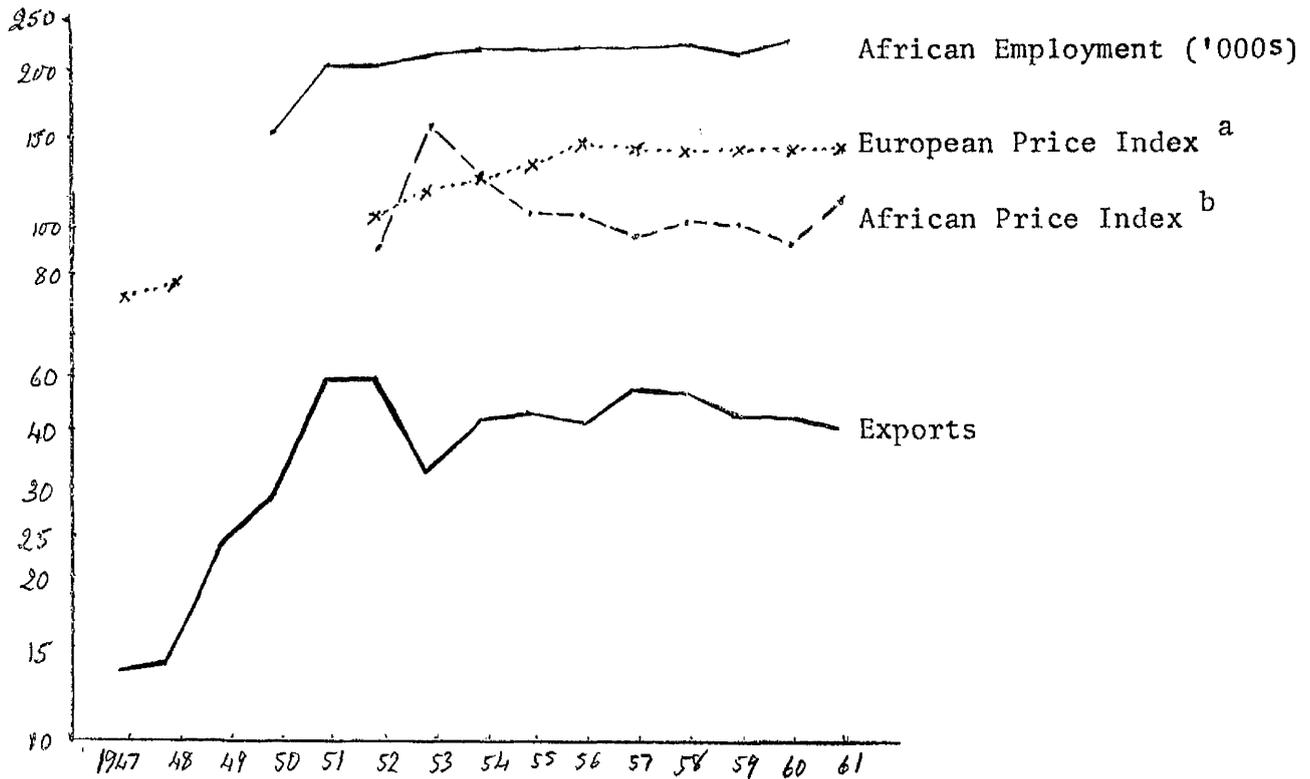


Sources: East African Statistical Department, Quarterly Economic and Statistical Bulletin, and Uganda, Ministry of Economic Affairs, Statistics Division.

Chart 5 : III

Export Proceeds and Domestic Prices and Employment in Uganda.

Log. scale



Source: East African Statistical Department, Quarterly Bulletin

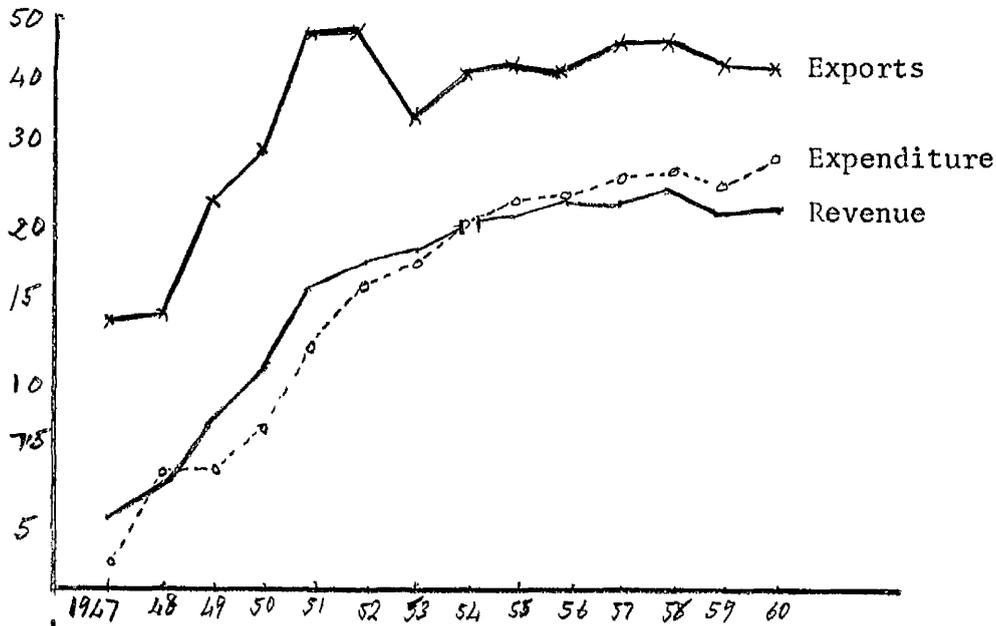
<sup>a</sup> The Kampala Cost of Living Index (excluding rent) measures the change in the cost of living of European Government servants with a basic pay in 1951 of E 700 per an.

<sup>b</sup> Index of retail prices measures the effect of price changes on the average expenditure pattern of African unskilled workers in Kampala.

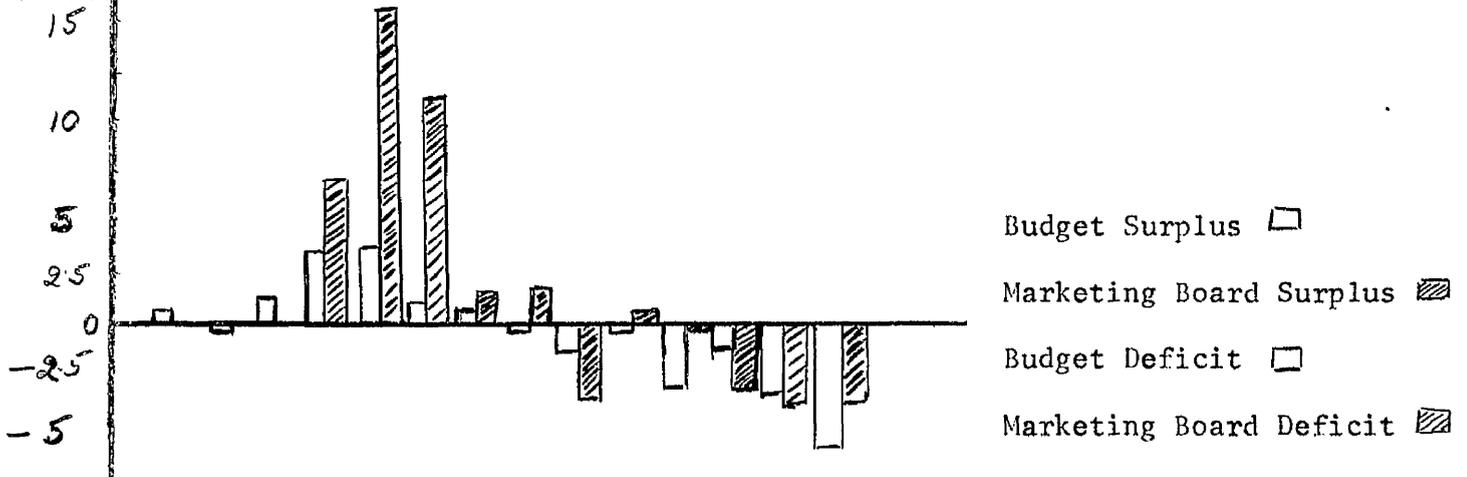
Chart 5 : IV

Export Proceeds, Government Budget <sup>a</sup> and Marketing Board Reserves.

Log. Scale E Millions



(a) Millions  
Arith. Scale



Sources: Uganda, Statistical Abstracts

East African Statistical Department, Quarterly Bulletin

<sup>a</sup> Budget data on July to June basis after June '54.

Table 5 : 1

Exports and Domestic Product of Uganda 1950-61 (Totals in Millions of £s in Current Prices)

	<u>1. Export Proceeds</u>		<u>2. Domestic Product</u>		<u>3. Dom.Prod. minus Subsistence Estimate</u>		<u>4. Cross Fixed Capital Formation</u>	
	<u>Total</u>	<u>% Change</u>	<u>Total Net DP</u>	<u>% Change</u>	<u>Total Net DP</u>	<u>% Change</u>	<u>Total GFC</u>	<u>% Change</u>
1950	28.9		67.4		47.6		9.9	
1951	47.4	64.0	87.8	30.2	67.3	41.3	11.9	20.2
1952	47.7	0.6	98.9	12.6	73.9	9.8	18.0	51.2
1953	33.6	-29.5	94.5	- 4.4	65.5	-11.3	20.5	13.8
1954			103.1		73.1		18.8	
			<u>GDP</u>		<u>GDP</u>			
1954	41.0	25.0	128.7	10.2 <sup>a</sup>	92.7	11.6 <sup>a</sup>	18.6	- 9.2 <sup>a</sup>
1955	42.3	3.1	140.2	8.9	102.0	10.0	23.2	24.7
1956	41.5	- 1.8	141.6	1.0	102.8	0.8	21.8	- 6.0
1957	46.8	12.7	146.7	3.6	109.4	6.5	20.4	- 6.4
1958	46.4	- 0.8	146.8	- 0.07	106.3	- 2.8	19.6	- 3.9
1959	43.2	- 6.8	150.1	2.2	109.1	2.5	17.1	-12.7
1960	42.9	- 0.6	152.2	1.3	110.4	1.1	17.0	- 0.5
1961	41.3	- 3.7	154.9	1.7	n.a.		n.a.	

Source: UN, National Accounts, Uganda, Statistical Abstracts, and East Africa Statistical Department, Quarterly Economic and Statistical Bulletin.

<sup>a</sup> Calculated by subtracting the 1953 figures from the 1954 NDP figures in order to splice the Net DP and Gross DP series together to give a reasonable sample of years.

Table 5 : 2

Percentage Deviations from a Five-Year-Moving-Average for Exports and Imports.

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	Av. 1948-58
Exports	-23.6	-7.0	-10.5	+30.9	+20.2	-20.8	- 0.5	+ 3.2	- 4.8	+6.4	+5.2	-2.0	12.1
Imports	-10.0	+9.8	- 7.2	+10.5	+ 8.0	- 5.3	- 8.4	+19.7	- 1.7	+0.7	-0.4	-4.9	7.4
Cap. Goods Imports				- 7.3	+19.7	+ 4.1	-23.5	+28.0	+11.1	-8.5	-4.0		

Source: East Africa, Statistical Department, Quarterly Economic and  
Statistical Bulletin.

Table 5 : 3

Uganda Government's Total Revenue, Expenditure and Overall Budget, Surpluses and Deficits, 1947 - 1960/61 in Thousands of Pounds Sterling

<u>Callendar Year</u>	<u>Revenue Expenditure</u>		<u>Surplus (+) or Deficit (-)</u>
1947	5,331	4,474	+ 857
1948	6,405	6,530	- 125
1949	8,094	6,687	+1,407
1950	11,037	8,000	+3,037
1951	15,826	12,346	+3,584
1952	17,289	15,951	+1,338
1953	17,735	17,432	+ 303
1954 (January to June)	10,349	8,628	January to June only (+1,721)
54/55 1st July to 30th June	20,836	20,920	- 84
55/56	21,598	22,997	-1,399
56/57	23,690	24,008	- 318
57/58	22,441	25,518	-3,077
58/59	24,106	25,684	-1,578
59/60	21,937	24,896	-2,959
60/61	22,154	27,779	-5,625

Source: East African Statistical Department, Quarterly Economic and Statistical Bulletins.

Table 5 : 4

Coffee Export Proceeds and African Producers' Incomes, 1947-61

	1	2	3	4	5	6
	<u>Exports</u>	<u>Producers</u>	<u>% Change</u>	<u>% Change</u>	<u>% Deviation</u>	<u>% Deviation</u>
	<u>E M.</u>	<u>Incomes</u>	<u>Exports</u>	<u>Incomes</u>	<u>Exports</u>	<u>Incomes</u>
1947	1.50	0.76				
1948	3.25	1.59	+53.9	+49.1		
1949	2.89	1.05	-11.1	-27.6	-48.8	-41.9
1950	8.33	2.04	+65.2	+48.5	+ 2.9	-19.0
1951	13.65	3.61	+39.4	+43.5	+40.0	+ 7.7
1952	12.34	4.33	- 9.7	+16.4	+ 3.9	- 9.7
1953	11.54	5.73	- 6.5	+24.4	-18.9	-24.6
1954	13.48	8.29	+14.4	+31.5	- 7.9	- 5.2
1955	20.13	16.07	+33.0	+48.1	+22.0	+60.7
1956	15.72	9.34	-21.6	-41.5	-14.3	-16.8
1957	21.59	10.57	+27.0	+11.4	+11.3	-14.1
1958	20.83	11.81	- 3.5	+10.5	+11.0	+ 0.1
1959	18.69	13.73	-10.3	+14.0	+ 1.5	+15.6
1960	16.99	13.49	- 9.1	-12.8		
1961	13.97	9.74	-17.7	-13.5		
<u>Averages (ignoring sign)</u>			23.5	28.0	16.6	19.6

3 and 4, calculated by UN method of always using the higher figure in the denominator.

5 and 6, Percentage deviations from a 5-year-moving-average.

Source: 1 and 2, Uganda, Department of Agriculture.

Table 5 : 5

Cotton Export Proceeds and Producers' Incomes, 1948-61.

	1	2	3	4	5	6
	<u>Exports</u>	<u>Incomes</u>	<u>% Change</u>	<u>% Change</u>	<u>% Deviation</u>	<u>% Deviation</u>
	<u>M.</u>	<u>M.</u>	<u>Exports</u>	<u>Incomes</u>	<u>Exports</u>	<u>Incomes</u>
					(From 5- year-moving- average)	(From 5- year-moving- average)
1948	7.5	1.8				
1949	17.3	7.0	+56.6	+74.3		
1950	16.7	7.6	- 3.5	+ 7.9	-16.5	- 3.8
1951	23.8	10.7	+42.0	+29.0	+31.5	+12.6
1952	29.9	12.3	+ 3.7	+13.0	+32.3	+12.9
1953	16.8	10.7	-43.8	-13.0	-25.7	- 9.3
1954	20.9	13.3	+19.6	+19.5	+ 1.5	+ 9.0
1955	16.4	11.9	-21.5	-10.5	- 9.9	- 4.8
1956	19.3	13.0	+15.0	+ 8.5	+ 4.9	0
1957	17.5	13.5	- 9.3	+ 3.7	+ 1.2	+ 6.3
1958	18.1	13.2	+ 3.3	- 2.2	+ 6.5	+ 5.6
1959	15.4	12.1	-14.9	- 8.3	- 6.7	- 3.2
1960	14.9	10.9	- 3.2	- 9.9		
1961	16.7	12.9	+10.8	+15.5		
Average (ignoring sign)			19.0	16.6	13.8	6.8

Sources: Columns 1 and 2; D. Walker, 1962: Table 1, and Uganda, Department of Agriculture.

Columns 3 and 4; Calculated by UN method, using larger figure as denominator in calculating percentage change.

Columns 5 and 6; Percentage deviation from five-year-moving-average.

Table 5 : 6

Coffee and Cotton Exports

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Coffee exports tons '000	37.8	23.9	31.9	43.7	39.5	35.7	34.7	74.5	61.6	84.0	79.2	89.0	118.0
Value £ Millions	3.25	2.89	8.33	13.65	12.34	11.54	13.48	20.13	15.72	21.59	20.83	18.69	16.99
Export Unit Value £ per ton	86	121	261	278	312	323	388	270	255	257	263	210	144
World total Exports	194	205	175	191	194	207	174	203	228	216	215	252	259
Cotton exports '000 of 100 lb bales	697	1561	1393	1384	1512	1337	1573	1225	1506	1347	1550	1493	1320
Value £ Millions	7.46	17.34	16.70	28.74	29.95	16.80	20.88	16.38	19.29	17.48	18.14	15.43	14.93
Export Unit Value	10.7	11.1	12.0	20.8	19.8	12.6	13.3	13.4	12.8	13.0	11.7	10.3	11.3

Source: Uganda Statistical Division and East African Quarterly Bulletin.

Table 5 : 7

Coffee Production

Season	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Producers' Price cts/lb	17	19	21	25	40	50	70	100	125	75	80	80	68	56	50
Area acres '000	180	180	187	202	224	252	279	305	337	379	459	496	529	568	607
Production '000 Tons	25.2	37.7	23.8	32.2	42.4	37.0	35.6	34.2	74.8	62.8	78.6	83.2	106.4	117.9	92.2

Source: Uganda, Department of Agriculture.

Table 5 : 8

Cotton Production

Season	45/ 46	46/ 47	47/ 48	48/ 49	49/ 50	50/ 51	51/ 52	52/ 53	53/ 54	54/ 55	55/ 56	56/ 57	57/ 58	58/ 59	59/ 60
Producers' Price cts/lb	16.4	18.5	20.4	29.6	31.8	43.1	47.6	48.6	49.4	58.8	52.1	53.3	54.9	44.2	44.8
Area '000 acres	1146	1253	1037	1555	1628	1535	1514	1473	1611	1739	1586	1569	1617	2014	1565
'000 400 lb bales Prod.	228	232	170	391	340	347	380	320	398	300	363	372	351	401	360

Source: Uganda Department of Agriculture, Annual Reports.

Table 5 : 9

Grants and Public Loans to Uganda

(£'000s)

	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Grants	510	378	434	512	279	429	325	143	0.2	0.5	6	227	577	1,354
Loans													6,000	3,394
O.S.A.S. <sup>a</sup>													1,449	

Source: Office of the Ministry of Finance, Uganda

<sup>a</sup> Overseas Service Aid Scheme.

Footnotes: Chapter 5

1. Indices calculated as deviations from a five-year-moving average. The figure for Uganda is in Table 5:2 on p.00 and the others are from Fleming and Lovasy, 1960: Table 2.

2. Description based on IBRD, 1962: Chapters 1 and 2, where a much fuller account of the country can be found. The characteristics presented here are limited to those with a direct bearing on the issue of export instability.

3. Kennedy, Ord and Walker , 1963:p.384,draw attention to some of the inadequacies of Uganda statistical series. Their major point is the underestimation of the value of subsistence outputs. But this weakness may bias official GDP figures towards closer reflection of export sector changes and may tend to exaggerate the domestic effects of export fluctuations.

4. I owe this point to H.W. Ord who is a specialist in the East African economies.

5. F A O , 1961: Table IIIc. See also IBRD, 1962, pp. 152-4. International Cotton Advisory Committee, 1961.

6. F A O . , 1961: p. 29.

7. C.C. Wrigley, 1959: p. 76.

## Chapter 6

### Tanganyika

Tanganyika has many similarities to Uganda: a tiny manufacturing industry, low per-capita income and export orientation. In the 1950's and '60's exports have averaged about 30 per cent of gross domestic product (GDP) and over 45 per cent of the GDP of the money economy of Tanganyika. Foreign trade (exports plus imports) makes up about 50 per cent of GDP and 80 per cent of the GDP of the money economy. Tanganyika is evidently highly oriented towards foreign trade. Unlike Uganda, however, the main export from Tanganyika, sisal, is almost entirely grown on plantations which are owned and run by expatriates. Capital and management are foreign and most profits are remitted overseas. The sisal industry may be regarded as an enclave whose impact upon the domestic economy depends on its purchases from the domestic sector. These may, or may not, follow closely upon export earnings.

Sisal is the most important single industry, accounting for 8 per cent of GDP (13 or 14 per cent of the money economy), employing over a third of the wage earners (excluding domestics) and yielding significant tax revenues to the Territory.

As can readily be seen from Tables 6:3 and 6:4 coffee and cotton are, while important exports, much less so than sisal over this period. Both of these crops are mainly grown by peasant cultivators and bear a close resemblance to the system of production in Uganda, but most

of the coffee produced is of the mild arabica type which competes closely with Latin American coffee, and the cotton is mainly of the 1 inch to 1 3/16 inch staple which competes with American types. Between them, sisal, coffee and cotton, account for around 60 per cent of merchandise exports from Tanganyika. Diamonds at 9 per cent are the next most important export. Compared with Egypt or Ghana, Tanganyika's exports are moderately diversified, but the concentration on three agricultural exports is still very high by most standards and the degree of dependence on one, sisal, is well above average.

Tanganyika's sisal exports form approximately one third of the world's total trade in hard fibres, and almost a half of the world's output of sisal.<sup>3</sup> In the other two cash crops Tanganyika's exports are a very minor part of the world market.

Tanganyika's exports are rather more unstable than average for primary producing countries with an average deviation, from a five-year-moving-average trend, of 11.2 per cent to be compared with an average over the same period (1948-58) for 47 countries of 9.0 (Fleming and Lovasy, 1960: p. 11); only slightly less unstable than Uganda.

#### Income

In Chart 6:I the total GDP and the GDP of the Money Economy are charted on the same logarithmic scale as the value of exports from 1952 to 1960. It is evident that both money and total GDP have grown over this period at a very steady rate and that fluctuations in exports have had practically no visible effect on either. There are various possible

reasons for this. The sisal corporations may have absorbed much of the impact of fluctuations in sisal export earnings in changes in their profits, the cotton stabilization fund may have had some success in reducing fluctuations in producers' incomes, the government's budget may have been operated counter-cyclically etc. These possibilities will be discussed below. It is only the fact of relatively stable GDP in the face of fluctuations in exports which this section is intended to establish.

#### Imports and Investment

Total imports over this period appear to have been slightly more unstable than exports (12.7 per cent as against 11.2). Their paths are both shown in Chart 6:II. The view that imports have a relatively simple connection with exports is contradicted on 5 occasions out of 13 on a current year basis and 4 out of 13 with imports lagged one year behind exports. Measured by deviations from a five-year-moving-average trend the relationship seems even weaker. On a current year basis they moved in opposite directions on 6 occasions out of 12. The direction of change seems closer for imports and the previous year's exports, but the calculated correlation is 0.15 which is insignificant.<sup>4</sup>

Capital-goods imports i.e. machinery and vehicles show no relationship to merchandise export earnings. Whether on a current, or one year lagged basis, they move against each other as often as with. (Chart 6:II).

Fixed investment, whether for the economy as a whole, or for the money economy only, shows little correlation with either merchandise exports or with imported machinery and vehicles. But since the investment figures are for only 1954 to 1961 this is very weak evidence either way. (Chart 6:II).

### Prices and Employment

Two price series are available in Tanganyika. Neither of them reflects changes in the cost of living of more than a very small section of the total population. The Cost-of-Living Index for Europeans is based on the consumption patterns of European Civil servants in Dar es Salaam. The Retail Price Index is designed on budget studies of African workers in Dar es Salaam. However, both of these groups are among those most likely to be affected by inflationary or deflationary movements in the money economy. As far as can be seen from Chart 6:II neither index shows much sign of being influenced by fluctuations in export earnings.

There are no available series on unemployment in Tanganyika, and figures on total African registered employed are the only indicators available of fluctuations in the demand for labour. As in Uganda they are only a fraction of the true working force. These are plotted on Chart 6:III and show no relationship to fluctuations in exports. Figures on employment in the sisal industry are plotted in the lowest line on the chart. They show no correlation with changes in the value of sisal exports. It would appear from this comparison that the sisal industry retained much the same labour force through

high and low export earnings. There is certainly little evidence of any close relationship, and this gives one reason for the lack of sensitivity of domestic variables to export fluctuations. Labour is the main purchase made by the sisal industry in Tanganyika and could therefore be an important channel for the transmission of external shocks to the internal economy. If, however, the sisal industry does not contract and expand its labour force in response to short-term fluctuations, the channel is largely blocked -- only variations in their earnings remain as a possible method of transmission, and data on these are not available here.

#### The Government Budget

Fluctuations in government revenue depend on changes in the tax base, changes in the tax rates and time lags involved in collection of taxes. Up to 1954/55 export duties were a significant source of revenue in Tanganyika, but since then have been relatively unimportant. At that time there was a change of policy which altered taxes on sisal from mainly export duties to mainly corporation tax on profits in the sisal industry. This may help to explain why movements in revenue in Chart 6:IV appear to follow exports reasonably closely up to 1954, but scarcely at all in the later period. The very strong upward trends in practically all Tanganyikan variables over the early period, 1948-54, however, weaken any evidence on correlation shown by the graph over these few years.

Exports reached a peak in 1952, but the government revenue peak did not occur till 1954/55. One reason for this was that the high

profits engendered by the export boom in 1951 and 1952 gave rise to large income tax liabilities, particularly in the sisal industry, which were not in fact collected until 1954/55.<sup>5</sup> Throughout most of the period the main sources of revenue were import duties and income tax. Receipts from both of these should respond eventually to fluctuations in exports, but since the time lags could be very different their combined revenue might well follow a quite different time path from exports. The personal tax is not very responsive to income changes, although theoretically, at least, it varies with income levels. It may tend to stabilize government revenue at the expense of private consumption. Excise duties are levied on "European-type beer, spirits, cigarettes and tobacco, matches and sugar."<sup>6</sup> Throughout most of this period the revenues from these products would come largely from the consumption expenditure of salaried Europeans and some Africans and Asians whose incomes and expenditure would be unlikely to fluctuate in sympathy with exports. Government property income also accounts for a substantial proportion of revenue and is unlikely to fluctuate in response to changes in export earnings. It seems quite probable that the combination of autonomous changes in the non-export sensitive revenues with variations in the lags in the response of the export sensitive revenues should make it difficult or even impossible to estimate the impact of export fluctuations. Changes in the system of taxation and in the rates and incidence of taxes complicate the problem to the point of insolubility. Even the export-sensitive tax revenues, from import duties and income tax, in fact show very irregular relationships, both with exports and with each other, at least after 1952.<sup>7</sup>

The overall budget surpluses and deficits, including development, are sketched on the lowest line of Chart 5.<sup>8</sup> The deficit in 1953 probably helped to maintain domestic incomes in the face of the sharp decline in export earnings between 1952 and 1953. At least incomes would have fallen more if government had cut expenditure by the full amount of the decline in revenue. However, it is unlikely to have been conscious policy. The decline in imports and in import duties in that year would itself go far to explain it. There seem to be no other years in which the operation of the government's budget would have acted as an important offset to changes in export incomes.

Apart from the dip in 1953, government revenue and expenditure have been relatively stable over this period. Between 1952 and 1953 exports fell by approximately £ 11.8 million, or 25 per cent. Government current revenue fell by only £ 1.7 million, or 6.5 per cent. This is the largest impact of exports on government revenues revealed by the figures. In other years the link between short-term changes in export earnings and the budget seems tenuous.

#### Producers' Incomes

The gross incomes of the sisal corporations must fluctuate in very close sympathy with the volume of sisal exports. Since the main variable cost is labour and the sisal estates do not appear to have varied their labour force in response to fluctuations in their sales it seems probable that the principal impact of variations in the total value of the sisal crop has been on the profits of the firms. Since these are in

the main fairly large firms, well able to carry reserves or to borrow in bad times it is unlikely that this has caused them any serious hardship. In so far as their remission of profits and dividends to overseas owners has varied with export earnings the burden of adjustment on the balance of payments is reduced. An increase in repatriated profits is equivalent to an increase in imports and vice versa for a decrease. Adjustment in their profits and particularly in profits remitted overseas, acts as a shock absorber, softening the impact of external fluctuations upon the internal economy of Tanganyika. As sisal forms around 30 per cent of export earnings it would otherwise be a significant instigator of domestic instability.<sup>9</sup>

The other two important exports, coffee and cotton, are mainly produced by peasant farmers, in conditions rather similar to those discussed in the case of Uganda. Cash crop and subsistence crops are usually grown by the same farmer. Often banana trees are planted with the dual function of producing shade for coffee plants and food for the family.<sup>10</sup> Cotton farmers very often have livestock and, indeed, tend to put cash income from cotton sales into purchase of yet more livestock.<sup>11</sup> Cash crops are in general sources of marginal income for the purchase of "luxuries" or the accumulation of wealth e.g. by purchasing cattle. Fluctuations in this income, while undesirable are unlikely to cause serious hardship unless a drop coincides with failure of the subsistence crops.

Only in the case of cotton was there any attempt at stabilization in this period. The Lint and Seed Marketing Board has

fixed prices to producers for each season.

#### Effects of Unstable Prices on Consumers of Tanganyika's Exports

In the case of Tanganyika one important question is whether unstable prices for sisal are likely to damage long-run prospects for the product. In coffee and cotton such a question is of much less importance. First, because they are so much smaller in relation to the total economy and export earnings. Second, because the new International Coffee Agreement, if successful, may well reduce short-term instability in prices considerably. Third, in the case of cotton, the existence of large U.S. stocks of this type of cotton is likely to moderate fluctuations in Tanganyika's cotton export prices.

For sisal, however, the question may be vital. While the demand for hard fibres, sisal, hemp and henequen, is unlikely to be very sensitive to changes in prices in the short run, in the longer run several substitutes do exist. In the main uses to which hard fibres are put, agricultural and marine cordage, it would be difficult to find appropriate materials which are sufficiently cheap to substitute for hard fibres in general use. In the longer run many substitutes are available: steel hawsers, other fibres, such as jute, which can be used in garden twines, paper string and plastic tape in packaging, and synthetic fibres, such as nylon and terylene, can be used for the higher quality cordages e.g. in pleasure craft and climbing ropes. Studies of comparative costs of polythene trawling nets with manila nets have shown important operating cost advantages for the synthetic

material which offset the higher purchase price.<sup>12</sup> Thus a real risk exists of encouraging substitution through the creation of uncertainty and through periods of high prices leading to the substitution of synthetics which are not abandoned when sisal prices fall. Sisal prices have fluctuated quite widely over the post-war era with an annual average percentage variation of about 17.8 per cent between 1949 and 1959. (Table 6:1 shows price movements of British East African No. 1 Sisal). This is rather higher than average for primary products in the post-war era. The danger exists that such price instability may result in the asymmetric substitution suggested above. Unfortunately the contribution of price instability in causing substitution cannot be assessed at present.

#### Causes of Instability in Tanganyika's Exports.

The most important factor here has been the behaviour of sisal. Over this period, 1948-60, acreage, yields, output and exports of sisal have shown only very minor instability. The picture has been one of stable expansion as shown in Tables 2 and 3 below.

The average percentage year-to-year change in the quantity of exports over this period was only 7.0 per cent, while for total value over the same period the change amounted to some 19.6 per cent. Evidently fluctuations in the prices of sisal exports have been the main destabilising influence upon sisal export proceeds. The total value of exports is highly correlated with unit value, 0.9 (significant at .01 level), but not at all with quantity. Unit value and quantity have had low

negative correlation,  $-0.3$  (not significant at  $.05$  level). Price instability which is much greater than fluctuations in quantity implies either extremely inelastic demand or large autonomous changes in demand. Since in almost every year changes in total value and in unit value have been in the same direction, changes in world demand for sisal seem to have been the main cause of short-term instability. Instability in prices of sisal has been largely due to fluctuations in world demand combined with a very inelastic or even perverse supply. In fact, supply went on expanding in the face of a very sharp and sustained fall in prices between 1952 and 1955.

For both cotton and coffee the price elasticity of demand for Tanganyika's exports must be very high as their contribution to world supply is marginal. The instability of export earnings must, therefore, be the result of changes in the quantity of exports at the going world price or changes in world demand. For both, and in particular coffee, fluctuations in price have been fairly large.

In the case of coffee, fluctuations in unit value and in quantity seem to have been roughly equally responsible for instability of the total value of coffee exports. Both were highly correlated with total value: quantity,  $r = 0.8$  and unit value,  $r = 0.9$ , (both significant at the  $.01$  level). Since the price elasticity of demand for Tanganyikan coffee is assumed to be high, (this is confirmed by a positive correlation of  $0.6$  [significant at the  $.05$  level] between unit value and quantity), price changes must be due to global changes in demand. Demand and supply variation combined with inelastic supply seem to share equal responsibility for fluctuations in the total value of coffee

exports from Tanganyika.

Quantity changes seem to dominate in the case of cotton.

Fluctuations in cotton tonnage exported are much greater than in price, as shown in Table 6:4. Moreover, the total value of cotton exports is highly correlated with quantities exported, 0.9 (significant at the .01 level) and not at all with unit value.

For the main Tanganyikan export, sisal, fluctuations in foreign demand appear to have been the main de-stabilising influence; for coffee, responsibility is divided between changes in demand and changes in output; for cotton, quantity variations have been the main explanation of instability in export proceeds. On balance, it would appear that the main cause of Tanganyikan export instability has been fluctuations in external demand for her main exports.

### Conclusions

Tanganyika's economy is a very open one, and throughout this period it has been subject to the rules of the Currency Board system which make adjustment to external imbalance very largely a question of induced changes in income and the money supply.<sup>13</sup> Such an economy could well be expected to be very sensitive to external instability. Tanganyika's export earnings over this period, 1948-61, were very unstable, yet remarkably little impact from this can be found on domestic stability. All of the internal economic variables: income, imports, investment, prices, employment and the government's budget reveal very little sensitivity to fluctuations in merchandise export earnings.

Reasons for the lack of reflection in the internal economy of the instability of export earnings may lie in a large number of small offsetting factors induced by the changes in exports, in distributed lags which smooth out the peaks and troughs of internal responses to the initiating change, or in autonomous changes in other variables either in the balance of payments or in internal production and consumption which have tended to offset the effects of a rise or fall in exports. The first two groups may be regarded as factors which, if they exist, can be relied on to act as mitigating influences on transferred instability. The third group, however, could only have mitigated the impact of external instability by chance and could equally coincide with and exacerbate export fluctuations.

One important example of the first group would be induced changes in the remitted profits of the sisal corporations. If these have fallen in years of poor export proceeds and risen in good years their movements would help to stabilise the overall balance of payments. Moreover, if the sisal firms do not allow short-term fluctuations in their export earnings to affect their purchases of goods and services from the rest of the economy, sisal instability will not be reflected in the internal economy. The relative stability of their labour force seems to indicate that this has been the case. As their investment is probably much more closely allied to long-run estimates of profitability (the sisal plant has a life of ten years) year-to-year and even cyclical swings in profits are unlikely to affect their expenditure on investment. It may well be that despite the great instability of the earnings of the sisal industry it is nevertheless a force for economic stability in

Tanganyika's internal economy.

An example of the second group would be the connection between government revenues and variation in exports. When exports rise any income from export duties will increase immediately, but since income taxes and corporation taxes are assessed in arrears and are liable to be subject to argument and bargaining between government and taxpayer quite long periods may elapse between incurring liability to tax and the actual payment. When these payments are actually made exports and incomes may well be far below the previous peak, but government revenue will be sustained by these delayed payments. This seems to have occurred in Tanganyika. It also works in the opposite direction. When export earnings fall, export duties and import duties are likely to show a swift decline, but income and corporation taxes may yield high revenues from previous years' assessments. This may be regarded as a systematic factor which tends to smooth out government revenue's response to export variability. Certain other sources of tax lead to very stable revenues -- e.g. the personal tax, and these help to stabilise total government revenues.

There are many possible autonomous factors whose random variations over the relevant period may have tended to offset fluctuations in merchandise exports. Changes in the capital account side of the balance of payments could have this effect. Either an increase in U.K. government or Colonial Development and Welfare Loans or in private capital flows to Tanganyika could mitigate a fall in merchandise exports. Equally a reduction in the foreign loans of Tanganyika could have this effect. The expatriate nature of the banking system may actually result in this being induced. These banks tend to hold the greater part of their reserves in the U.K.

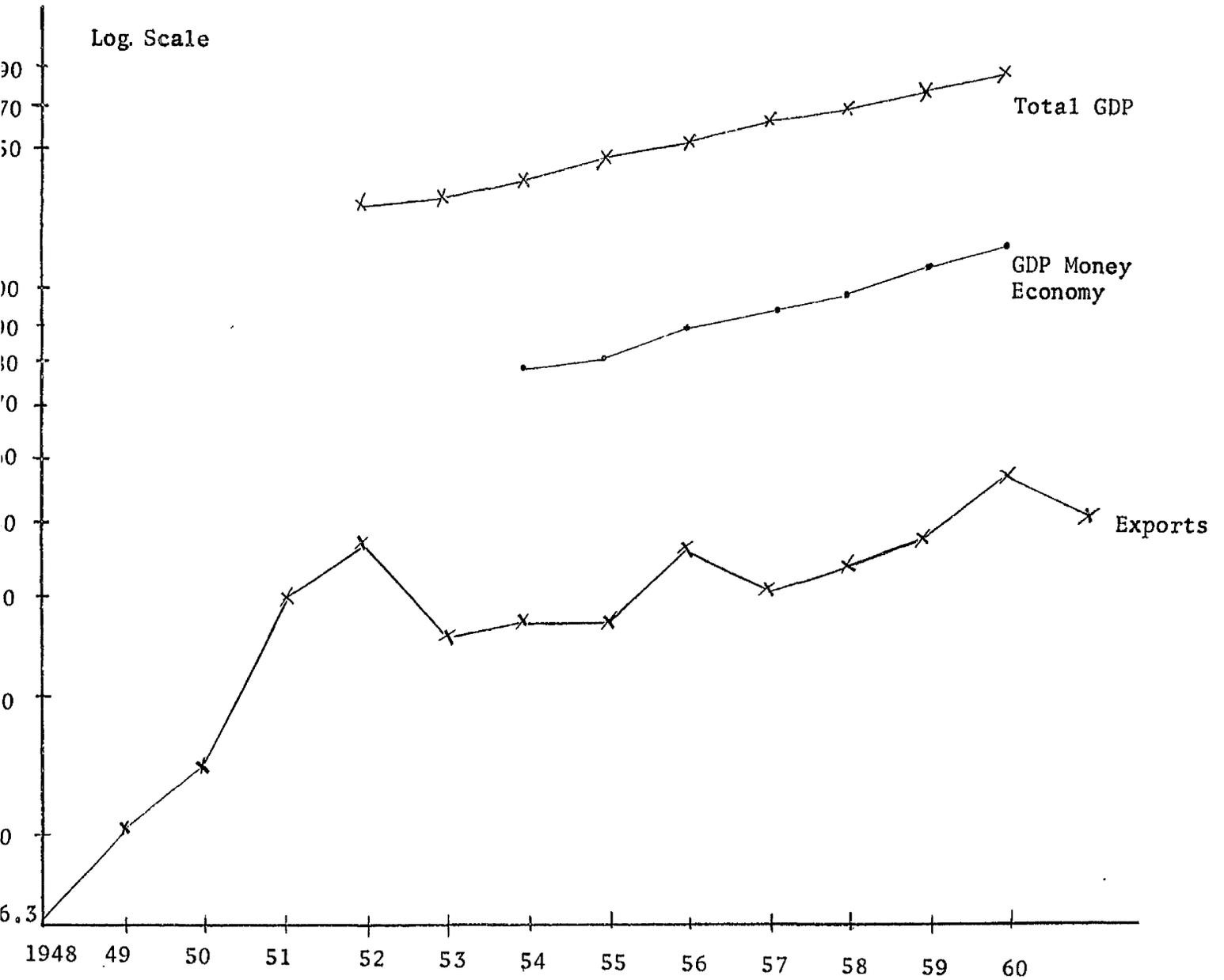
Any increase in deposits with them is likely to lead to an increase in their sterling assets in U.K. Thus if an increase in export earnings results in a rise in bank deposits a good deal of this money will be reinvested in Britain by the banks. If a fall in exports leads residents in Tanganyika to draw upon their bank balances a certain amount of repatriation of these "foreign" investments will take place.

Within the internal economy random variations in harvests can have an impact on GDP, investment, employment, prices and imports. These changes in a heavily agricultural economy are likely to have an enormous effect, sufficient at times to swamp the effects of changes in exports.

All in all, the results of this brief analysis of Tanganyika's economic instability throw doubt upon the importance of variations in export earnings to the stability of the domestic economy. Conclusions as to the effects on growth are not possible with the limited period and lack of standards for comparisons. Certainly the results of the analyses of data above and the many possible reasons, for the lack of relationship, which exist, provide good grounds for rejecting the simple foreign trade multiplier models which are implicit in most discussions of the effects of instability in exports on underdeveloped countries.<sup>14</sup>

Chart 6 : I

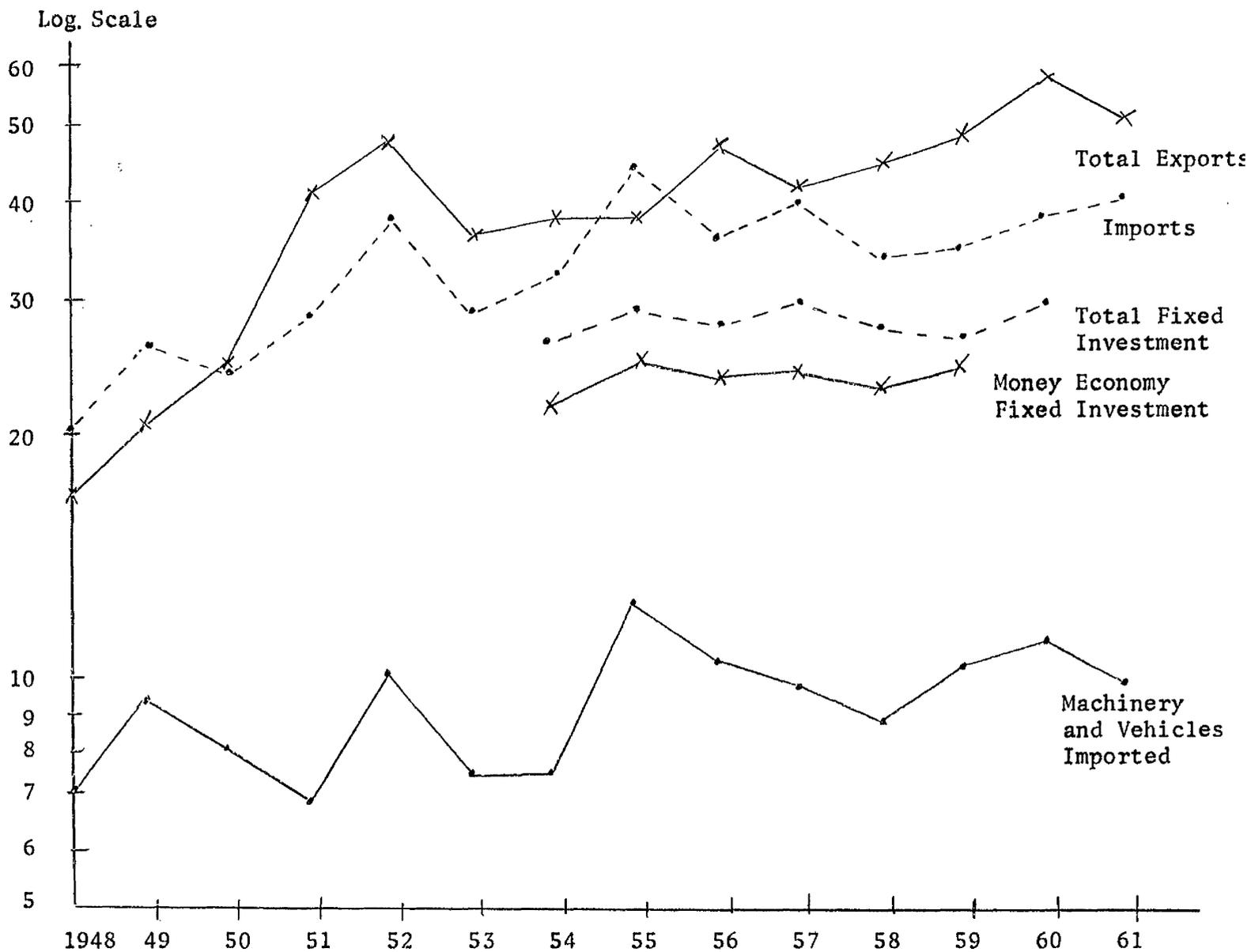
Tanganyikan Exports and National Income, Total Economy  
and Money Economy 1962-60



Source: Table 6 : 5

Chart 6 : II

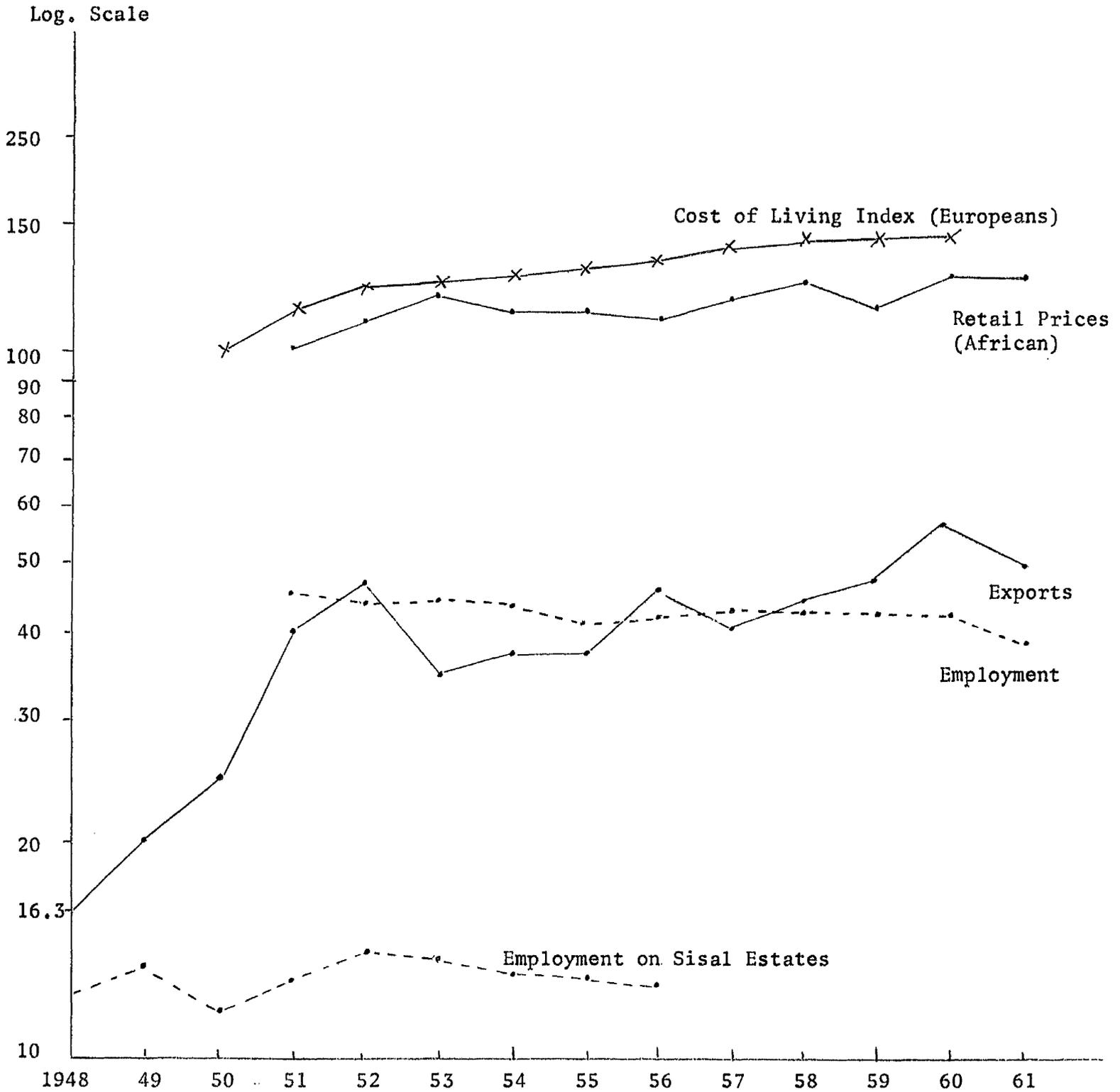
Tanganyikan Exports, Imports and Investment



Source: Table 6 : 5

Chart 6 : III

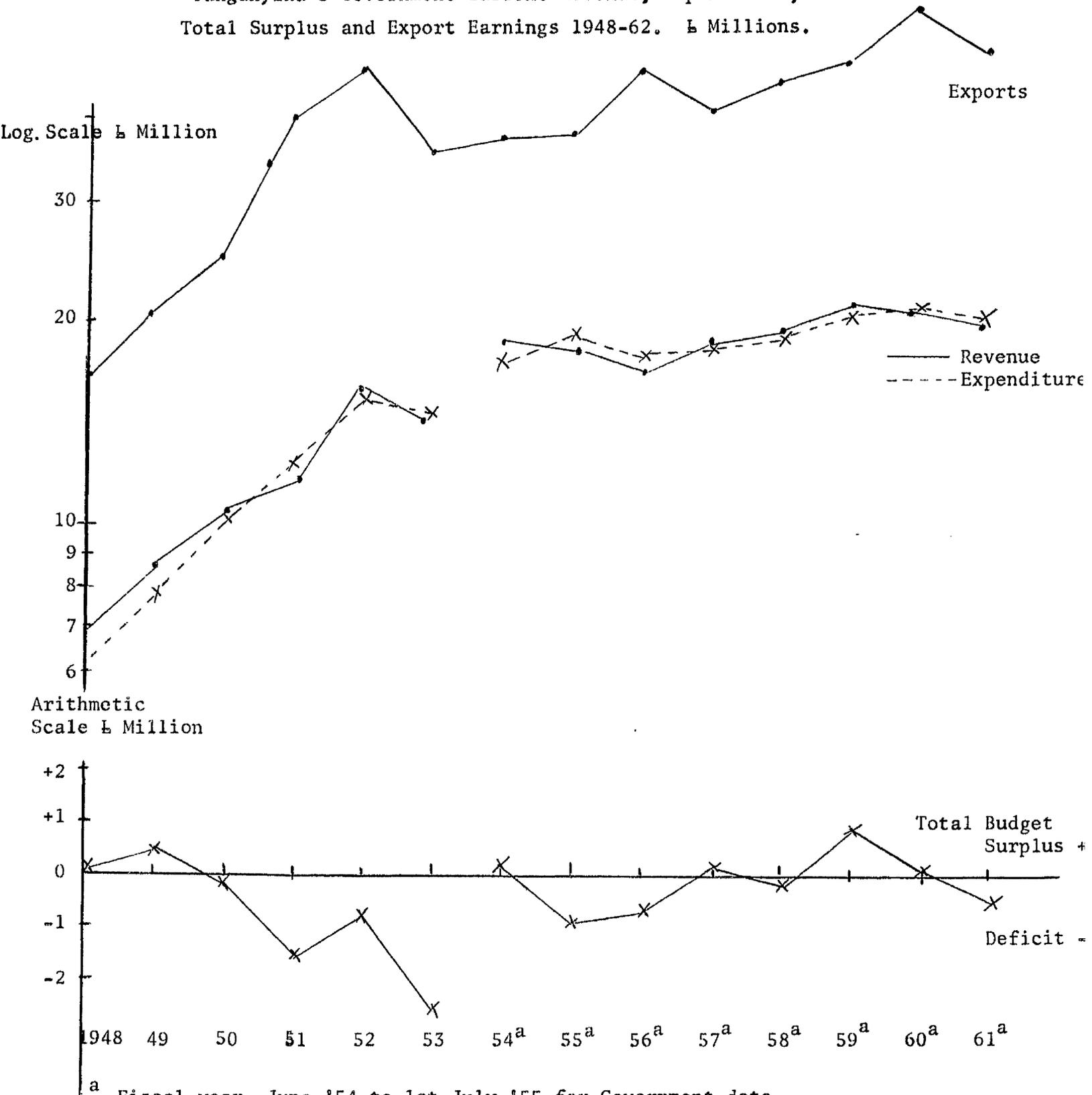
Tanganyikan Exports, Domestic Employment and Prices



Source: Tables 6 : 5 and 6 : 6.

Chart 6 : IV

Tanganyika's Government Current Revenue, Expenditure,  
Total Surplus and Export Earnings 1948-62. £ Millions.



<sup>a</sup> Fiscal year, June '54 to 1st July '55 for Government data.  
Calendar year for exports.

Source: Tables 6 : 5 and 6 : 6.

Table 6 : 1

Prices of B.E.A. No. 1, London, U.S. cents per lb.

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Price	11.4	12.5	17.5	28.7	19.8	11.7	10.8	10.1	9.8	8.9	9.1	11.2	12.8	11.3
Change %		+ 8.8	+28.6	+39.0	-31.0	-40.9	- 7.7	- 6.5	-2.9	-9.2	+2.2	+18.7	+12.5	-11.7

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Source: Economist Intelligence Unit, Hard Fibres.

Table 6 : 2

Sisal Area and Production.

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
'000 Hectares <u>Area</u>	283	285	302	317	335	348	361	367	372	374	373	377	379	n.a.
'000 Metric <u>Tons, Output</u>	123	126	124	148	165	168	181	179	189	188	200	209	208	201

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Source: Economist Intelligence Unit, Hard Fibres.

Table 6 : 3

Sisal Export Earnings, Quantities and Unit Values, 1948 - 60.

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
1	8,930	11,111	11,846	23,689	21,708	12,773	10,902	9,956	10,823	9,482	10,349	13,057	15,442
2		+19.8	+ 6.0	+50.2	- 8.4	-41.1	-14.9	- 8.7	+ 7.8	-12.2	+29.8	+21.4	+15.0
3	119	135	121	144	162	173	172	179	190	185	204	209	204
4		+11.9	-10.7	+16.0	+11.5	+ 6.4	- 0.8	+ 4.0	+ 5.8	- 2.7	+ 9.3	+ 2.4	- 2.7
5	75	82	99	164	134	74	63	56	57	53	51	64	75
6		+ 8.5	+17.1	+39.5	-18.3	-45.0	-14.9	-11.1	+ 1.8	- 7.0	- 3.8	+20.3	+14.6

Source: Economist Intelligence Unit: Hard Fibres,  
Tanganyika, Statistical Abstract.

Key : 1 Total Value in thousands of £s  
 2 Percentage Change in 1. Average =  $\pm$  19.6  
 3 Quantity in thousands of Metric Tons  
 4 Percentage Change in 3. Average =  $\pm$  7.0  
 5 Unit Value in £s per Metric Ton.  
 6 Percentage Change in 5. Average =  $\pm$  16.8

Table 6 : 4

Coffee and Cotton Exports: Quantity, Value and Unit Value

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	Average % Change
<u>Coffee</u>														
1	1.2	1.5	3.5	4.5	5.5	5.8	10.0	6.9	9.2	7.1	7.6	5.8	7.3	
2		+25.0	+51.0	+22.2	+18.1	+ 5.2	+42.0	-31.0	+25.0	-29.6	+ 6.6	-23.7	+20.5	± 21.3
3	12.7	12.1	15.0	16.5	18.6	15.3	19.4	18.5	21.6	18.5	22.3	19.7	25.1	
4		- 4.7	+19.3	+ 9.1	+11.3	-17.7	+21.1	- 4.6	+14.4	-14.4	+17.0	-11.7	+21.5	± 13.9
5	94	124	233	373	296	379	515	373	426	384	341	294	291	
6		+24.2	+46.8	+14.6	+14.5	+21.9	+26.4	-27.6	+12.4	- 9.9	-11.2	-13.8	- 1.0	± 18.7
<u>Cotton</u>														
1	1.5	2.1	1.4	2.8	4.7	4.8	3.4	5.5	7.5	6.6	7.2	6.7	8.8	
2		+28.6	-33.0	+50.0	+40.4	+ 2.1	-29.2	+38.2	+26.6	-12.0	+ 8.3	- 6.9	+23.9	± 24.9
3	8.9	11.0	7.0	8.0	11.0	15.0	12.0	20.0	28.0	27.0	32.0	31.0	39.0	
4		+19.1	-36.4	+12.5	+27.2	+26.6	-20.0	+40.0	+28.6	- 3.6	+15.6	- 3.1	+20.5	± 21.1
5	169	191	200	350	427	320	283	275	268	244	225	216	226	
6		+11.5	+ 4.5	+42.9	+18.0	-25.1	-11.6	- 2.8	- 3.2	- 8.9	- 7.8	- 4.0	+ 4.4	± 12.0

Source: Tanganyika, Statistical Abstract.

Key : 1 Total Value in millions of £s.

2 Percentage Change in 1.

3 Quantity in thousand tons.

4 Percentage Change in 3.

5 Unit Value in £s.

6 Percentage Change in 5.

Table 6 : 5

Tanganyika Data 1948-61

(£ Millions)

Year	Merchan- dise Exports	Net Mer- chandise Imports	(Machinery & Vehicles) Capital Goods Imports	Gross Domestic Product				Dar es Salaam	
				Gross Fixed Investment	at Current Factor Cost	Index of Retail Prices of African Purchases	Cost of Living Index Europeans		
	(Fob)	(Cif)		Money Total Econ.	Money Total Econ.				
1948	16.3	20.1	7.1	-	-	-	-	Dec. -	Dec. 88
1949	20.4	25.5	9.1	-	-	-	-	-	-
1950	24.9	24.0	7.9	-	-	-	-	-	Dec. 100 (50 base)
1951	40.3	28.1	6.8	-	-	-	-	100 (51 base)	114
1952	47.4	37.5	9.9	-	-	125.2	-	110	123
1953	35.6	28.4	7.4	-	-	130.2	-	119	125
1954	37.8	32.0	7.4	26.0	21.8	135.7	79.1	114	128
1955	37.4	43.5	12.3	28.9	24.6	146.7	81.8	113	132
1956	46.3	35.9	10.4	27.6	23.3	152.4	89.3	111	135
1957	41.1	39.3	9.6	29.5	24.1	162.4	92.9	119	140
1958	43.8	33.6	8.6	27.4	22.7	167.1	97.9	125	143
1959	47.2	34.5	9.1	26.6	24.4	177.1	106.2	116	144
1960	56.6	37.8	10.9	29.4	-	186.9	113.8	127	145
1961	50.6	39.7	9.7	-	-	-	-	126	discontinued

Source: 1) East African Quarterly Economic and Statistical Bulletin, various issues.

2) UN, Yearbook of National Accounts Statistics.

- not available

Table 6 : 6

Tanganyika Data 1948-61 Continued

<u>African Employment '000's</u>		<u>Government Budget (£ Million)</u>					<u>Total Surplus or Deficit</u>	
<u>Total</u>	<u>Sisal</u>		<u>Recur- rent Revenue</u>	<u>Total Revenue</u>	<u>Recur- rent Expendit.</u>	<u>Total Expenditure</u>		
1948	n. a.	122.5	1948	6,965	7,232	6,382	7,092	+ 140
1949	474.1	134.7	1949	8,586	9,152	7,772	8,749	+ 403
1950	n. a.	117.9	1950	10,397	11,490	10,123	11,565	- 75
1951	455.4	128.1	1951	11,931	13,105	12,305	14,638	- 1,533
1952	443.6	142.1	1952	16,430	17,500	15,878	18,323	- 823
1953	448.3	139.3	1953	14,728	15,589	14,724	18,045	- 2,456
1954	439.1	131.2	1954 <sup>a</sup>	9,133	9,622	9,005	9,082	+ 540
1955	413.1	129.9	1955 <sup>b</sup>	19,277	20,015	17,700	19,806	+ 209
1956	424.2	125.6	1956 <sup>b</sup>	18,680	22,764	19,532	23,616	- 852
1957	430.5		1957 <sup>b</sup>	17,492	22,775	18,157	23,439	- 664
1958	430.5		1958 <sup>b</sup>	18,834	24,288	18,697	24,151	+ 137
1959	430.5		1959 <sup>b</sup>	19,412	24,571	19,527	24,686	- 115
1960	428.3		1960 <sup>b</sup>	22,066	26,005	21,154	25,093	+ 912
1961	387.5		1961 <sup>b</sup>	21,355	27,027	21,267	26,880	+ 147
			1962 <sup>b</sup>	(20,505)	28,715	20,948	29,157	- 442

Sources: East African Economic & Statistical Review, September '62.

Quarterly Economic & Statistical Bulletin, various issues.

Employment in Sisal Industry - W. Guillebaud, Economic Survey of the Sisal Industry of Tanganyika, Table VII.

<sup>a</sup> 6 months to June '54.

<sup>b</sup> Fiscal year, July to June.

Footnotes to Chapter 6

1. Only about 20,000 persons now work in manufacturing establishments employing five or more persons (excluding service trades and early processing of agricultural products)." IBRD, 1961: p.13

2. Guillebaud, 1958: pp. 92-96 and 108-9.

3. Economist Intelligence Unit, "Hard Fibres - a Quarterly Review."

4. H.W. Ord has suggested that there is an association between exports and imports lagged two years behind, but a scatter chart shows no evidence of this (communication to the author on an earlier draft).

5. IBRD, 1961: p. 43

6. IBRD, 1961: p. 326

7. IBRD, 1961: Table 78, presents figures for revenues from the main sources, including import duties and income tax. These were graphed against exports, but not reproduced here. Table 77 of the Bank's Report gives a very full breakdown of current revenues for 1957/58 and 1958/59. Export duties were negligible, £ 25,000.

8. These figures should be regarded as tentative. The figures here taken from East African sources do not correspond, on the current expenditure side, with the figures given in IBRD, 1961: e.g. Table 76. Up to 1957/58 their figures on current expenditure are lower than mine.

9. Cf. Reynolds, 1963 and Chapter 8 below for comparison with Chilean copper mines.

10. "The Wachagga and many people in other parts of Tanganyika grow coffee and bananas in mixed culture. Since the bananas are their staple food, they probably regard them as the more important crop." IBRD, 1961: p. 364.

11. IBRD, 1961: p. 367.

12. Tropical Products Institute, 1959: p.9.

13. Unfortunately there are no available figures on the money supply or the total balance of payments of Tanganyika. The IBRD Report makes an attempt at the money supply, but on the very arbitrary assumption of allotting one third of total East African Currency Board figures to Tanganyika. (IBRD, 1961: Table 40, p. 334)

14. See Chapter 3 above.

Chapter Seven: Puerto Rico

In the literature of the economics of underdeveloped countries it is frequently asserted that many of their misfortunes stem from economic dependence upon the rich industrial nations. The close links which are forged between their economies and those of the rich countries, it is suggested, make them extremely susceptible to the cyclical instability of their industrial trading partners. Even fairly mild changes in activity in the rich industrial countries are supposed to have a greatly magnified effect upon the stability and growth of their dependent partners.

In the post World War II era, no country provides a more extreme example of economic dependence than does Puerto Rico in its relations with the Mainland of the United States. A study of the economic relations between these two countries should yield an interesting insight into the question of how serious are the ill-effects of the impact of fluctuations in an advanced country upon the economy of its dependent, underdeveloped trading partner.

Puerto Rico, however, has certain peculiar features which should be noted. With a per capita income of about a quarter of the US level, Puerto Rico is a relatively affluent underdeveloped country. Moreover, in the post-war period there have been very sweeping changes in the composition of its production and exports. Agricultural exports have greatly declined in importance while manufactures, particularly textile fibres and apparel, have grown with startling rapidity. While the economy has grown rapidly and become more diversified in its products Puerto Rico has become even more dependent on international trade in general and no less dependent on trade with the Mainland of the US. Exports form over 50 per cent of Gross Commonwealth Product (GCP), imports 65 per cent. Of

those exports, over 95 per cent habitually go to the US and about 90 per cent of the imports come from there. Puerto Rico is clearly foreign trade oriented and her trade is regionally, highly concentrated. Her dependence is not limited to commodity trade, but extends over a broad field of activities including tourism, insurance, Federal government transfers, emigrants' remittances, long term capital flows and the flow of emigrants between Puerto Rico and the US. This last is an important outlet for an economy with the unfortunate combination of a rapid population growth with a less rapid growth in job opportunities.<sup>1</sup>

Fluctuations in the economy of the US can influence the internal economy of Puerto Rico through their effect on any of these variables. Given all these channels of influence it would certainly not be surprising to find that the Puerto Rican economy was highly sensitive to fluctuations in the US. It is surprising to discover that when the figures for the post-war period are examined very little evidence of any significant effect on the main variables: exports, product, employment or investment, is revealed. The extreme dependence on the US did not lead to any serious instability in Puerto Rico. Indeed it requires most careful study of the data to establish any relationships with Mainland instability. This can be interpreted as tending to confirm the finding of the cross-sectional studies in Chapter 2 that regional concentration in exports does not necessarily lead to economic instability. A preliminary conclusion of this sort is, however, subject to the objections that US recessions in this period were relatively mild and that Puerto Rico was subject to special factors which may have obscured the effects of US instability. These special factors were: rapid growth in general and, in particular, growth in output, exports and employment of firms and branches newly set up in Puerto Rico by foreign investors.<sup>2</sup>

Puerto Rico's exports, merchandise and total, have enjoyed relatively stable growth from year to year. This makes it rather less interesting from the viewpoint of a study which seeks to discover how much damage may be inflicted by unstable export proceeds. Its extreme economic dependence on the US, however, invests its case with important interests of its own particularly in relation to the relative importance of the different channels through which the Mainland affects Puerto Rico's economy.

A recent study has concentrated on the impact of the two recessions in the US during the 1950's upon the economy of Puerto Rico. Werner Baer (1962) first attempts to illustrate the impact of the 1953 to 1954 recession by means of a general descriptive analysis, comparing US and Puerto Rican variables such as exports, production and employment, both in the aggregate and by principal Puerto Rican industries. He concludes:

The effects of the 1953-54 Mainland recession on Puerto Rico were very mild. The principal channel through which it spread was a substantial decline in net emigration, causing a rise in unemployment. Most manufacturing industries which rely to a large extent on exports were hardly affected by declines in exports which took place with a lag of approximately nine months. (Baer, 1962: pp. 45-46)

The rise in Puerto Rican unemployment mentioned was, in fact, very slight. On the Mainland the unemployment peaks (seasonally unadjusted) were in the first three quarters of 1954, averaging around 5 per cent compared with the previous years 2.5 per cent. Whereas in Puerto Rico it was the last three quarters which may have shown the influence of the decline in US demand with an unemployment percentage of 14.4 to compare with the previous year's 12.7. Proportionally the rise in unemployment was very much less in Puerto Rico.<sup>3</sup>

Baer argues that the effects on Puerto Rico were minimized by, "the backlog of newly promoted firms which were opening their plants in 1954 and thus contributing to total exports and general employment in the respective industries."<sup>4</sup> Because the decisions to invest had been taken several months before they would continue with construction after the recession had begun and many firms in Puerto Rico work under contracts which would guarantee the market for their output for some months. Baer's final word on the 1953-54 recession is that, "The principal effect was thus a mild decline in the rate of growth of the economy."<sup>4</sup>

On the 1957-58 recession Baer concludes that while it "was more severe but shorter than the previous one, [it] had on the whole a relatively mild effect on Puerto Rico. The island gross product continued to grow, though at a rate smaller than projected without the recession (i.e., the growth in current values of 6.8 instead of a potential 10%-13%)." (Baer, 1962: p. 58)

Unfortunately he gives no outline of how the projection for Puerto Rican growth was calculated. Since the average rate of growth over the period 1947-59 was between 6 and 7 per cent per annum the figure for 1957-58 could not normally be regarded as an aberration.

Baer considers the banking system as a possible channel for the transfer of fluctuations to the economy of Puerto Rico. On this he concludes, "The banking system of Puerto Rico has hardly been affected by Mainland fluctuations since the beginning of the economic development program." (Baer, 1962: p. 72) The main explanation which he gives for this is their very high liquidity. Since they have excess reserves a loss of some of their cash reserves does not force them to contract credit, nor is an expansion of their reserves necessary to any increase in the credit they extend. Once the banking system is mature this may no longer obtain.

Baer examines the composition of Puerto Rican exports and makes an attempt to estimate their relative sensitivity to changes in US production or income. He derives from this the interesting conclusion that Puerto Rico's export composition is altering in the direction of manufactures which are more sensitive to fluctuations in the US than were its previous agricultural exports.<sup>5</sup> This is one case where export diversification may actually increase the possibility of unstable export proceeds.

He also examined the sensitivity of new investments in Puerto Rico to fluctuations in: 1) US Industrial Production, 2) US New Plant and Equipment, and 3) US Profits, with various time lags. The simple regressions yielded no result of any significance. Once trend was eliminated correlation coefficients were extremely low. There appears to be no cyclical relationship whatever between Puerto Rican new investment and these variables. (Baer, 1962: pp. 78-82)

A further section of Baer's book analyses sensitivity to Mainland fluctuations by firms classified by type of industry, ownership and market orientation. He finds it difficult on the basis of this analysis to make any policy recommendations on the types of firms which should be encouraged to develop in Puerto Rico. The evidence is not sufficiently clear. There is some suggestion, however, that the firms which declined most in recession were the firms which were also the most likely to grow rapidly. To discourage them would be to sacrifice some growth and on balance he thinks this would not be a profitable exchange. (Baer, 1962: p. 108)

The overall conclusions which follow from Werner Baer's study are that while there may be some evidence which suggests that, if the period of extremely rapid growth of new firms in Puerto Rico tends to come to an

end, the Puerto Rican economy may become more sensitive to US fluctuations. At present its economy seems very resistant to the mild shocks which it has received from Mainland instability.

The method which Baer adopts of concentrating his analysis on the three year periods of the two recessions could be misleading. The possibility of coincidence cannot be ruled out when the sample is so small, particularly when the Puerto Rican variables which seem to have been most affected were different in the two periods studied, e.g. net migration in the first whereas investment and industrial production are emphasised in the second. Moreover, this method eliminates the possibility of observations of Puerto Rican variables perhaps moving independently of US in other periods. As a check on the conclusions based on Baer's results the data shown in Table 7:1 were collected and charts drawn for as long a period as available data permitted.

In Chart 7:1 annual values for Puerto Rican merchandise exports were plotted against US GNP in constant dollars, from 1947 to 1958. It should be noted that the Puerto Rican data are all based on a fiscal year, so that it is the value of goods exported between 1st July '47 and 30th June '48 from Puerto Rico which are plotted against US GNP for the calendar year 1947. Consequently all the Puerto Rican data in Table 7:1 except migration are lagged six months behind US GNP. Baer suggests a six to nine months' lag in his analysis for repercussions on the Puerto Rican economy.

The percentage fluctuations in both are relatively small. The chief interest of Chart 7:1 lies in the direction and timing of the changes in US GNP (values on left scale) and Puerto Rican exports (values on right scale). The US recessions, peak to trough, are indicated by the

shaded blocks on the horizontal axis. Between 1948 and 1949 US GNP declined very slightly, but Puerto Rican exports rose more steeply than they had in the previous year. In 1951 Puerto Rican exports dropped well below trend while US GNP rose steadily. US GNP dropped from 369 billion dollars in 1953 to 363.1 in 1954. Puerto Rican exports continued to rise, but at a rate slightly lower than the trend for 1947-58. Between 1957 and 1958 US GNP fell from 408.3 billion dollars to 401.3, but Puerto Rican exports in 1958 rose faster than the trend. It would be difficult to contend that these annual data support the hypothesis that fluctuations in US GNP are the most important single determinant of changes in the value of Puerto Rican merchandise exports.

In Chart 7:II Puerto Rican income and fixed investment are plotted. They may be related visually to either US GNP or Puerto Rican exports. With investment, US fortunes could determine Puerto Rican fixed investment either through the rate at which US firms and subsidiaries created new plants in Puerto Rico or through Puerto Rican exports. If the latter declined this might deter investment in capital goods and affect public investment via reducing tax revenues available to finance it. Puerto Rican fixed investment seems to have fallen quite sharply in 1949. This might be attributed to the US recession, but on the other hand might easily be due to quite other factors. Exports went on increasing at that time and this was a very minor US recession. In 1955 Puerto Rican investment may have risen very slightly less than the normal trend increase, but it is so slight as to be non-significant and it had increased rather rapidly in the previous year. Lack of data for 1959 makes it impossible to test the reaction to the 1958 recession. If any effect on investment is shown here the time lag involved is rather a long one. The graph already has the six month lag built in due to the

fiscal year, and the reflection of the recession, if real, has been a further full year on. If quarterly data were available it would be possible to check this, but these figures are lacking. Comparison of the investment graph and Puerto Rican exports shows no evidence of relationship.

Comparison of the US GNP graph with Puerto Rican Gross Commonwealth Product and of Puerto Rican exports with Puerto Rican GCP provides no evidence of relationship in their movements from year to year.

In Chart 7:III Puerto Rican annual emigration rate is compared with US average unemployment percentages. The unemployment graph is inverted. The hypothesis underlying this relationship is that Puerto Rican net migration is related to the availability of jobs in the US. The expectation is that high US unemployment makes for a low level of Puerto Rican immigration to the US. This expectation is roughly upheld by the data as the graphs show. In each of the recessions the peaks of US unemployment coincided with troughs in Puerto Rican net emigration. The proportionate size of the change varied enormously from one recession to the next and Puerto Rican emigration actually declined sharply in 1957 and in 1960 when US unemployment had been approximately stationary. But this rather unique relationship between an underdeveloped and a rich country does seem to be established by these and Baer's results.<sup>6</sup>

Chart 7:IV sets out quarterly averages and the monthly average for each year for exports (expressed as monthly rates) from Puerto Rico for comparison with a chart of quarterly GNP values for the US. The quarterly data for Puerto Rico are unlagged and the monthly average for each year has been plotted against the second quarter point. The quarterly figures are linked with a free hand solid line. The monthly averages for each year are linked with a broken line. A trend line based on a 3 year

moving average is drawn through the scattered points. The Puerto Rican quarterly data are uncorrected for seasonal variations. They are set out in Table 7:2.

It is clear that seasonal fluctuations and an upward trend have been quite strong in Puerto Rican exports. These have to be allowed for in analysing the relationships between Puerto Rican exports and US GNP. Puerto Rican exports seem to show some effect. In the second and third quarters of 1954 and the first quarter of 1955 they fell slightly below the values that could be expected from the regular seasonal movements and the upward trend in exports. But in the fourth quarter of 1954 they rose above what could be expected. Visual comparison of the graphs is difficult and rather unreliable. They may, however, serve some purpose in checking the results of the multiple regression analysis which was attempted.

Quarterly figures for Puerto Rican merchandise exports 1953-61 were treated as the dependent variable in regression equations with US seasonally-adjusted quarterly figures for GNP in constant 1954 dollars as the first independent variable. Seasonal factors and trend in Puerto Rican exports were allowed for by "dummy" variables. The regression equations were computed with Puerto Rican exports in a current and one, two and three quarters lagged basis. The highest coefficient with respect to US GNP was found when Puerto Rican exports were lagged 2 quarters behind the US data. It was, however, non-significant with the standard error almost as large as the coefficient. The results from this regression were:

$$\begin{aligned} \text{Puerto Rican Exports} &= -16.9062 \\ &+ 0.1066 \text{ US GNP of six months previous} \\ &\quad (.0783) \\ &- 4.5153 \text{ 1st quarter seasonal effect} \\ &\quad (2.0771) \\ &+ 2.6930 \text{ 2nd quarter seasonal effect} \\ &\quad (2.0800) \\ &+ 3.4610 \text{ 3rd quarter seasonal effect} \\ &\quad (2.0826) \\ &+ 0.7182 \text{ General Trend} \\ &\quad (0.2200) \end{aligned}$$

F Ratio 37.87

$R^2 = 0.8752$

The equation as a whole is quite highly significant (better than the .01 level) because of the highly correlated trends in Puerto Rican exports and US GNP over the period. These results do not support the hypothesis that short-term fluctuations in Puerto Rican exports are closely related to short-term changes in the general level of US activity. Any relationship which exists must be fairly weak or obscured by other factors.

Two possible reasons can readily be adduced in explanation of this lack of close relationship. The US economy is enormous and slight declines in its general level of activity are quite consistent with fairly rapid expansion in some regions combined with steeper declines in other areas. The effect on imports from an economy as small as that of Puerto Rico is likely to be heavily influenced by their regional distribution within the US. It is quite feasible that they could have been concentrated in areas of the US which did not show the same pattern of changes in activity

as the average for the US as a whole.<sup>7</sup> This is an interesting possibility, but one which would require fairly detailed and time consuming research to establish. Nor is it really necessary to the purposes of this study.

Another possibility is that the products which predominate in Puerto Rican exports have been insensitive to changes in consumers' incomes or to US industrial activity in this period. As was noted above Baer attempted to provide answers to this question, but was unable to arrive at any very firmly established conclusions.<sup>8</sup>

Study of Baer's findings, together with the supplementary evidence recorded above points to the general conclusion that the internal economy of Puerto Rico showed relatively low sensitivity to US general activity. Apart from the unusual factor of migration the individual variables examined showed little or no relationship to the US economy. It seems unlikely that the Puerto Rican economy has suffered much hardship from external economic instability or that its instability can be related powerfully to general US instability. Yet this economy is extremely dependent on exports and has many close links with the US.

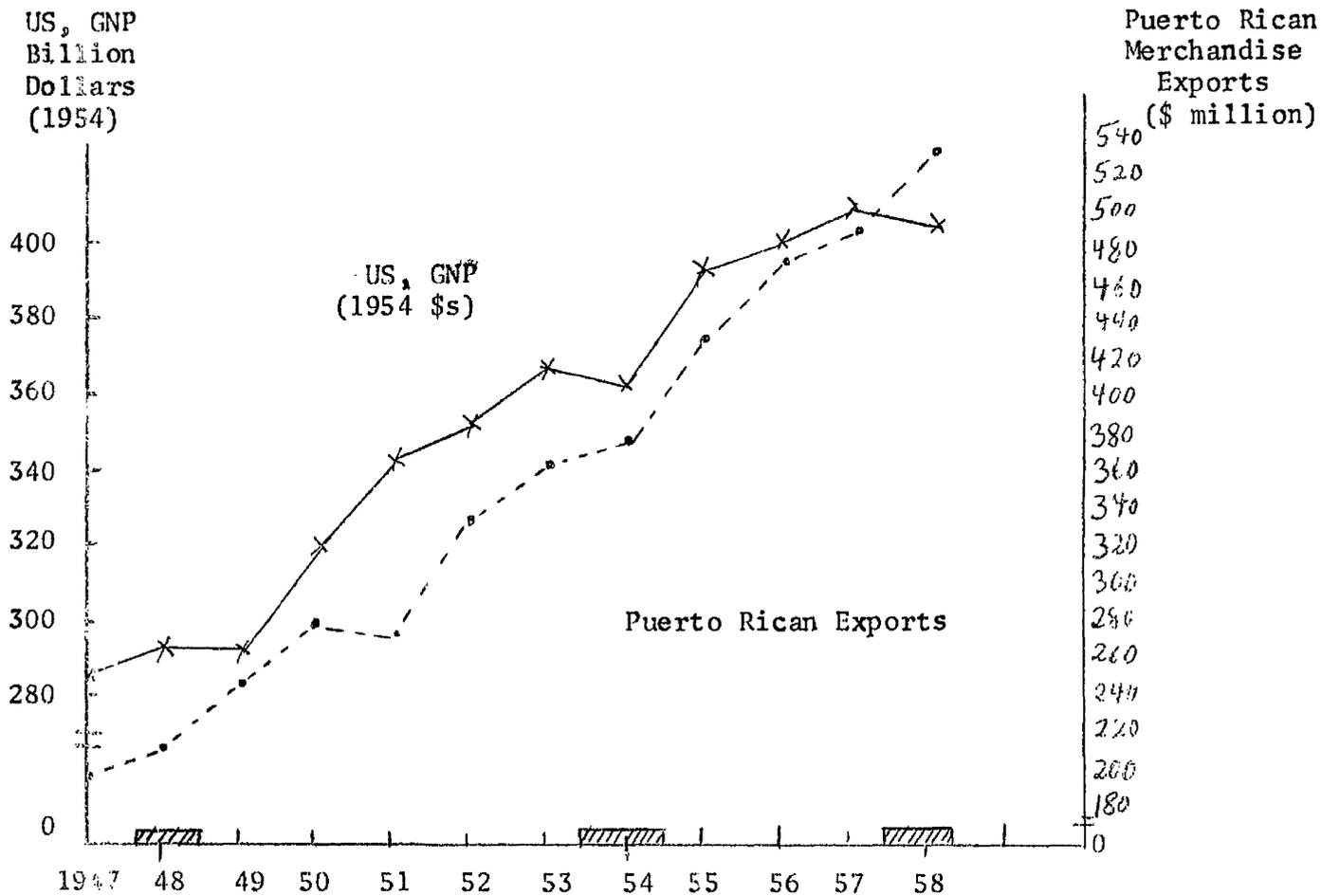
Because this finding contradicts some commonly accepted beliefs it may be worthwhile listing some of the factors which may have contributed to this result in the case of Puerto Rico. First, there is the factor of relatively rapid growth in general. This may have created a general atmosphere of buoyancy which could lead investors and potential investors to ignore temporary declines in demand in making investment decisions. This would tend to reduce accelerator effects of an initial decline in income. The liquid position of the banks would make credit reasonably easy to obtain provided expectations were geared to an upward trend. Also consumers may be inclined to dip into savings

or make more use of consumer credit to maintain their standard of living if they have been conditioned to rising standards in a growing economy. Second, there is the factor, emphasized by Baer, of the rapid initial growth of newly set up industrial plants and investment in the construction of new plants on the basis of decisions made in advance of the US recessions and based in any case on longer-run criteria. Some of these were producing under pre-arranged contracts which could not be cut during the recessions. This could have helped to sustain Puerto Rican output and exports in the face of a general decline in demand for these types of goods on the Mainland. Third, a decline in incomes on the Mainland may result in some substitution of cheaper products for higher quality, more expensive types. Such substitution may favour Puerto Rican exports such as textiles and apparel. Fourth, the import content of Puerto Rican exports is increasing, though not very high (about 19%), and reduction in exports would tend to reduce the need for certain imports. On the invisible account of the balance of payments migrants presumably have some, if a rather small, effect on both the current and the capital account of the balance of payments. Their cost of transport and any sums they carry with them to the US will represent debit items on the balance of payments. A fall in net migration due to US recession would also reduce these.

These are some of the factors which could have acted as partial offsets to either changes in US activity or changes in Puerto Rican exports as determinants of Puerto Rican variables such as unemployment, income and investment. No doubt there are other possible explanations. But the important points to note here are that even extreme economic dependence on an enormous, advanced, industrial partner does not by

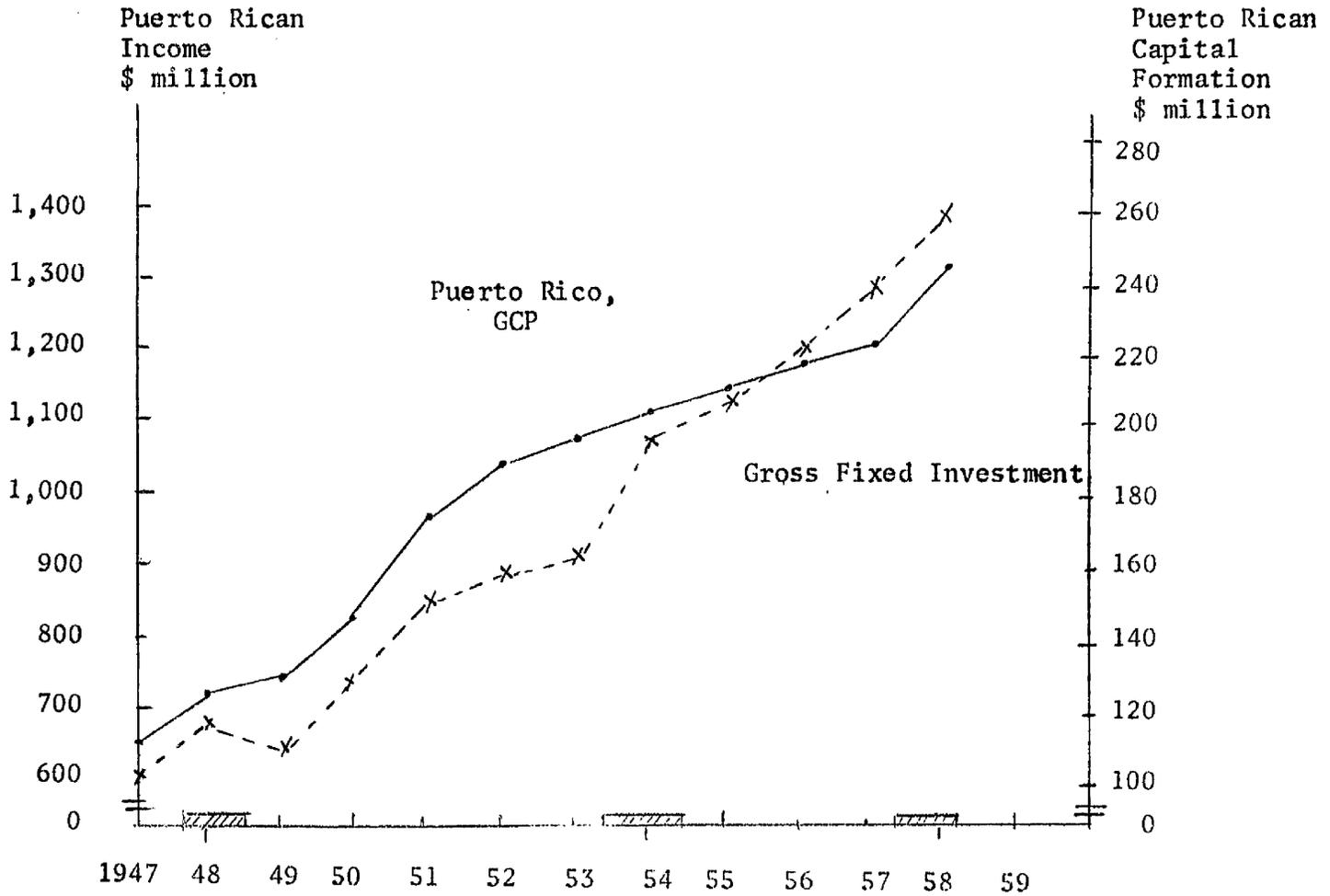
itself imply economic instability for the dependent and that neither does a very high ratio of foreign trade to national income imply this. Puerto Rico has enjoyed both stable and high rates of growth over the whole post-war period.

Chart 7:I. US GNP and Puerto Rican Total Exports



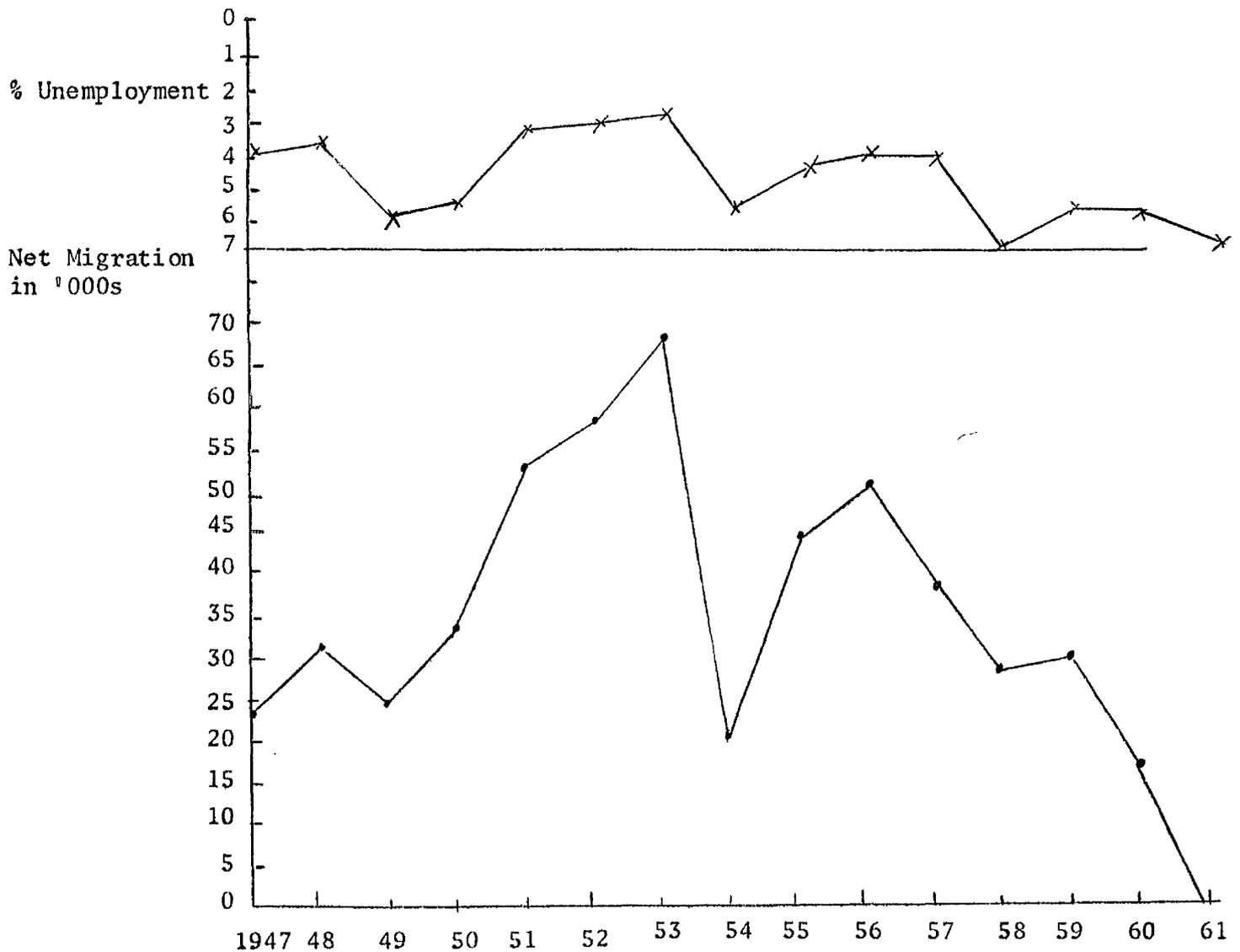
Source: U.S. Business Statistics, 1958 and 1962, Calendar years. Puerto Rico, Table 1, Fiscal Years, e.g. 1947 = July '47 to Juen '48, etc. Thus Puerto Rican data are lagged six months behind US data.

Chart 7:II. Puerto Rican National Income  
(Gross Commonwealth Product) and Gross Fixed Capital Formation



Source: Table 1, Years are Fiscal, July '47 to June '48, etc.

Chart 7:III. US Unemployment and Puerto Rican Net Migration  
1947-60 (Calendar Years)

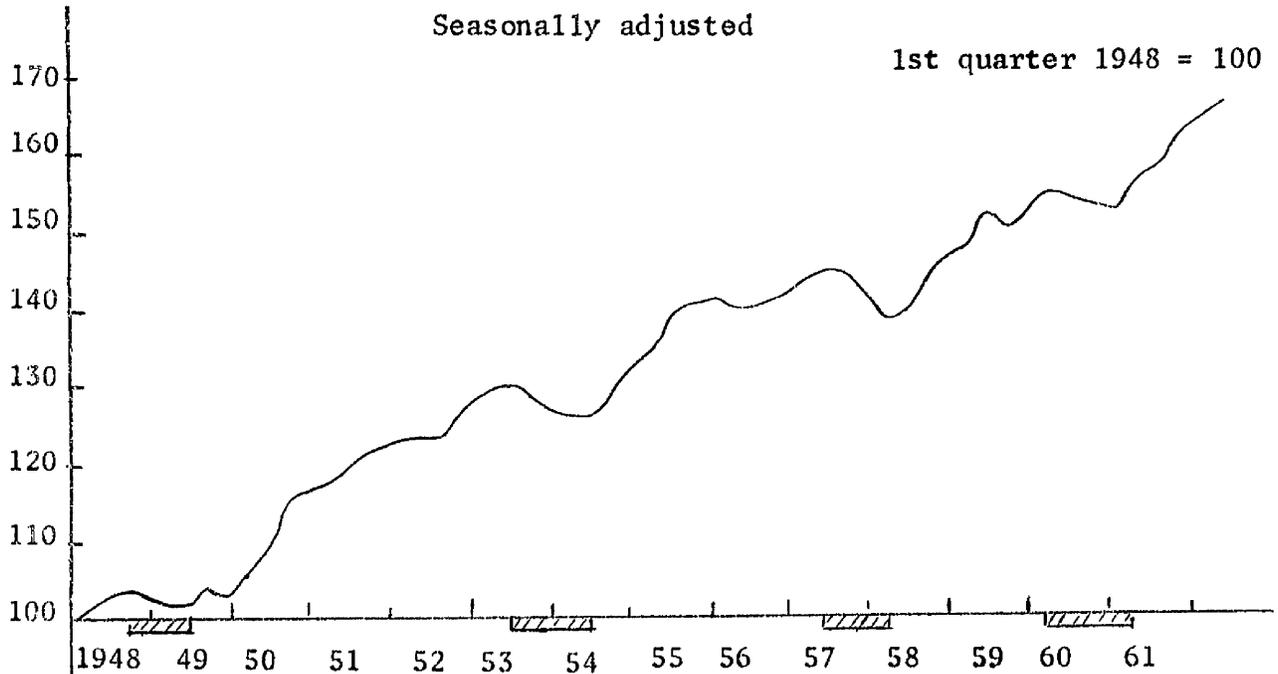


Sources: U.S. Annual Abstract of Statistics.

Puerto Rico Planning Board, Current Business Statistics.

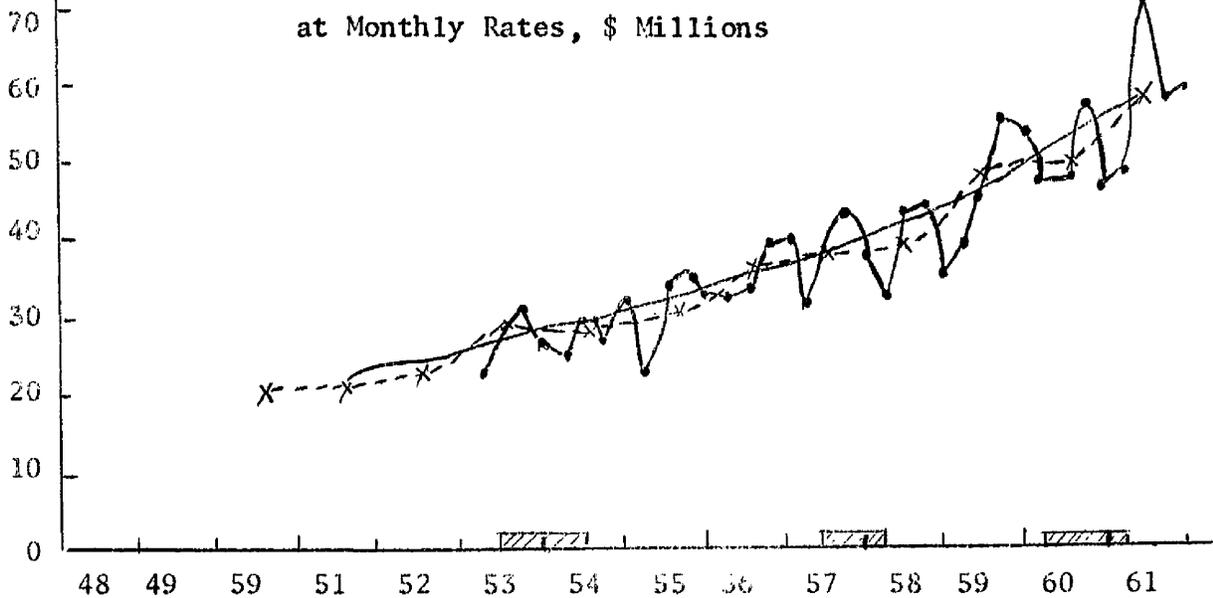
Puerto Rico Planning Board, Statistical Yearbook.

Chart 7:IV. Quarterly Index of US Gross National Product  
in constant 1954 dollars



Source: US Department of Commerce

Annual and Quarterly Values of Exports from Puerto Rico  
at Monthly Rates, \$ Millions



- X - - - X Annual
- — ● Quarterly
- Trend 3 year moving average
- ▨ Peak to trough of US recession periods

Source: Puerto Rico Planning Board, Current Business Statistics, Jan. 1955 to Jun 1962. Set out in Table 2.

Table 7:1

Puerto Rico: General Economic Indicators, \$ Million  
Fiscal Year July to June

	Merchandise Exports	Total Exports	Total Imports	Gross Commonwealth Product	Total Gross Fixed Investment	Net Migration '000s Migration (Calendar year)
1947-48	198.2	282.2	439.4	647.2	100.1	-24.5
1948-49	210.9	294.1	427.2	712.1	115.9	-32.8
1949-50	244.0	329.8	436.6	752.8	108.5	-25.7
1950-51	278.9	387.0	538.4	827.5	127.2	-34.7
1951-52	270.3	433.9	566.9	972.9	150.4	-52.9
1952-53	334.0	536.5	628.7	1052.6	158.9	-59.1
1953-54	362.4	551.5	675.2	1080.7	163.3	-69.1
1954-55	372.3	558.1	740.1	1116.1	195.6	-21.6
1955-56	432.2	613.2	818.4	1151.6	206.8	-45.5
1956-57	472.5	663.1	932.0	1198.0	221.3	-52.3
1957-58	487.0	681.1	962.2	1220.7	238.7	-37.7
1958-59	530.1	744.2	1058.5	1319.8	257.8	-27.7
1959-60						-30.0
1960-61						-16.3

Sources: Puerto Rico Planning Board, Statistical Yearbooks, 1957-60.  
Puerto Rico Planning Board, Net Income & Gross Product, 1947-55.  
Puerto Rico Planning Board, Current Business Statistics, 1955 and 1961

Table 7:2

Quarters	Puerto Rico Exports				Monthly	3 years
	<u>Monthly Rates \$ Million</u>				<u>Average</u>	<u>Moving Average</u>
	1st	2nd	3rd	4th		
1950					21	
1951					22	22.3
1952					24	25.0
1953	23 <sup>a</sup>	29 <sup>a</sup>	31 <sup>a</sup>	27 <sup>a</sup>	29	27.3
1954	25 <sup>a</sup>	29 <sup>a</sup>	28	32	29	29.6
1955	23	34	35	33	31	32.0
1956	33	34	39	40	36	35.0
1957	32	39	43	38	38	37.6
1958	32	43	44	36	39	41.6
1959	39	45	55	53	48	45.6
1960	47	49	57	47 <sup>a</sup>	50	52.3
1961	48	71	57	59	59	

Sources: Puerto Rico Current Business Statistics.

<sup>a</sup>These figures are from Baer, 1962: p. 36, Table 12.

Footnotes: Chapter Seven

1. Data calculated from Puerto Rico Planning Board, Statistical Yearbook.
2. But are these benefits to be regarded as mere accidents or are they themselves part and parcel with the situation of close economic ties. If they are factors associated with close economic ties which can be counted on to offset instability there can be no justification for treating them as exceptional circumstances which ought to be discounted.
3. Baer, 1962: Table 14 gives the data for these observations.
4. Baer, 1962: p. 46.
5. Baer, 1962: p. 78.
6. Jamaica and Trinidad may provide a parallel to this phenomenon.
7. Wolfgang Stolper suggests (in a private communication) that this may have been true of imports for the US as a whole. Because they are largely concentrated in the Eastern Regions of the US their movements have corresponded more closely to activity in the East while US growth has taken place mainly in the West of the continent.
8. Baer, 1962: pp. 83-108, particularly conclusions 107-8.

Chapter 8<sup>1</sup>

Chile

Chile provides a very good example of the classic case of an export economy in which there is a relatively clear cut enclave dominated by expatriate enterprise. Exports of copper earn more than 50 per cent of Chile's foreign exchange and 8 per cent of its Gross Geographic Output. The principal mining concerns, The Gran Minería, are owned by U.S. companies who provide all the capital, all the administrative and technical expertise. Moreover most of the large copper mines are sited in remote parts of the country so that the labour force even lives in housing provided within the enclave by the industry and because of their isolation and poor transport facilities contacts between the export sector and the domestic economy are even less than might be expected a priori.

These particular circumstances are relevant to both the secular development prospects of such economies and to the impact upon their domestic economies of fluctuations in their main export. It is the latter question which is our main concern. Clearly in such economies the transference of instability from export fluctuations to the domestic economy is likely to be less rapid and less strong than in countries where exporting is closely integrated with the rest of the economy. One point which many writers have noted is that profits which can be assumed to be largely repatriated will absorb much of the fluctuations in export earnings. In this case the net foreign exchange made available to the domestic economy will fluctuate less than the total value of exports.

Clark Reynolds coins the term "returned value" for the part of the total earnings of copper exports which is retained in the country. It includes all payments to local factors of production and, through taxation, to the government. More precisely he uses the name "net returned value" to cover all current payments to local factors--wages, domestic purchases for consumption and for stock, direct and indirect taxes paid to the government. When the export sector's local purchases of capital goods are added to this figure he uses the term "gross returned value."

Under the conditions which he assumes to hold for the Chilean Gran Minería (the ex-patriate copper mines), the "gross returned value" is in fact just the same as the surplus on the total balance of payments on current and capital account to the copper sector (excluding local firms). The balance of payments of this sector with overseas countries is the difference between its receipts from foreigners and its payments to them.

$$B_F = R_F - P_F \quad \text{where } B_F = \text{foreign balance,}$$
$$R_F = \text{value of copper exports and capital inflow,}$$
$$P_F = \text{repatriated surpluses and payments for}$$
$$\text{imports utilised in the sector.}$$

Its net position with the domestic economy can be shown as:

$$B_d = R_d - P_d \quad \text{where } B_d = \text{domestic economy balance}$$
$$R_d = \text{copper companies' receipts for sale of}$$
$$\text{copper locally,}$$
$$P_d = \text{copper companies' payments for domestic}$$
$$\text{factors, local purchases on current and}$$
$$\text{capital account and government taxes.}$$

The overall balance of the copper sector is:

$$B = R_F + R_D - P_F - P_D.$$

Since surpluses must be held either in overseas countries or in the economy of Chile and deficits must be financed by foreign or domestic borrowing the copper sector itself can have no surplus or deficit on its overall balance so:

$$R_F + R_D - P_F - P_D = 0$$

$$R_F - P_F = P_D - R_D$$

$$\therefore B_F = -B_D$$

The surplus with overseas equals the net payments to the domestic economy = "gross returned value".

If there were no sales of copper locally then  $B_F$  would equal  $P_D$ .<sup>2</sup> That is, the overall surplus yielded by the sale of copper exports plus any transfers of funds from overseas to pay for capital imports over remitted funds and capital goods imported represents the net injection of purchasing power into the domestic economy from the activities of the copper export sector. In the main, all that Reynold's emphasis on "gross returned value" means is the point which has been made several times in earlier chapters of this study, that the value of exports is only one determinant (albeit the main one) of the contribution to national income and foreign exchange availabilities from foreign trade and payments. Changes in invisibles and in the capital account must also be considered before the effect on foreign exchange availabilities and on national income can be estimated.

However, Reynolds' formulation is perhaps more readily grasped and where company accounts are available gives a simple way of estimating the net contribution of the export sector to the domestic economy. Moreover, where

data are available it enables some attention to be paid to the sectoral distribution of the export sector's expenditure in the domestic economy. In the case of Chile only the break-down between the Government, via taxation, and the private sector, via payments to factors of production, is possible. But even this may be fairly important for the effect on income and investment may differ substantially according to the proportions of the export sector's expenditures which accrue to the government or to private citizens.

The important question in relation to economic instability is whether changes in the "gross returned value" differ substantially in amplitude and/or in direction from changes in total export sales of copper.

Reynolds found that total copper sales for the Gran Minería had an average annual fluctuation of 22.1 per cent (by the UN measure which was used for instability in UN, 1952. The changes are calculated as percentages of the larger of each pair of years) over the period 1926 to 1959. "Net returned value" had an annual fluctuation of 20.2 per cent, slightly less than total sales. Moreover, the direction of change was opposite to that of total sales in 6 out of 34 years. Two reasons are given for this: profits fluctuated more widely than any other component of total value and since they are remitted overseas are excluded from returned value; secondly, the inventory policy of the export industry tended to stabilise domestic factor returns so that they fluctuated only 15.1 per cent and in 10 out of 34 years changed in the opposite direction from changes in the value of exports. (1963: pp. 95-96). The government's share of returned value, direct taxes plus import duties, however, fluctuated by 32.8 per cent per annum over the same period. (Reynolds' measure may exaggerate here as there was a strong upward trend in government

revenues over the period, from 17 per cent (1925-31) of returned value to 55 per cent (1956-59). Still even when allowance is made for this, tax revenues were very unstable). But, in 10 out of the 34 years they went in the opposite direction to changes in the value of copper exports. This was because of frequent changes in tax legislation and because of "an approximately one year lag between incidence and payment of taxation prior to 1946." (1963: pp. 96-97).

Government expenditure moved in the same direction as copper revenues in 20 out of the 31 years for which data can be obtained and in 8 out of the 11 remaining years it was simply a question of an increase in government expenditures while copper revenues declined. On this evidence and on the evidence that Chile's gross geographic product in U.S. dollars moved in the same direction on 26 out of 35 years as did copper revenues Reynolds concludes that instability in exports found its main path for communicating instability to the domestic economy via Government revenues and expenditure. His conclusion is not altered by consideration of the role of local capital purchases of the copper sector for the pattern and amplitude of fluctuations in "gross returned value" was very similar to "net returned value."

Reynolds also discusses briefly the possibility that export instability may have deterred investment in the export sector. Lack of a period of sufficiently stable export proceeds for Chile prevents his making any statement on this. However, he points out that Chile's case is consistent with the "ratchet" theory, for, "The largest investments were commenced during periods of rising profits . . . (but) no major disinvestment occurred for any of the companies even during the severe

depression of the 1930's."(1963: p. 100) This is consistent with the finding, in Chapter 4 of our study, that the rate of capital accumulation and the degree of export instability appeared to be positively associated.

In his doctoral dissertation, Reynolds makes the further point that a "returned value" terms-of-trade index is a more accurate guide to the effects of fluctuations in prices on the domestic economy than is a total value terms-of-trade index. He found that they differed, not only in magnitude, but also in 9 years out of 34 in direction of change. "During these years changes in the price of copper were completely offset (in terms of percentages) by changes in the index of returned value per pound of copper." (1962, p. 106).

His general conclusion is that the direction and magnitude of fluctuations in the value of copper exports are a poor guide to correct policy action intended to stabilise the domestic economy and its purchasing power over imports. In economies like Chile attention has to be shifted to the "returned value" of exports, (1963: pp. 100-102). In essence, as was argued above, this turns out to be the same as the overall balance-of-payments surplus of the export sector with overseas countries.

Since Reynolds' analysis indicates fluctuations in government revenue resulting from fluctuations in the value of copper exports as the main line of communication between external and internal instability this relationship will be examined a little further below.

The simple UN measure for instability which Reynolds uses could be misleading when there are strong trends present in the data. To test this trends were calculated for the total government revenue from the

Copper Mines and the total value of copper production by means of a five-year-moving average. Indices of instability were then computed as average percentage deviations from these trend lines for the 31 available years.<sup>3</sup> The results gave an index of 17.3 for the value of copper output and 31.3 for the government revenues from copper (approximately the same relationship as shown by Reynolds' measures). The deviations from trend were in the opposite direction for 10 out of the 31 years. But only on three or four occasions were the divergences in the opposite direction large. The correlation between these fluctuations in government copper revenues and the total value of copper was 0.55 which is significant at the .01 level. If only the post-war years are considered there is only one year, 1951, in the period 1945 to 1957 in which divergence for trend was in the opposite direction. Changes in the government revenues from copper can be regarded as very closely associated with movements in the total value of copper production, but only some 30 per cent of the variance is explained in this way. This is in fact surprisingly low. Explanations lie in changes in tax legislation which have altered the proportion of total income from copper accruing to the government, and time lags occurring in collection of taxes.

Any impact from fluctuations in government revenues from copper on the domestic economy depends on the expenditure response of the government. The greatest transfer of year-to-year export instability would occur where government expenditure increased and decreased in close sympathy with fluctuations in revenues from copper. The least transfer would occur where the government followed a positive policy of budget

surpluses in good years and deficits in bad. This would tend to balance the fluctuations in Chilean private incomes derived directly or indirectly from the activities of the copper sector. In fact Chilean government expenditure appears to have moved in sympathy with copper revenues, but in a rather dampened and slightly uncertain manner. Table 8 : 1 shows this in both absolute terms, in millions of constant (1960) dollars, and in percentage terms. The fluctuations in government expenditure have been much smaller than those in the government's revenues from copper: an average, \$ 13.5 million as compared with \$19.2 million. They diverged from trend in the same direction on 9 occasions out of a possible 13. The correlation between them was 0.37 which is well below the .05 significance level. The relationship between fluctuations in total government expenditure and revenues from copper seems rather weak. Earlier years, before the Second World War were deliberately omitted as revenues then were generally a very small proportion, much less than ten per cent, of government expenditure.

The degree of association between short-term fluctuations in government expenditure and fluctuations in the principal source of government revenue, the proceeds of exporting copper, is much lower than a priori reasoning or casual empiricism might suggest. The explanation for this lies in: (1) the possibility of divergence both in direction and magnitude of the "returned value" from the total value of copper; (2) the fact of frequent changes in the fiscal system throughout the period; (3) the ability of the government to run surpluses and deficits on its overall budget. This last has been particularly important in Chile where long periods of "living with" inflation have alternated

with sporadic attempts at fiscal and monetary severity. (Hirschman, 1963: Ch. 3).

It has been suggested that fluctuations in revenues from copper have been one cause of inflation in Chile through generating budget deficits when the value of copper exports has fallen below previous levels. An ECLA study (1957: p. 207) puts the argument as follows:

"The combination of rigid expenditure with irregular and inflexible tax revenue is sufficient in itself to lead to the automatic creation of deficits. As expenditure is inflexible, it is financed with a deficit. This is bound to produce a rise in internal prices."

Geoffrey Maynard, discussing Chile's inflation in 1953 writes:

"A fall in copper sales produced a 26 per cent fall in government revenues from copper, and a 10 per cent fall in total government receipts. The exchange rate was devalued sharply, by more than 70 per cent, thereby reducing import subsidies, but even so the budget deficit rose to 20 per cent of total expenditure. This of course was inflationary in itself." (Maynard, 1962: p. 271).

Both of these sources make it clear that other factors were much more important causes of inflation, but they do both identify a budget deficit originating from a cut in copper revenues as one factor in the inflationary process. But there is an important difference between a deficit which arises from a cut in taxes on residents and one which stems from a fall in taxes levied on foreigners. In the first case residents gain an increase in purchasing power which allows them to compete with the government for domestic resources and imports. In the second case the residents' disposable income is unaltered and only the

government's income is cut. If government expenditure remains at the previous high level no extra demand for goods and services is generated in the economy by the simple existence of the budget deficit.

Depending on how the government finances the deficit there may, of course, be varying amounts of inflationary pressure generated through increases in the liquidity of the nation's banking system. But this is an indirect, not a direct, effect of the deficit.

### Conclusions

This brief account of the relationships between several strategic variables and fluctuations in the value of Chile's copper exports suggests the following findings: (1) study of fluctuations in the value of copper exports may be a misleading guide to the direction and magnitude of changes in the actual quantity of foreign exchange made available to Chile by the operations of the copper industry; (2) in general the copper companies appear to have operated inventory policies which tended to offset fluctuations in copper exports and the upward and downward adjustments of their remitted profits also seem to have mitigated the domestic impact of the export instability; (3) the suggestion that a decline in export proceeds through cutting government revenues and generating budget deficits is inflationary has been shown to be logically incorrect. The extreme instability which copper exports have experienced may well have had harmful effects on the Chilean economy, but there is little doubt that they have been exaggerated. It seems evident that other and more deep-rooted factors have been the causes of Chile's serious problems of stagnation combined with one of the

most consistently rapid inflations in Latin America.<sup>4</sup>

It seems very probable that these conclusions will apply in whole or in part to many of those underdeveloped countries in which expatriate enterprise plays an important part in the export industries, e.g. Northern Rhodesia, Malaya, Katanga, and several of the oil countries.

Table 8 : 1

Fluctuations in Copper Revenues and  
Total Expenditure of Government of Chile

(Deviations from a five-year-moving-average trend) 1944-56.

	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>Average</u>
Revenue														
M.\$ (1960)	-0.2	- 3.1	-14.0	+11.8	+16.7	- 9.3	-15.9	- 3.6	+36.7	-18.7	-37.3	+58.6	+23.7	19.2
Revenue														
% Deviation	-1.0	-10.7	-39.8	+30.9	+41.9	-19.6	-26.9	- 5.6	+52.0	-19.2	-33.3	+55.3	+23.3	27.2
Expenditure														
M.\$ (1960)	-4.0	+11.0	-13.0	-13.0	+27.0	- 9.0	- 2.0	-23.0	+10.0	+24.0	- 9.0	+16.0	-14.0	13.5
Expenditure														
% Deviation	-2.9	+ 6.0	- 6.2	- 5.7	+10.0	- 3.3	- 0.6	- 7.0	+ 2.8	+ 6.2	- 2.2	+ 3.7	- 3.2	4.6

Source: Calculated from Reynolds, 1962: Appendix, Columns 112 and 117.

Footnotes to Chapter 8

1. This section leans heavily on work done by Clark Reynolds, "Development Problems of an Export Economy: The Historical and Developmental Relationship of the Copper Industry to the Economy of Chile," Doctoral Thesis, University of California at Berkely, 1962, and, "Domestic Consequences of Export Instability," Paper and Proceedings, AER, May 1963.

2. Reynolds seems to assume this. In fact local sales of copper were generally less than 10 per cent of total even in recent years so this may be a reasonable simplification.

3. Reynolds, 1962: Statistical Appendix, Columns 117 and 83 give the data used in U.S. constant dollars (1960).

4. Hirschman, 1963: Chapter 3; Maynard, 1962: pp. 266 et seq.; Schott, 1959; Felix, 1960.

## Chapter 9

### Pakistan

Pakistan, in contrast to our previous examples, is a large and important economy. It has a population of about 100 million most of whom live at a standard near the bottom of the scale, even for underdeveloped countries. Average per-capita income is around \$ 63. The economy is predominantly agricultural with 75 per cent of labor employed in cultivation and approximately 55 per cent of gross national product generated in agriculture. A great deal of the output of the farms is consumed directly by the producers and their families and is never sold in any market.

While export proceeds for Pakistan tend to be very unstable they form only a small proportion, 7 per cent, of the total national income and of the incomes of either of the two regions, West and East Pakistan. Consequently the impact of export fluctuation on national income is, prima facie, unlikely to be great. However, for other reasons it might be expected that export fluctuations could inflict quite serious damage on the economy. Pakistan has embarked on ambitious programs of economic development, with a good deal of emphasis on expansion of industry. These plans necessitate heavy expenditure of foreign exchange on imported capital goods and raw materials. If fluctuations in export proceeds should affect the economy's ability to obtain these imports fluctuations in investment and production might result. If this should prove to be so other consequences would follow. Price levels of goods in the cash economy might fluctuate, development projects might be held up or be forced to use less efficient and more

costly methods or materials.

Apart from these more general effects it is also possible that instability in Pakistan's export markets may inflict severe hardship upon the producers of the main export crops, jute, and cotton. The degree of instability in the prices which they receive for these cash crops may also deter the peasant farmers from too great an investment in the cash economy. The uncertainty which attaches to production for sale may greatly reduce the attractions of other incentives to specialization such as the expectation of a higher average real income from the same inputs.

#### Export Fluctuations

As was noted in chapter 2 the degree of instability experienced by Pakistan's export proceeds ranks it with the twelve most unstable countries. Exports from each of the two regions were even more unstable than the aggregate for the economy as a whole. Over the period 1948-49 to 1961-62, the average annual percentage changes in exports from East Pakistan and West Pakistan were 23.8 and 23.9 respectively compared with 15.1 for exports from the whole Pakistan economy. Table 9:1 shows the absolute values and the percentage changes for exports from the nation and the two regions for each year during the period studied. Export earnings and the other major variables for the nation and the regions are sketched in Chart 9:I.

## National and Regional Incomes

The expectation that national and regional incomes should be little affected by fluctuations in exports is upheld by examination of the available data. Incomes have been relatively stable with average annual percentage changes of 3.0 for the nation, 3.5 and 4.0 for West and East Pakistan. Examination of Chart 9:I shows little or no relationship between fluctuations in exports and incomes. In Chart 9:II the percentage changes in exports and income for the nation and both regions are sketched on a natural scale. It is clear that no close relationship exists. Calculations of the rank correlation coefficients between annual percentage changes in exports and income on a current or one-year-lagged basis yield no support for any relationship. Similar calculations for deviations from a five-year-moving-average trend for both exports and income show no significant correlations. The calculated coefficients are set out in Table 9:2. None reaches the .05 level of significance.

## Imports

Fluctuations in imports, however, appear to be highly correlated with fluctuations in the previous year's exports. As shown in Table 9:3 national and regional imports are significantly correlated with fluctuations in exports whether measured as annual percentage changes or as deviations from trend. Inspection of Chart 9:I verifies the tendency for imports to follow exports with a one year lag.

### Investment

Given the high level of association between exports and imports, and the expected importance of imports to domestic capital formation some influence of exports on investment could reasonably be anticipated. Table 9:1 and Chart 9:1 set out the available data on fixed capital formation. Neither visual inspection nor correlation analysis provides evidence of a close association between fixed investment and exports. Coefficients of rank correlation between exports and investment are recorded in Table 9:4. None reaches the .05 level of significance.

It could be argued that the lack of correlation between fluctuations in exports and domestic fixed-capital formation stems from the intervention of other factors such as foreign economic aid and the use of reserves of foreign exchange to support imports. A rough attempt to test for this can be made with the aid of figures on gross domestic savings compiled by Mahbub ul Haq<sup>1</sup>. Gross domestic savings are defined as gross investment minus foreign aid and loans, plus the change in Pakistan's foreign exchange reserves. All of the values are measured in 1959-60 prices. When the figures in Table 9:5 are compared with exports in Table 9:1 it is evident that no close relationship exists. The rank correlation coefficient between annual changes in exports and in gross domestic savings is +0.26 which is non-significant. The introduction of a one year lag does not improve the correlation. In fact it makes it worse. Nor is the correlation any better between annual deviations from trend for exports and savings. The paradox remains that while fluctuations in exports and imports seem fairly highly correlated and capital goods imports are a major part of both total imports and of domestic

fixed capital, fluctuations in investment and exports seem to be unrelated. A possible explanation lies in the ability of both government and firms to stockpile capital goods. Through this means capital can be purchased when foreign exchange is available and used later. Such a policy would break the connection between the current unavailability of foreign exchange and domestic investment. If this is an explanation, or partial explanation of the paradox, the question remains as to what costs are imposed on the economy by stock piling capital goods. This would depend on the average time for which they were held, the interest cost involved in financing the stocks and the cost of storage.

The foreign exchange component of Pakistan's gross investment is a little over 30 per cent. In 1959-60 this amounted to approximately 1,000 million rupees. Year-to-year changes in total imports have averaged 21 per cent from 1948-49 to 1961-62. For a slightly shorter period annual changes in gross-fixed-capital formation have been around 12 1/2 per cent. A stock of capital goods imports of about one fifth of the average annual total would probably be sufficient to avoid temporary shortages of capital goods from preventing the fulfillment of investment plans. The annual interest cost of carrying such a stock would amount to about 12 million rupees, assuming a six per cent rate of interest. Assuming that the other costs amounted to a further 8 million rupees the total annual cost would be 20 million rupees. This could amount to a very tiny fraction of Pakistan's gross domestic product of approximately 28,960 million rupees in 1959-60. It can hardly be maintained that an annual cost of .07 per cent of national income is a serious infliction.

### Jute and Cotton Farmers

From the foregoing discussion it seems that the more general macro-economic effects of fluctuations in exports are very difficult to establish and may very well be minor. However, the impact of unstable markets for jute and cotton upon the peasant farmers of East and West Pakistan may be severe. Fluctuations in their incomes can inflict serious hardships and at the same time create uncertainties which may deter specialization in these cash crops even though the average real returns may exceed those from subsistence farming.

Farmers in East and West Pakistan live very close to the famine margin. Their situation is made still more precarious by the severe fluctuations in prices which recur in jute and cotton. They depend on the staple crops they grow or purchase with the proceeds of sales of cash crops to maintain themselves and their families. If East Pakistan farmers choose to sacrifice a rice crop for the sake of expected higher returns from a jute crop grown on the same land they run grave risks of reducing their already low food supply. They run a double hazard if they opt to grow jute, for jute prices may fall and rice prices rise before harvest time is reached. If they are unfortunate their only resort is the charity of relatives and friends or expensive borrowing from local moneylenders. While there are no published empirical studies of the effects of fluctuations of jute or cotton prices upon the welfare of the farmers it seems probable that these effects are serious.

Apart from the effect upon their current welfare there is also the possibility that the existence of a high degree of uncertainty

actually deters farmers from growing more jute or cotton. This case has been argued for cotton by Walter Falcon in the paper cited <sup>2</sup> and at more length in his Harvard University PhD thesis. The argument is intuitively appealing, but the evidence is not convincing. The only empirical evidence in support of the view that price uncertainty deters cash cropping is an apparent tendency for the elasticity of substitution between cotton crops, such as sugar cane, to be higher than between cotton and crops mainly grown for consumption on the farm, such as maize and rice. However, the possibility of substitution is subject to other constraints such as the level of the water table, the degree of salinity of the soil, other soil characteristics and traditional attitudes of the farmers. Moreover, the statistical problem of multicollinearity seriously lowers the confidence which can be placed on the statistical analysis as Falcon himself points out.<sup>3</sup> Compared with the risks of crop failure the risks involved in price uncertainty are probably minor. In any case, in East Pakistan the acreage response to changes in the relationship between jute and rice prices is relatively high - around 0.6. Production elasticities for jute are about +0.4 with respect to jute prices, -0.4 with respect to the staple food crop, rice.<sup>4</sup> Similarly, Falcon finds cotton acreage fairly responsive to the ratio of cotton price to a price index for possible substitute crops, +0.41.<sup>5</sup> These short-run elasticities are high by normal agricultural standards.<sup>6</sup> Consequently it is difficult to argue that the price instability to which jute and cotton are subject has been a serious brake on willingness on the part of the farmers to respond to price and profit incentives, at least so far as short-run, year-to-year adjustments are concerned. It may be true that more jute or more cotton would be grown

in the long-run if the problem of price uncertainty were removed, but there is no evidence one way or the other on this possibility.

### Cost of Living

It can be argued that fluctuations in export proceeds should be expected to have some impact on the cost of living. In such regions as East and West Pakistan the cost of Living is heavily weighted by the prices of staple foods which tend to be inelastic in supply. If the incomes of producers of jute and cotton exports fluctuate severely this could be expected to cause sympathetic fluctuations in food prices. Table 9:6 shows figures for the cost of living in West and East Pakistan. For West Pakistan the coefficient of rank correlation between the annual changes in exports and prices is 0.5 which is non-significant at the 5 per cent level. For East Pakistan the correlation is zero.

It would appear that there is little or no relationship between exports and domestic price levels in Pakistan. Nor is this altogether surprising. Since the cost of living is so heavily influenced by the prices of the staple food crops and demand for them is very inelastic fluctuations in the harvest yields of rice and wheat will cause large variations in food prices and are probably the main determinant of changes in the cost of living index.

### Causes of Export Instability in Pakistan

As shown in Table 9:7 jute and cotton form over 70 per cent of Pakistan's exports and explanations of fluctuations in Pakistan's export proceeds must be sought mainly in the causes of jute and cotton instability. The fluctuations of each have tended to offset more often than to reinforce the fluctuations of the other. Fluctuations in the total value of jute and cotton exports together are rather lower than of either separately. The total values, unit values and export quantities for jute and cotton are shown in Table 9:8. The market position of Pakistan in these two exports is very different. Pakistan dominates the market for raw jute, exporting over 90 per cent of the world total. In cotton Pakistan's share of total world exports is relatively small. The differences are modified a little by the existence of various substitutes for jute ranging from kenaf and other fibers to paper bags which increase the price elasticity of demand a little more than would be expected for a country with such a near monopoly of a raw material. The grade of cotton produced by Pakistan is not a perfect substitute for American or Egyptian cotton and the price elasticity of demand for it is probably rather less than infinity. However, the difference between the economic situations of the two exports would seem likely to be considerable. But on analysis the differences turn out to be much less marked than expected. Table 9:9 sets out estimates of the relationships between fluctuations in total values, prices and quantities for raw jute and cotton exports from Pakistan.

For jute, fluctuations in total value appear to be slightly more closely associated with fluctuations in the quantity exported than with

fluctuations in price. Fluctuations in price and quantity appear to be unrelated. A simple counting of the number of times which these three variables moved in the same or the opposite direction as shown by the fluctuations recorded in Table 9:8 confirms the results of the correlation analyses in Table 9:9. Moreover, the degree of instability, measured by the average percentage deviations from trend, is larger at 12.1 for quantity than for unit value at 8.8 (Table 9:8).

Can we deduce from this evidence that fluctuations in supply rather than in demand were the main cause of instability in raw jute proceeds? Unfortunately the matter is not so simple. From a priori reasoning and the results of other empirical studies it is clear that the short-run price elasticity of demand for raw jute from Pakistan is fairly low, around -0.4.<sup>7</sup> Given this relatively low demand elasticity and a stable demand, fluctuations in export quantities could have led to an inverse relationship between, not only jute quantity and price, but between quantity and proceeds. Since this did not occur one can only conclude that fluctuations in demand were an independent and almost equally important cause of fluctuations in jute earnings.

It might appear that this can be carried further and the responsibility for fluctuations placed more firmly on the side of demand. It might be argued that fluctuations in current jute exports are the consequence of producers' decisions based on prices established in previous seasons. These in turn may have been the result of a shift in demand. But several studies have shown that jute output responds as much to the previous year's rice prices as to jute prices. Moreover, between them jute and rice prices explain only about 50 per cent of

variations in jute output. Random factors, such as planting, harvest and flooding conditions are almost equally responsible for changes in output.<sup>8</sup> Autonomous changes in production were probably the main factor in short-term fluctuations in jute proceeds over the period studied here.

In the case of cotton, fluctuations in total value appear to be quite closely related to fluctuations in price, but very little to quantity. Price and quantity are not significantly correlated. Since the price of cotton is likely to be determined in international markets in which Pakistan's supply is a small fraction it would seem that fluctuations in world demand and supply have been the major cause of Pakistan's cotton export instability. Fluctuations in export quantity were considerably less than in unit value over the period 1949-58. Since the correlation between price and quantity was negative though too low to be significant some tendency for quantity changes to have actually offset price changes is present. Price and quantity moved in the same direction on only three occasions out of ten. Given the probability of a fairly high price elasticity of demand for Pakistan's exports of cotton it is less likely that autonomous changes in quantity produced opposite changes in the price, but this may also have happened.

Since the mid-1950's the capacity for processing jute and cotton into cloth, yarn and clothing has increased sharply. One result of this is to make the quantities of raw material available for export a residual. This may increase the elasticity of supply through the activities of local producers in responding to raw material prices. However, throughout most of this period export duties upon both jute and cotton have varied frequently and tended to break the relationship between the domestic and

international price for both materials. These changes in export duties, which are in effect also subsidies to domestic producers at least in the case of jute, may have had some impact on short-term changes in the quantities exported. But until recently the domestic jute and cotton-goods producers were probably not large enough to cause serious disturbances in the quantity of raw jute and cotton exported.

Explanations of fluctuations in cotton output in terms of prices are not very satisfactory. Falcon and others have shown acreage response to the ratio of cotton prices to various production substitutes to be of the order of 0.4 supply elasticity. But actual output seems to be so heavily influenced by natural hazards that price factors are obscured.

In the case of cotton, fluctuations in foreign demand were probably the major factor in instability, with changes in output due to natural factors such as weather a secondary cause.

#### Effect of Price Instability on Long-Term Demand

From time-series analysis of a relatively short period of a country's history it is well nigh impossible to reach conclusions about the effects of fluctuations on economic growth. We have touched upon the matter in discussing the effects of price uncertainty upon jute and cotton farmers. Price uncertainty can also affect the industries which purchase jute and cotton. Both of these commodities are ones in which alleged asymmetric response of consumers to price fluctuations has reinforced longer-run tendencies to substitute synthetics for them in various uses.

There is no good evidence on this question of instability stimulating a secular trend away from jute or cotton, but the arguments in its favor are appealing. Other things being equal, manufacturers will almost certainly prefer raw materials and intermediate goods with stable to those with unstable prices. The main uses of jute are in packaging. This accounts for over three-quarters of all mill-manufactured jute. Subordinate uses are in the backing of floor coverings, roofing felts, automobile insulation, upholstery, string, rope and electric cables. In almost all uses there are good substitutes available: latex can be used as carpet backing and underfelts, other fibers such as sisal, in its cheaper grades, are close substitutes in most uses, paper thread can be used in carpet backing. But most important of all, in the main packaging uses multi-walled paper bags and bulk-handling represent a serious threat to jute sacking. In these uses the probability is that decisions to switch to paper sacks or to bulk-handling are irreversible. A high jute price may be the final incentive required to induce the manufacturer to invest in the equipment required to handle either bulk-deliveries or paper packaging. This change may mean a substantial investment which commits the manufacturer to the new technique even if jute prices subsequently fall sharply. According to an FAO study, "During the period of relatively high hessian cost (1948-51) the turning over to paper involved technical adjustment and possibly capital expenditure which militated against reversal; certain sectors of the market were lost to hessian, more or less permanently."<sup>9</sup>

In addition to the effects of unstable prices on world demand there are probably effects on the supply side. High jute prices may stimulate new entrants to the field of production of jute or close substitutes such as mesta fibers. While these are mainly annual crops

it is unlikely that all of the new producers will withdraw when prices subsequently fall.

If world demand and competing supplies are affected in the ways outlined the long-run demand for Pakistan's exports of raw jute must shrink or at least its rate of increase must be slowed by the effects of short-term fluctuations in jute prices. Potentially this could mean a serious loss of importing capacity and a possible retardation of economic development. But the role of short-term price instability in causing a shift in demand away from jute materials may be quite small. The shift towards paper packaging depends on many other factors - improvements in technology, changes in methods of marketing, the superiority of paper for carrying advertising for example. Moreover, the longer-run relationship between jute and paper prices is probably a much more important factor than short-term fluctuations. <sup>10</sup> Manufacturers would be behaving irrationally if they made decisions, which may bind them for several years, on the basis of current prices of a highly price-unstable product.

The same arguments can be presented in the case of cotton. Here the substitutes are mainly synthetic fibers and the possibility of irreversible decisions is present here too. But, as with jute, the difficulty of deciding how much substitution of synthetic for natural fibers is due to price instability and how much to price trends, changes in tastes and changes in technology would involve a major study.

In short, price instability probably has some adverse effect on trends in demand for jute and cotton. The importance of the price fluctuations as compared with other factors affecting trend is

probably minor, but evidence on this is lacking and the possibility that it is major remains.

### Conclusions

The macro-economic effects of fluctuations in Pakistan's exports appear to be slight. Income, investment and domestic prices; all seem relatively unaffected. Imports do appear to fluctuate in sympathy with exports, but this does not seem to have had any major impact on investment. Explanations for this may lie in greater flexibility in the import content of investment or in the ratio of capital goods imports to total imports than is normally expected in underdeveloped countries, or in stockpiling of capital goods by entrepreneurs or government in anticipation of shortages of foreign exchange. Such activities would involve some costs, but they seem to be minor.

More important are the likely effects on the welfare of producers. People as poor as Pakistan's farmers are may suffer severely if price fluctuations rob them in some years of a large part of their cash income.

Possible long-term effects are: (1) that price uncertainty may deter peasant producers from specializing in the production of jute or cotton and so reduce Pakistan's long-run supply of these, (2) price instability may lose Pakistan customers for its raw jute, (3) price instability may attract rival producers when prices are high. This last point seems inconsistent with the first, but both points are often made in statements of the ill-effects of instability. These long-term effects are potentially important, but evidence on them is lacking.

In sum, the very high degree of short-term instability which Pakistan's exports experience is probably a bad thing. The major effects are, however, probably directly connected with the production and export of jute and, less importantly, cotton. National measures of the buffer stocks or funds nature could probably solve these problems relatively cheaply. <sup>11</sup>

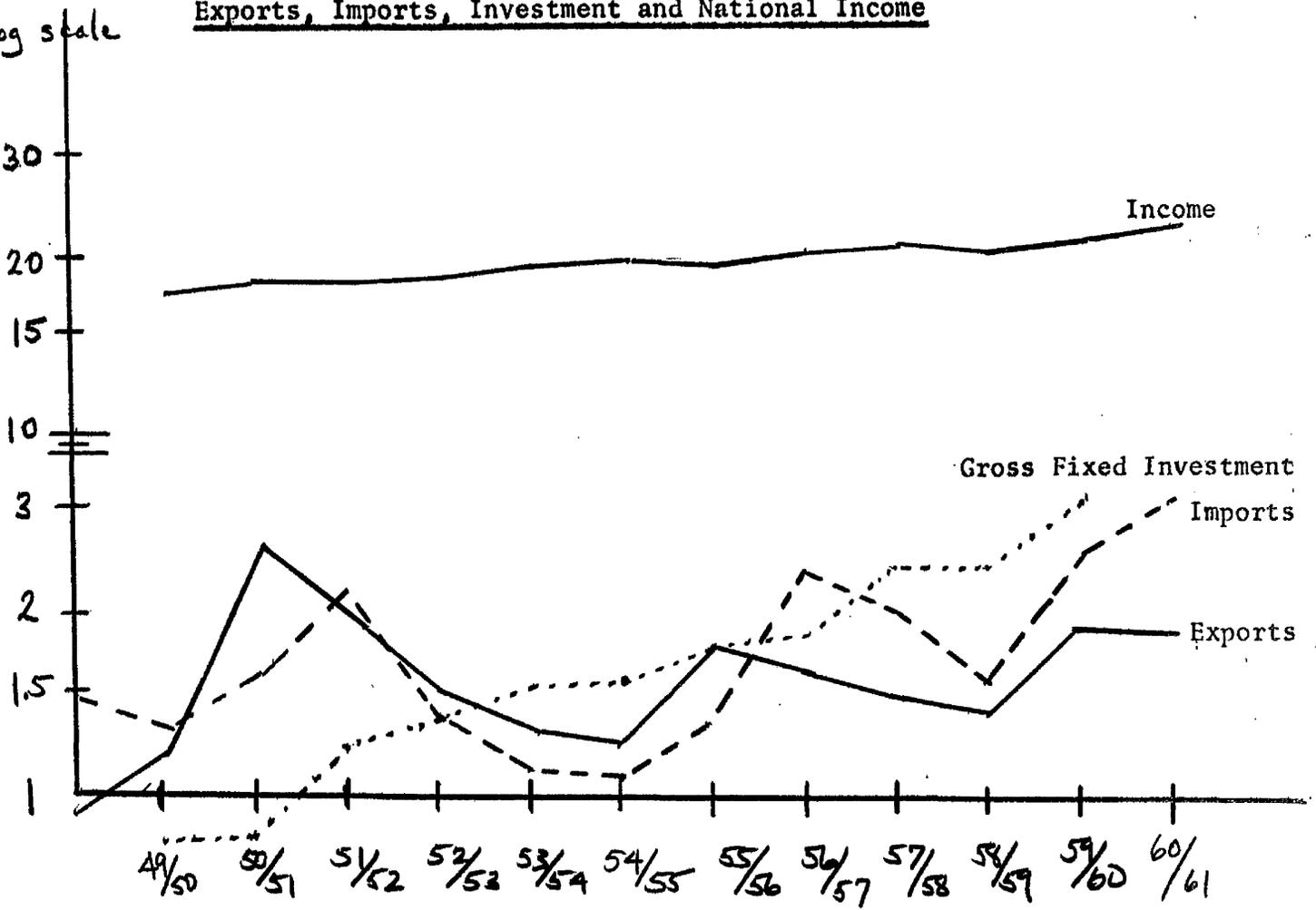
Chart 9 : I.

Pakistan: ( National Figures )

Exports, Imports, Investment and National Income

9:I-(a)

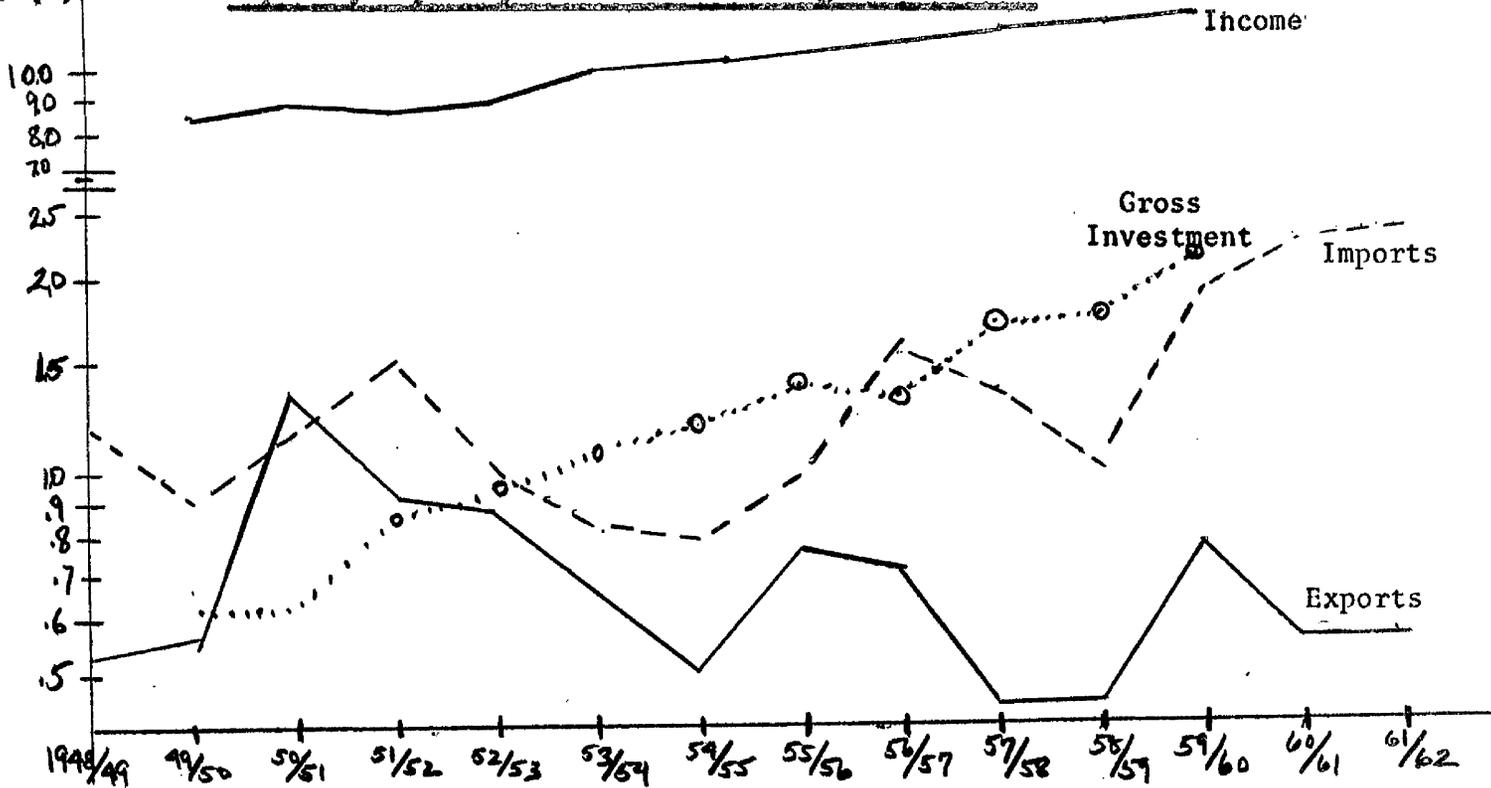
log scale



Source: Table 9 : 1

West Pakistan  
Exports, Imports, Investment and Regional Income

9:1-(b)



East Pakistan  
Exports, Imports, Investment and Regional Income

9:1-(c)

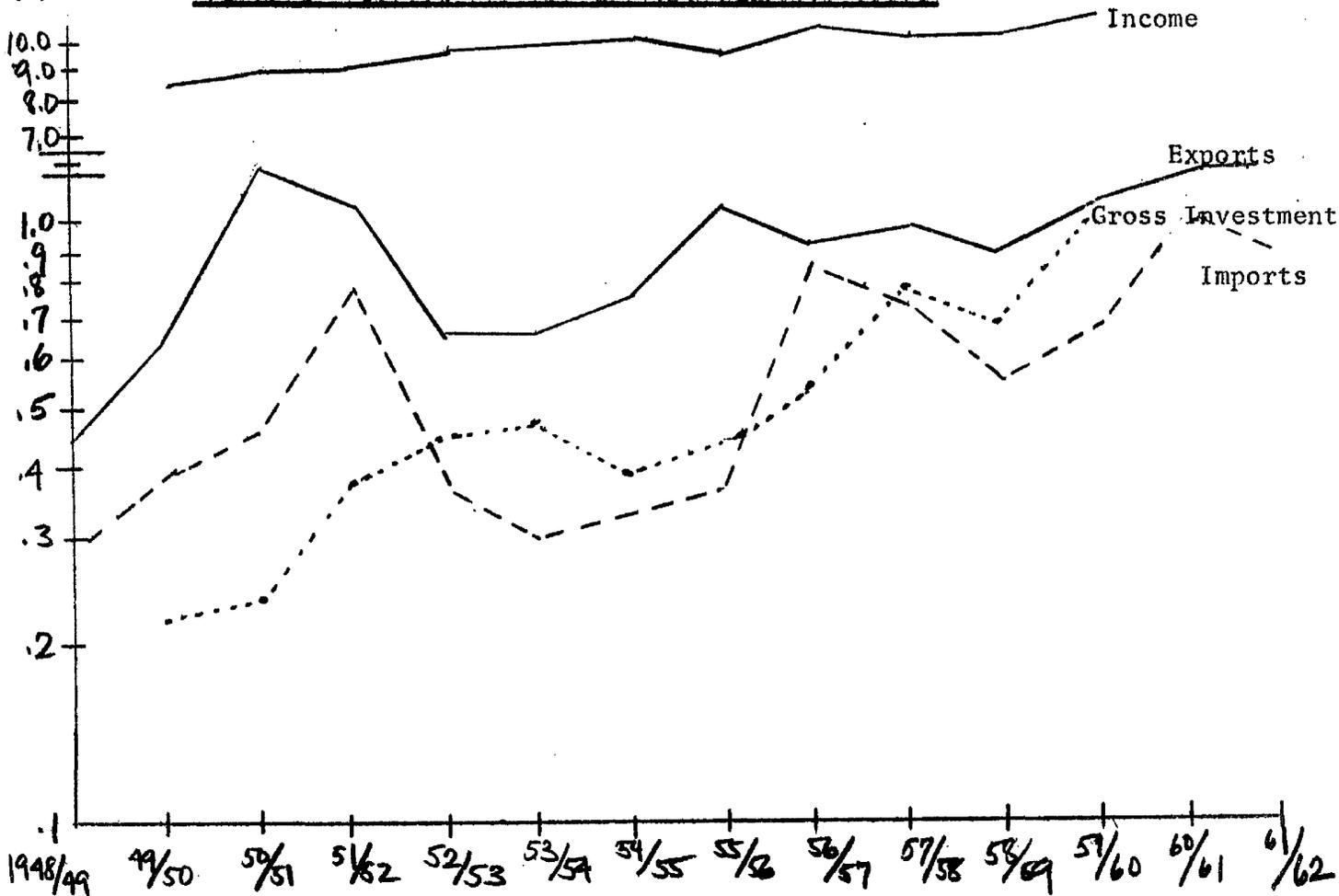
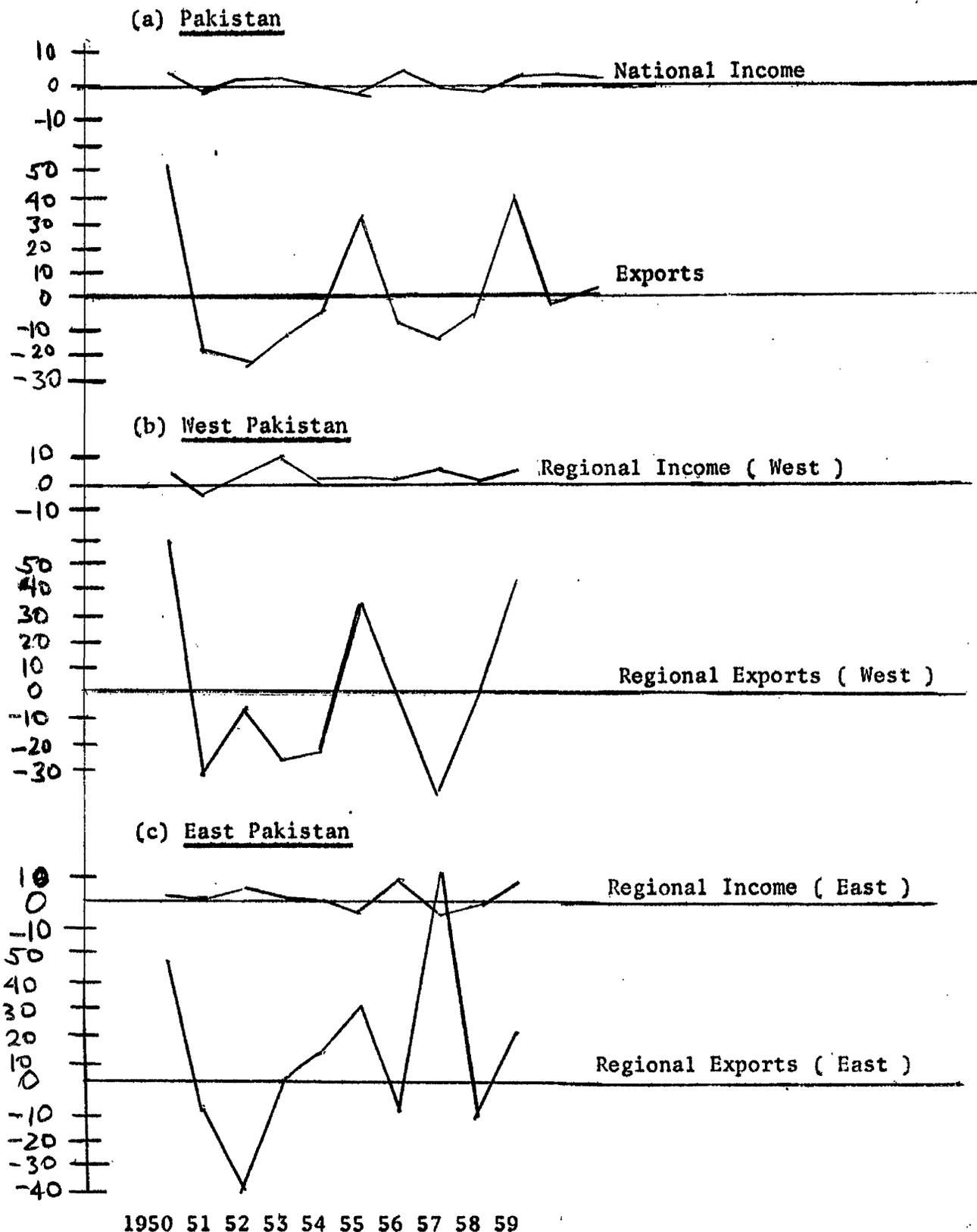


Chart 9 : II

Fluctuations in Exports & National Income: Year to Year Percentage Changes



Source: Table 9 : 1

It is fairly clear from this chart that export fluctuations and national or regional income changes are not closely related.

Table 9:1-A

Pakistan Data (million rupees)

(Trade year July-June, Fiscal year 1 April to 31 March)

<u>Exports</u> (a)		<u>Imports</u> (a)		<u>Income</u>		<u>Gross Fixed Capital Formation</u>	
National	Percentage Change	National	Percentage Change	(a) National	Percentage Change	(b) National	Percentage Change
				(Prices of Average) (Current Prices)			
				1949/50-1952/53			
48-49	958	- -	1459	- -	- -	- -	- -
49-50	1194	19.8	1297	-11.1	17542	- -	840
50-51	2553	53.2	1620	19.9	18575	5.5	880
51-52	2008	-21.3	2237	27.5	18522	-0.2	1220
52-53	1510	-24.8	1384	-38.1	18761	1.2	1380
53-54	1286	-14.8	1118	-19.2	19727	4.8	1520
54-55	1223	- 4.8	1103	- 1.3	20064	1.7	1530
55-56	1784	31.4	1325	16.7	19586	-2.4	1740
56-57	1608	- 9.8	2335	43.2	20882	6.2	1820
57-58	1422	-13.0	2050	-12.2	21011	0.6	2390
58-59	1325	- 6.8	1578	-23.0	20850	-0.7	2340
59-60	1842	39.0	2461	35.8	21683	3.8	3060
60-61	1799	- 2.3	3188	22.8	22943 <sup>(c)</sup>	5.5	- -
61-62	1843	2.3	3109	- 2.4	23802 <sup>(c)</sup>	3.6	- -
Average							
Percentage							
Changes	+ -15.1		+ -21.0		+ -3.0		+ -12.6

- Sources: (a) CSO, Statistical Bulletin, Karachi, Sept. 1962, Table I for Trade Data, Table 24, National Income at Constant Prices (Average 1949/50-1952/53).  
 (b) Mahbub ul Haq, The Strategy of Economic Planning (A Case Study of Pakistan), Pakistan Branch, Oxford University Press, Karachi, 1963, Appendix B, Tables B-1, B-2, B-3 (Income in Constant Prices: average 1949/50 - 1952/53)  
 (c) Figures are provisional.

Table 9:1-B

## West Pakistan Data (million rupees)

(Trade year July-June, Fiscal year 1 April to 31 March)

	<u>Exports</u> (a)		<u>Imports</u> (a)		<u>Income</u>		<u>Gross Fixed Capital Formation</u>	
	West	Percentage Change	West	Percentage Change	West	Percentage Change	West	Percentage Change
	(Prices of Average) (Current Prices) 1949/50-1952/53							
48-49	529	- -	1177	- -	- -	- -	- -	- -
49-50	565	6.4	912	-22.5	8460	- -	620	- -
50-51	1342	57.9	1167	21.8	8860	4.5	640	3.1
51-52	921	-31.3	1474	20.8	8670	-2.1	850	24.7
52-53	867	- 5.8	1017	-31.0	8880	2.3	940	9.5
53-54	641	-26.1	824	-18.9	9850	9.2	1060	11.3
54-55	491	-23.4	783	- 4.9	10110	2.5	1150	7.8
55-56	742	33.8	964	18.7	10400	2.7	1310	12.2
56-57	698	- 5.9	1516	36.4	10640	2.2	1280	- 2.2
57-58	434	-37.8	1314	-13.3	11080	3.9	1620	20.9
58-59	444	2.2	1025	-21.9	11290	1.8	1670	2.9
59-60	763	41.8	1806	43.2	11750	3.9	2080	19.7
60-61	540	-29.2	2173	12.2	- -	- -	- -	- -
61-62	543	0.5	2236	2.8	- -	- -	- -	- -
Average Percentage Changes		+23.8		+20.6		+3.5		+11.4

Sources: as for Table 9:1-A

Table 9:1-C

East Pakistan Data (million rupees)

(Trade year July-June, Fiscal year 1 April to 31 March)

	<u>Exports</u> (a)		<u>Imports</u> (a)		<u>Income</u>		<u>Gross Fixed Capital Formation</u>	
	East	Percentage Change	East	Percentage Change	(b) East	Percentage Change	(b) East	Percentage Change
48-49	429	- -	282	- -	- -	- -	- -	- -
49-50	629	31.8	385	26.7	8580	- -	220	- -
50-51	1211	48.1	453	15.0	8920	3.2	240	8.3
51-52	1087	-10.2	763	40.6	9110	2.0	370	8.1
52-53	642	-40.9	366	-52.0	9620	5.3	440	15.9
53-54	645	0.5	294	-16.9	9840	2.2	460	4.3
54-55	732	11.8	320	8.1	10000	1.6	380	-17.3
55-56	1041	29.7	361	11.3	9570	-4.0	430	11.6
56-57	909	-12.6	819	68.1	10570	9.4	540	20.3
57-58	988	7.9	736	-10.1	10170	-3.7	770	29.8
58-59	881	-10.8	554	-24.7	10050	-1.1	670	-12.9
59-60	1080	18.4	655	15.4	10880	7.6	980	31.6
60-61	1259	14.2	1014	35.4	- -	- -	- -	- -
61-62	1301	3.2	873	-13.9	- -	- -	- -	- -
Average Percentage Changes		+23.9		+26.0		+4.0		+16.0

Sources: as for Table 9:1-A

Table 9:2

Rank Correlation Coefficients Between Exports and Income  
1949-50 to 1961-62 (1949-50 to 1959-60 in the Case of the Regions)

	<u>Yearly Percentage Changes</u>	<u>Sample</u>	<u>Annual Deviations From Trend</u>	<u>Sample</u>
National	R = 0.15	12	R = -0.49	9
West	R = -0.003	10	R = -0.48	7
East	R = -0.296	10	R = -0.52	7
National (one year lag)	R = 0.04	11	R = 0.17	8

Source: calculated from Table 9:1

Table 9:3

Rank Correlation Coefficients Between Imports and the  
Preceding Year's Exports, 1948-49 to 1961-62

	<u>Yearly Percentage Changes</u>	<u>Sample</u>	<u>Annual Deviations From Trend</u>	<u>Sample</u>
National	R = 0.77	12	R = .83	8
West	R = 0.71	12	R = .86	8
East	R = 0.63	12	R = .76	8

Source: calculated from Table 9:1

Table 9:4

Rank Correlation Coefficients Between Investment and Exports

1948-59 to 1959-60: (1) Current (2) Investment Lagged One Year

	<u>Yearly Percentage Changes</u>	<u>Sample</u>	<u>Annual Deviations From Trend</u>	<u>Sample</u>
National (1)	R = -0.16	10	- - -	-
West	- - -	--	R = -0.15	7
West	- - -	--	R = -0.64	7
National (2)	R = 0.31	10	- - -	-
West	R = 0.24	10	R = 0.1	7
East	R = -0.19	10	R = -0.53	7

Source: calculated from Table 9:1.

Table 9:5

Fluctuations in Gross Domestic Savings

	<u>Gross Domestic Savings</u> (M. rupees, 1959-60 Prices)	<u>Percentage Change</u>
1949-50	570	--
1950-51	2210	74.2
1951-52	810	-63.3
1952-53	1010	19.8
1953-54	1440	29.8
1954-55	2480	41.9
1955-56	2170	-12.5
1956-57	1050	-51.6
1957-58	1330	21.0
1958-59	1670	20.3
1959-60	1750	4.5

Source: Mahbub ul Haq, op. cit., Table A-12, p.232.

Table 9 : 6

Export Proceeds and Regional Prices Indexes

	<u>1951-52</u>	<u>52-53</u>	<u>53-54</u>	<u>54-55</u>	<u>55-56</u>	<u>56-57</u>	<u>57-58</u>	<u>58-59</u>	<u>59-60</u>
Price Indexes For									
(1) West Pakistan	100	114	99	82	93	112	109	113	120
(2) East Pakistan	100	96	76	59	83	118	113	118	124
Annual Percentage Change in (1)	--	14	-13.2	-17.2	11.8	17.0	- 2.8	3.5	5.8
Annual Percentage Change in (2)	--	- 4	-20.8	-22.3	28.9	29.7	- 4.2	4.2	4.8
Export Proceeds (1)	--	- 5.8	-26.1	-23.4	33.8	- 5.9	-37.8	2.2	41.8
Export Proceeds (2)	--	-40.9	0.5	11.8	29.7	-12.6	7.9	-10.8	18.4

Source: (1) and (2) Cost of living indexes: Ul Haq, 1963: Table 23, p. 109

Table 9 : 7

Total Foreign Exchange Earnings 1955-60 (million rupees)

		<u>Percent</u>
Raw Jute	4,215	44.1 )
Jute Manufacturers	685	7.2 )
Raw Cotton	1,509	15.8 )
Cotton Manufacturers	429	4.5 )
Hides and Skins	251	2.6
Wool	417	4.4
Tea	155	1.6
Miscellaneous	795	8.3
Invisible Receipts	<u>1,098</u>	<u>11.5</u>
	<u>9,554</u>	<u>100.0</u>

Source: Government of Pakistan, Planning Commission, The Second Five Year Plan, June 1960, p. 83

Table 9 : 8 - A (JUTE)

Jute and Cotton Exports From Pakistan, 1947-60

	<u>Total Value</u>		<u>Unit Value</u>		<u>Quantity</u>	
	Million U.S. \$	Percentage Deviations From Trend	\$ Per Metric Ton	Percentage Deviations From Trend	Thousand Metric Tons	Percentage Deviations From Trend
1947	22.48	- -	303.9	- -	74.0	- -
1948	106.82	- -	316.5	- -	337.5	- -
1949	154.03	-10.9	287.9	- 2.7	535.0	- 9.8
1950	228.88	8.7	243.0	-19.0	941.9	18.6
1951	352.44	57.5	327.0	16.5	1077.8	16.7
1952	210.35	- 6.8	250.3	5.9	840.4	-15.5
1953	172.65	-20.5	175.9	-21.8	981.5	-22.0
1954	164.88	- 7.5	184.9	- 5.6	891.7	- 6.9
1955	185.58	9.8	188.9	0	982.4	9.1
1956	157.72	- 7.1	183.7	- 4.7	858.6	- 2.9
1957	164.44	- 0.8	209.5	9.9	784.9	- 9.6
1958	176.34	8.8	194.7	- 1.5	905.7	10.1
1959	142.85	- -	176.5	- -	809.4	- -
1960	169.33	- -	223.6	- -	757.3	- -
Average Percentage Deviations		13.9		8.8		12.1

Source: Economic Analysis Division, FAO, Rome.

Table 9 : 8 - B (COTTON)

Jute and Cotton Exports from Pakistan, 1947-60

	<u>Total Value</u>		<u>Unit Value</u>		<u>Quantity</u>	
	Million U.S. \$	Percentage Deviations From Trend	\$ Per Metric Ton	Percentage Deviations From Trend	Thousand Metric Tons	Percentage Deviations From Trend
1947	64.09	- -	568.2	- -	112.8	- -
1948	107.42	- -	657.8	- -	163.3	- -
1949	127.94	-14.7	755.7	- 7.5	169.3	- 3.4
1950	157.33	-16.9	728.7	-20.4	215.9	7.5
1951	291.48	41.7	1376.2	49.6	211.8	- 5.8
1952	261.14	29.9	1061.1	15.7	246.1	11.8
1953	190.68	0	676.4	-24.7	281.9	34.3
1954	105.40	-29.1	742.8	0.7	141.9	-26.8
1955	106.24	- 3.6	632.0	- 2.5	168.1	0
1956	76.40	- 7.3	579.7	- 5.8	131.8	0.8
1957	69.66	6.1	607.3	8.2	114.7	1.8
1958	50.50	- 3.8	518.5	- 3.0	79.4	0
1959	25.35	- -	467.8	- -	54.2	- -
1960	44.33	- -	500.9	- -	88.5	- -
Average Percentage Deviations		15.3		13.8		9.2

Source: Economic Analysis Division, FAO, Rome

Table 9 : 9

Statistical Analyses of Jute and Cotton Export Fluctuations (a)

Jute : (1) Total Value and Unit Value

$$\text{Log total value} = 0.07 + 0.93^* \text{ log unit value} \\ (0.39) \qquad \qquad \qquad \text{F - ratio } 5.69 \text{ } R^2 = 0.42$$

Correlation,  $r = 0.64^*$

(2) Total Value and Quantity

$$\text{Log total value} = 0.002 + 0.94^* \text{ log quantity} \\ (0.32) \qquad \qquad \qquad \text{F - ratio } 8.75 \text{ } R^2 = 0.52$$

Correlation,  $r = 0.72^*$

(3) Unit Value and Quantity

Correlation,  $r = -.06$

Cotton: (1) Total Value and Unit Value

$$\text{Log total value} = 0.05 + 0.70^* \text{ log unit value} \\ (0.25) \qquad \qquad \qquad \text{F - ratio } 7.64 \text{ } R^2 = 0.49$$

Correlation,  $r = 0.70^*$

(2) Total Value and Quantity

$$\text{Log total value} = 0.04 + 0.50 \text{ log quantity} \\ (0.42) \qquad \qquad \qquad \text{F - ratio } 1.39 \text{ } R^2 = 0.15$$

Correlation,  $r = 0.38$

(3) Unit Value and Quantity

Correlation,  $r = -0.39$

(a) Data were transformed into logarithms and then deviations from a five-year-moving-average of the logarithms centered on the mid year calculated as indicators of trend-corrected short-term fluctuations. Since the regression equations are in logarithm form the B coefficients measure the percentage response of total value to a given change in quantity or unit value.

\* Statistics marked with the asterisk are significant at the 5 per cent level.

Source: annual values given in Table 8 from 1947-1960.

Footnotes to Chapter 9

1. 1963, Table A-12, p. 232.

2. See Falcon, 1964 and Falcon 1962.

3. Falcon, 1962: pp. 73-75

4. See MacBean, 1962: pp. 254-56, and other works cited there.

In all cases price data are for the previous season.

5. Falcon, 1964: passim and 1962: p. 75.

6. See M.J. Brennan, "Changes in Cotton Acreage in the Southeast -- Implication for Supply Functions," Journal of Farm Economics, Vol XL, pp.835-44, cited by Falcon, 1964.

7. MacBean, 1962: p. 258; Maizels, 1960 and 1961; Chatterjee and Sinha, 1941.

8. MacBean, 1962: pp. 254-56; FAO, 1957; Clark, 1957.

9. FAO, 1957: p. 14

10. Maizels, 1960 and 1961

11. See MacBean 1962: pp. 260-66.

**Section III**

**National Policies**

## Chapter 10

### National Stabilization Policies

One of the main problems of policy is to decide on what should be the object of stabilization. This may be export prices or producer prices, the terms of trade, the money income or real income of exporters or producers, the national income of the country, the available foreign exchange or development expenditures. Any policy designed to affect any one of these variables may cause instability in others and run counter to other national policy objectives such as maximum foreign-exchange earnings or long-run growth. Policies can only be devised when the priorities for the particular country have been established. These can only be decided after careful study of the particular problems facing individual countries and can only be judged in terms of the long-run economic welfare of each country.

The government of one country may consider that it is important to stabilize the price which the domestic producer receives for his crop. Such an objective would be appropriate where they regarded prices as being an important determinant of output or where they regarded a highly unstable price as a cause of severe hardships to individual producers or as a deterrent to specialization in the production of cash crops for export. In other countries, however, the important problem might seem to the government to be not the impact on the individual producer, but the impact on the economy as a whole. Here the problem of the government would be to devise some scheme which stabilizes national income and this might

take the form of fiscal or monetary policy rather than of particular schemes which aim at breaking the connection between export prices and prices received by producers; the more traditional national policy for dealing with fluctuations in exports.

In another country the main concern might be the impact on the rate of growth of the economy. If export instability were expected to bedevil private and government investment programs the objective of stabilization policy would be to attempt to stabilize development expenditures. This could be achieved by ensuring that the country could always pay for imports of investment goods required for development and also by encouraging stable private investment in the economy. The point emphasized here is that there is a wide variety of experience and a wide variety of problems in underdeveloped countries; hence no single type of policy is likely to be suitable for all.

Not only is there a wide range of problems facing underdeveloped countries, but also the importance of these problems is likely to vary considerably from country to country. From our analysis in the previous chapters of this study it does not appear that fluctuations in export earnings are very urgent problems for most underdeveloped countries. This is to some extent borne out by the lack of serious attempts by underdeveloped countries to moderate internal fluctuations originating in short-term export instability. It is probable that other policy objectives have received, and probably deserved, more attention than the instability generated by export fluctuations. This is particularly true in view of the perils involved in operating any stabilization scheme. The difficulties are both of the conceptual kind suggested above and practical difficulties of obtaining

administrators who will operate the schemes honestly and efficiently. Many schemes in the past have in fact varied their aims from stabilization and become mere tax-gathering institutions. In a few cases they have become instruments of corruption and abuse of power. However, despite these doubts, or perhaps because of them, national stabilization policies remain a worthwhile subject of discussion. For some countries the problem of export instability must be serious enough to warrant strenuous efforts to reduce repercussions on the internal economy. Particularly where export fluctuations seem to inhibit economic development. However, before a scheme stabilization is recommended it should be clear that the device itself should not inhibit economic development more than its absence.

#### National Stabilization Devices

The objective of moderating fluctuations in producer prices, in incomes or in national income caused by fluctuations in exports can be attained, in principle, by many devices: marketing boards, stabilization funds, variable export duties and subsidies, and variable exchange rates among others. Very few countries are in a position to do any more than attempt to ameliorate the internal impact of external instability. This is because they normally supply only a small part of the total market for any of the commodities which they export. Consequently the price elasticity of demand facing their exports is usually very high and alterations in their volume have little or no impact on world prices. Pakistan, Ghana and Brazil are probably the most important exceptions to this rule. The proportions of the world trade in jute, cocoa and coffee, respectively

exported by these three countries are sufficiently large to enable them to affect world prices significantly by their export policies. For them to use this power in attempts to raise the long-term average prices received for these would however be foolish (as Brazil has recently found to her cost), even if the elasticity of demand were less than unity. It would stimulate too much substitution, and production of exact and near substitutes to allow the price to remain high for long. However, such countries could, if they considered it worthwhile, reduce fluctuations in export prices by a sensibly operated buffer stock policy. For Pakistan, as we have suggested elsewhere such a policy might well be a useful aid, not only to internal stability, but to long-term export earnings and economic growth (MacBean, 1962).

But for most countries such policies are out of the question without international co-operation. In this chapter we can therefore confine discussion to policies aimed merely at reducing the internal effects of fluctuations in export proceeds. This still leaves the field fairly wide and to narrow it further, discussion of general income stabilization policies such as fiscal and monetary policies of the central government are postponed to the following chapter. In this chapter we concentrate on the principles and practice of the four devices: marketing boards, stabilization funds, export duties and variable exchange rates.

These, in particular marketing boards and stabilization funds, are the most widely known schemes adopted by individual nations for stabilizing the prices and incomes received by producers for their exported crops. Insofar as stabilization, as we have defined it, is their aim they have a great deal in common with one another and with variable or progressive

export duties/subsidies and variable differential exchange rates. <sup>1</sup> The principle upon which they all hinge is the need to break the connection between the price paid in world markets for exports and the prices and incomes received by the producers.

Marketing boards usually achieve this aim by acting as monopolies which buy all the output of the producers at prices fixed by the board and sell the product on world markets for what it will fetch. By this means they can, in general, hold producers' prices constant within the season and probably also moderate their movements between seasons. When world prices are higher than average the boards can make 'profits' which form a reserve fund which can be used to support prices to producers when export prices fall below trend. The marketing board has been the device used most widely for this purpose in 'British Africa.' The State Agricultural Marketing Board (SAMB) of Burma forms another important example of this genre.

In 'French Africa' the caisses de stabilisation des prix or price stabilization funds achieve similar objectives without monopolizing either the purchase or sale of the products. They rely mainly on the fixing of minimum producer prices and their legal enforcement. They have controls over private sales contracts and use a system of levies and premia on exports which allows them to accumulate funds in good years to support producers' prices in years of low export prices.

A system of export taxes and subsidies can also be used so as to reduce, either automatically or at the discretion of the government, variations in producers' incomes from exporting specified commodities. For example, a tax can be designed so that when the export price of, say,

rubber rises 10 per cent above trend 50 per cent of the excess over the trend value will be taxed away, when it rises by 20 per cent, 70 per cent of the excess is taxed away. Conversely, when the price falls below trend an automatic subsidy can come into effect so that over a reasonable period of time the producers as a body receive the same income as they would have without the scheme, but spread more smoothly over time.

Finally, special rates of exchange can be used for specific commodity exports and varied in such a way as to moderate fluctuations in the net price or income received by the producers. When world prices rise the government can lower the value of domestic currency which the exporter receives in exchange for the foreign currency earned by his sales to foreigners by devaluing the exchange rate applicable to these transactions. The government acquires and may put to reserve the difference between the sum the exporter receives at the new rate and what he would have received at the old rate of exchange with the new high export prices. When export prices subsequently fall below trend, the exchange rate can be raised so as to compensate the producer for the fall in world prices. As with all of these schemes the authority running the scheme makes 'profits' in years of supra-normal export prices and 'losses' in years of sub-normal prices.

It is not uncommon for variations of these schemes to operate simultaneously in the one country. Marketing boards, for example, have frequently co-existed with export duties on the same products and the stabilization function may to some extent be shared between them.

## Prices or Incomes

In fact all past or existing schemes have had stabilization of producers' prices as their immediate objective. Some question remains as to whether producers' prices or incomes form the more appropriate and important target for stabilization policy. It should be clear that even absolute stabilization of the price received by producers will not completely stabilize the income of producers, even as a body, quite apart from as individuals. Variations in the quantity of commodities exported have been at least as important causes of the instability of export proceeds as variations in world prices. This is clear from our analyses of the causes of instability.<sup>2</sup> Not only may stabilization of producer prices fail to produce stable incomes, it may de-stabilize them. Wherever variations in the volume of exports would normally cause a compensatory change in price, a fixed price will increase instability unless it in turn reduces fluctuations in supply. For example, if the volume of the exported commodity this year were 10 million tons and the price were \$ 10 per ton, income received would be \$ 100 million. If next year the crop were a bad one and exports fell to 8 million tons price could rise to, say \$ 11 a ton, giving an income of \$ 88 million. But if the price had been fixed by policy at \$ 10.50 per ton the incomes received would have been \$ 105 million and \$ 84 million in each year. In the first case the percentage change is 12.0 and in the second 20.0 showing greater instability of income with the stable price. The lower the price elasticity of demand for the commodity and the more important autonomous fluctuations in output are the more relevant and significant is this point.

For many, perhaps most, countries destabilization of income is unlikely to be caused by a fixed price since a relatively highly elastic demand for one country's output of one commodity is normal and price variations are more often the consequence of fluctuations in demand. But in a country like Ghana a fixed price could destabilize incomes. Between 1948 and 1961 the year-to-year instability of cocoa producers' prices paid by the Cocoa Marketing Board averaged 16.6 per cent per annum while the export price was more unstable with an annual average fluctuation of 26.7 per cent. Producers' incomes however fluctuated 27.8 per cent compared to fluctuations in the Board's sales of only 18.1 per cent. <sup>3</sup>

In any case, it is clear that stabilization of producer prices may destabilize incomes and in very few cases will it do more than remove part of the instability of incomes. Why then pick on only the one component of income for stabilization and ignore the other? Historically, the reason for this bias may stem from a tendency to blame the foreigner for instability and ignore fluctuations in export proceeds which result from changes in the volume of exports. However, if variations in income do cause serious hardship to producers the argument for compensating fluctuations in output is just about as strong as for smoothing prices. Fluctuations in the crop are often just as much out of the control of the producer as prices and can cause him as much, in some cases, more hardship.<sup>4</sup> Practically all the ill-effects attributed to fluctuations in prices can also result from fluctuations in output: inflationary or deflationary impact upon the prices of food and imported consumer goods, instability of government revenues and fluctuations in the international balance of payments. Finally, in many underdeveloped countries where the extended family system is common,

windfall increases in income may bring with them unwanted social obligations which remove most of the benefits from the farmer and which may tend to remain after the boom has passed. <sup>5</sup>

It may be argued that the emphasis on price stabilization is justified on the grounds that it is price which determines the amount of land and other resources which will be devoted to production of the export crop. Hence an unstable price will produce unstable outputs in current or subsequent seasons, depending on the time taken from planting to commercial cropping. In fact, in many regions this is at best only partly true. Often the price paid for other crops may be just as important as the price of the exported cash crop. This can be true of food crops which the farmer consumes for his own use and for other crops which he can grow for cash on the same land as the export crop. In any case, the expectation of a relatively stable cash income from growing the export crop should be at least as powerful an influence over his decision as a relatively stable price.

From a welfare point of view it would seem clear that instability in the real income of the producers, in the absence of the exercise of thrift and foresight on their part is the most important factor. This is likely to be the main cause of individual hardship. The prevention of fluctuations in the prices of consumption goods is likely to be the subject of other more general government policies so that in discussing producer income stabilization the problem of stabilizing real (as opposed to cash) income is best set aside. In many, if not most countries, there would be a very serious problem of constructing an acceptable index of the producers' cost of living. It would seem to be unduly complicated to

attempt to incorporate this aim into such a scheme and more sensible to leave it to other policies of the government to ensure reasonable stability in the cost of living.

From the viewpoint of the economic efficiency or overall economic welfare of many countries the question of price versus income stabilization may be decided in favour of price. Simplicity or the existence of more vital objectives than producers' welfare could determine a choice of price rather than income stabilization. For example, in East Pakistan the intelligent operation of a buffer stock for jute would probably serve the purposes of reducing fluctuations in both the world price and the producers' price of raw jute. This combination of objectives would seem to be more important for Pakistan than stabilization of producers' income, which objective would in any case be assisted by this policy (MacBean, 1962).

#### Smoothing Producer-Incomes

It seems probable that schemes of one sort or another can be devised which would smooth out fluctuations in the total income received by producers (wherever the word income is mentioned in this section price may be substituted in general without altering the sense). A "Bauer-Paish formula" <sup>6</sup> or a simple moving average of the previous three years' incomes can ensure that fluctuations can be modified without serious loss of contact with the general trend in the market for the product. There are several arguments in support of such operations for smoothing producers' incomes around their trend value:

1. If it is true that peasant producers cannot operate their own reserve policy by personal saving in good times to support their consumption in years of poor harvests or low prices then a scheme which to a considerable extent simply institutionalises such a practice should improve the producers' lot.

2. Success in smoothing income would remove some of the uncertainties of economic life which are supposed to deter peasant producers from entering the cash economy. This should encourage the production of cash crops, bring subsistence farmers into contact with the market and open out possibilities for entrepreneurial behaviour. Such breaking of former social attitudes, increase of opportunities and development of new attitudes to prices, profits, consumption and general economic behaviour can be argued to be the most fundamental change required to produce general economic growth in underdeveloped countries.

3. It has been argued that in the conditions which prevail in many underdeveloped countries, and particularly in Africa, the producer may lose most of the benefits of a period of exceptionally high income through being forced to accept "onerous social obligations" to members of his extensive family.<sup>7</sup> If this is common and is asymmetrical, in that it brings no benefits to the producer in years of abnormally low income, the net benefits derived from growing cash crops for the market would be lowered over time. This could deter the rational farmer from entering too far into the cash economy. Given all these provisos, the smoothing of producers' incomes might lead to their receiving a higher net income over time which should encourage the production of cash crops.

4. Another argument involves the assumption that many underdeveloped countries have already evolved the 'ratchet economy.' We have discussed some of the implications of this already in the section of Chapter 4 which deals with export instability and inflation. The suggestion is that a boom in income from exports results in an increase in domestic prices and costs which later prove to be resistant to downward pressures in subsequent periods of normal or sub-normal incomes. The price increases in the boom can be attributed to a low elasticity of supply of domestically produced food and consumption goods and to low short-run elasticities of supply of imports -- perhaps due to time lags, low domestically-held stocks or import controls. These price increases force up the cost of living and generate increases in the cost of labour and other agricultural and industrial inputs. Given some degree of money illusion in labor or active trade unions any subsequent fall in the value of total output will not be accompanied by a commensurate fall in wage costs and other prices. This may result in some unemployment or force governments, in order to avoid unemployment, to adopt deficit-finance measures which may tend to sustain the inflation.<sup>8</sup> If the booms and slumps in producers' incomes were smoothed out by a producers' income stabilization policy these harmful consequences of export instability could be avoided.

5. Unstable export proceeds cause windfall profits and losses to producers and to dealers in both the exported good and in some imports. Besides causing difficulties for the individuals directly affected, some strain on social and political relationships in communities can arise in these circumstances. This is particularly likely where most commerce is in the hands of non-indigenous groups. In Africa and much of Asia this is

often the case. Thus economic instability may exacerbate existing racial ill-feeling.

6. Finally, a scheme which automatically moderates the range of fluctuations in income helps to make ad hoc government interventions unnecessary. That this is likely to be an advantage casts no aspersions upon the abilities of the governments of underdeveloped countries. Those of rich industrial countries have had equal lack of success in reacting to short-term instability. Discretionary reactions are apt to be too slow and necessarily based on inadequate information and very uncertain projections. In consequence, fiscal or monetary measures often only begin to take effect after the emergency is over and on occasion add to the risks of too great a swing in the other direction.

These arguments for income-smoothing schemes might be summarised as: 1. reduction of personal hardship, 2. reduction of uncertainty, 3. reduction of other disincentives to increased output (via parasitic tendencies of relatives), 4. avoidance of inflationary 'ratchet' effects, 5. reduction of haphazard and socially disturbing effects on income distribution, and 6. avoidance of arbitrary government intervention. They are all, at least prima facie, tenable even if not, perhaps, entirely convincing arguments. Some further analysis and criticism of each may be justified before moving on to consider possible disadvantages of smoothing producers' incomes around their trend value.

Two questions arise in connection with the first of these arguments: are the hardships caused by instability serious and secondly, if so are there any indirect costs involved in reducing these hardships? There is a serious lack of information on the first of these questions and until

studies are made of the experience of peasant cultivators through periods of economic instability such as has existed in the post-war era, generalizations on this subject should be regarded with extreme caution. But it does seem to be true that most peasant cultivators, certainly in Africa, do produce sufficient food to meet the normal requirements of themselves and their families. Their cash crops are a net addition to this. In the case of the rice cultivators of Southeast Asia the rice crop is both for subsistence and for sale, but only the surplus is actually sold. If these statements are generally valid it is unlikely that acute hardship will result from fluctuations in the value of the cash crop in most underdeveloped countries. But of course there may be many exceptions to this. In some countries peasant producers may be highly specialised and hence a sharp fall in the value of their cash crops may bring real misery. Where this is so the plight of the producer may be a compelling argument for an income-smoothing scheme. On the other hand, unless these people's average standard of living is so close to basic that even mild downward fluctuations cut into necessities there may be a stronger case for treating each occasion as a disaster situation justifying emergency relief rather than as a proper subject for a smoothing scheme. Much depends on the frequency of recurrence of the trouble.

It has also been suggested, by M. Friedman among others,<sup>9</sup> that creation of a compulsory income smoothing scheme which forces producers to save for "the rainy day" is over-paternalistic and may tend to thwart the abilities of these farmers to develop habits of saving and self-reliance. This looks a little like the classic 'liberal' case against any sort of government interference which smacks of welfare state tendencies. It is

an argument which most farmers in rich countries have found lacking in appeal. Few of them have been at all unwilling to surrender a little of their independence for the sake of assured incomes from state intervention in agriculture. Unfortunately neither this nor social welfare schemes are precise parallels since both involve some element of income support or redistributions of income from other elements in the community in addition to pure income stabilization.

The crux of the issue seems to be the empirical question of how serious are the personal hardships inflicted upon the farming community by the fluctuations. If they are at all severe humanitarian considerations should clearly dominate and if the frequency of depressions is high an income-smoothing scheme could well be an appropriate solution. On the other hand if the hardship is relatively minor by the general standards of the area the overriding importance of development might lend some support to merely encouraging farmers to use post-office savings banks or other savings institutions as a means of enabling them to keep up their consumption in bad years out of savings from previous good seasons. Improvement of facilities for borrowing by farmers would be another possibility in some regions of the underdeveloped world.

Against the second argument (of uncertainty) may be placed the equally plausible assertions of P.T. Bauer and of Sir Sydney Caine.<sup>10</sup> They both suggest that investment in new capacity may be faster with unstable prices and incomes. Bauer cites Kola nuts in Nigeria and the growth of the small-holder rubber industry in Sumatra and Borneo as cases in point. Caine says,

"Some of the widest fluctuations have taken place in tropical agricultural products such as rubber, cocoa, coffee, tea, sisal. In all of these any investor has to take quite a long view, ... because no yield whatever can be expected from, say, a rubber tree or a cocoa tree for five years or more, and its true economic worth can only be calculated over a period of 20 or 30 years of continuous yield thereafter. In practice over the period of fluctuation covered by the recent United Nations study (Instability in Export Markets of Underdeveloped Countries), there has been continuous investment in these long-term crops both by capitalist plantation organisations and by peasants and small-holders." 11

In the statistical analyses in Chapter 4 it appeared that investment and export instability were positively associated and some discussion of possible reasons for this were given. In any case it would seem that sufficient doubt is cast upon the view that fluctuation in the income from export crops is an important deterrent to production of such cash crops that it can hardly form a sound argument for smoothing schemes. Indeed, it is quite possible that smoothing out of exceptionally high incomes would reduce both the incentives and the financial means for expansion of areas under tree crops.

The suggestion that peak incomes attract burdensome social obligations which disperse the fruits of the farmer's efforts among parasitic relatives probably involves an exaggerated and possibly misconceived picture of the role of the extended-family system.

For example, it presupposes the objective of individual financial gain as the motive for increased efforts. But characteristically in most extended-family systems power and prestige depend on status within the society and status depends not on control over material wealth but in claims against persons. "The actions of the group are dictated by the requirements of the community." <sup>12</sup> There is no scarcity of good land in most of Africa, hence no one within the productive age groups is without the means to produce food for himself and his immediate family. A windfall profit may draw more kin closer around the successful farmer, but this may enable the group to expand its farming activities. The cash may not be dissipated in wanton consumption, but rather forms the working capital for the group which allows extension of its economic activities. If this is so it is not at all clear that smoothing producer incomes will contribute to the average prosperity of the farmers or to economic development, possibly the reverse.

The suggestion that producer-income instability tends to cause secular inflation through the "ratchet effect" is very plausible, but that this is at present a serious cause of inflation in most underdeveloped countries is very unlikely. In many countries where peasant production is important wide fluctuations have taken place without any secular inflationary tendencies being revealed. This has been true of almost all African territories between 1948 and 1959. Only the Belgian Congo stands out as an example of rapid inflation in Africa and that is sufficiently explained by the political and military crises of the last few years. While the close financial connection between most members of the dependent Sterling Area of the United Kingdom, and the French Franc Area and

metropolitan France are partial explanations of the stable price levels of many underdeveloped countries, this also suggests that inflation is no necessary concomitant of export instability. It also suggests that the "ratchet effect" was not in evidence in most of these territories since neither inflation nor noticeable unemployment followed the peak export years of the post-war era. It has been mainly in Latin America and to a minor extent in the British West Indies that export instability and either inflation or unemployment consistent with the ratchet hypothesis have coincided. Few of these have been the peasant farming economies for which income-smoothing schemes have generally been recommended. For the most part they have been mineral exporters like Chile or plantation economies like Brazil. Moreover, there have generally been other more powerful demand or structuralist <sup>13</sup> explanations for the more spectacular inflations of the post-war world.

The question of windfall profits and the social strains they impose probably belongs mainly to the early post-war period and the immediate aftermath of the Korean War boom in commodity exports. On both occasions there were extreme shortages of the consumer goods which the enriched farmers wanted to buy. These shortages were due to the economic dislocation caused by the Second World War exacerbated by the rearmament drive for Korea. This led to excess demand for imported goods and for domestically produced food and consumption goods whose short-run supply was extremely inelastic. Such emergency situations demand emergency treatment rather than the creation of permanent stabilizing schemes. In more normal circumstances the supply of imports is very elastic unless the government chooses to impose controls on them. Should the government do

so it may be able to ensure that any windfall gains accrue to its revenues by imposing high tariffs, auctioning import licences or imposing special levies on importing firms.

The final advantage attributed to these schemes, that of avoiding arbitrary government intervention, is in general a telling one. However, its force depends on the seriousness and frequency of the fluctuations. If they are fairly regular then the smoothing scheme possesses many advantages over government intervention, but if the trouble is from occasional wide swings in cash income such as are likely in a crop subject to natural hazards, the smoothing scheme may have insufficient reserve funds to meet the situations and more drastic government remedies will be required in any case.

#### Positive Objections

In addition to these doubts about the alleged advantages of producer income stabilization some positive arguments against such schemes exist. Probably the most important objection to the principle of producer income stabilization was put forward by Ragnar Nurkse (1958). He argues that to introduce a buffer between the world market price and the price received by the producer is to reduce or eliminate the possibility of a supply response to higher or lower world prices. This will reduce their total earnings from exports over time. Moreover, since he assumes that "The 'established' comparative advantage of underdeveloped countries in certain primary commodities is generally high" this means that they will also have sacrificed real income. 14

The argument is most neatly and clearly presented in a diagram.  
(Figure 10:1) <sup>15</sup>

The dotted lines are curves of unit elasticity of demand otherwise known as equal revenue curves. The supply curve OS is drawn through the origin and therefore is assumed to have unit elasticity, but this is not an essential assumption. As long as it has elasticity greater than zero and less than infinity Nurkse's logic shows that by allowing supply to accommodate to changes in demand, total revenue from export sales will be higher for either an increase or a decrease in demand than if supply were held fixed.

For a shift in demand from DD to D'D' supply expands from M to N and total foreign exchange earnings can be shown by a rectangle bounded by sides of length ON and  $NP_2$ . If supply were held fixed price would rise to  $P_1$  and total exchange earned would be a rectangle OM,  $MP_1$ , but since  $P_1$  falls below the equal revenue curve on which  $P_2$  is situated,  $OM-MP_1$  must be smaller than  $ON-NP_2$  hence a fixed supply leads to a smaller gain from this rise in demand and price. Analogously a fall in demand shown by a shift from D'D' to DD leads to exchange earnings  $OM-MP$  while if supply were

fixed at  $N$  earnings would be  $ON-NP_3$  which falls below the equal revenue curve through  $P$  and hence is smaller.

The crucial assumptions for Nurkse's conclusion are: 1) demand must be elastic above the point of the intersection of the  $D$  curve with the supply schedule and inelastic below it; 2) fluctuations must be the result, at least mainly, of changes in demand; 3) relatively short-run elasticities of supply must be at least greater than zero and preferably rather high; 4) lagged responses of supply must not exist or must be amenable to controls.

The necessity for the first assumption can be easily verified from the diagram. If demand elasticity is less than unity above  $P_2$  the  $D'D'$  curve will lie above the equal curve so that holding supply constant when demand increases will actually result in the greater earnings. Equally if demand should be elastic below the point  $P$  the  $DD$  curve will lie above the equal revenue curve through  $P$  and if demand declines a constant supply will again yield the higher earnings.

Nurkse defends this assumption by arguing that no rational country would charge a price for its exports which would lead to its operation on the inelastic portion of the demand schedule for it can gain by simply reducing exports and raising prices. He says, "A country would almost certainly not operate to the right of  $PM$ , since in that region the  $DD$  schedule has an elasticity of less than one, so that the country could increase its export income by reducing the quantity over that range of the demand schedule." (p. 248). However, this, at most, only takes care of inelasticity. It does not rule out the possibility that the  $DD$  schedule may be elastic in all of the range relevant to the problem. For many countries

the demand facing their commodity exports is almost certain to be highly elastic simply because they supply such a small share of a relatively homogeneous market. But if demand is elastic a downward or leftward shift of the  $D^0D^0$  curve to DD would yield higher foreign exchange earnings to a policy which fixed supply at N than one which allowed supply to adjust back to M.

There are many other complicating features of this assumption. The policy makers have to know what the relevant demand elasticities are which face their commodity exports, but these are to a considerable extent functions of the export policies of their competitors as well as of the taste and habits of the consumers in industrial nations. If all react in the same way to increases and decreases in world demand the effect is to lower considerably the relevant demand elasticity facing each country. Since the price elasticity of demand for the total world market for the exports of most commodities is likely to be less than unity in the relatively short-run (1 to 3 years) many underdeveloped countries could find themselves facing relatively inelastic demand schedules. In this case they would benefit at least in the short-run from holding exports constant rather than encouraging accommodating supply responses to short-term increases in world demand.<sup>16</sup> On the other hand it would pay them to adjust along their supply curves to decreases in demand if the relevant portion of the demand curve were inelastic.

The situation is much too complex for simple generalisations on even the limited question of which policy will bring in the greater earnings of foreign exchange, in the relatively short period. Probably the balance of the argument is more in favour of doing nothing to discourage supply

adjustment to changes in demand the longer the time period considered. The more rigid is world supply in face of fluctuations in demand the more extreme will be the variations in world prices. If this leads to asymmetric increases in entry into production and in synthetic substitution or other technical innovations which cut demand for the natural products anything which keeps world prices steadier should aid foreign exchange earning prospects of present commodity-exporting nations. Given the extremely diverse character of underdeveloped countries' economies and of their principal exports most generalisations are likely to be contradicted at least as often as they are confirmed. Almost all market situations from near monopoly to atomistic competition can be found among them. Hence the range of price elasticities of demand facing these exports is likely to be far too wide to be sensibly represented by an average.

The second assumption, that changes in demand are mainly responsible for fluctuations in underdeveloped countries' export incomes, is fairly dubious. On the available evidence presented in Chapter 2 a roughly even division of responsibility between demand and supply changes is probably the most reasonable general assumption. Once again, much depends upon the type of products -- raw materials, foods or minerals -- which are exported and the markets in which they are sold. However, our evidence indicates that supply changes have been probably at least as frequent causes of export instability. Wherever this is so the Nurkse problem does not arise. Nurkse states that a relatively elastic supply of exports is crucial to his thesis. "The answer depends largely on whether in fact the export supply of primary products is elastic or inelastic with respect

to price." <sup>17</sup> He maintains, "In actual fact the supply of primary products exported is generally -- though perhaps not invariably -- rather elastic." <sup>18</sup> The time period relevant to this supply response is not explicitly stated, but it seems clear from the subsequent discussion that Nurkse had in mind a relatively short period, at most 2 to 2-1/2 years. He says, "Let us consider...a policy under which the domestic price is left free to follow the world market, at least from year to year, if not from day to day," <sup>19</sup> and he discusses, "cyclical shifts of effort and resources into and away from export production in response to external changes," <sup>20</sup> as a possible objection to his suggestion of leaving prices and incomes free to respond to world market forces.

It is clear that if Nurkse's criticism of buffer funds is to have force it is essential that the response of exports to an increase or decrease in prices must be positive and significantly different from zero. The higher the price elasticity of supply (short of infinity) of exports, given his other assumptions, the greater the loss involved in a buffer fund which eliminates or reduces incentives to expand or contract the supply of exportable commodities in response to world market prices.

The price elasticity of supply of exports is a function of:

1) the elasticity of response of stocks of exportable commodities held within the exporting nation's boundaries, 2) the response of current home demand for the exportables, 3) the response of imports which can be re-exported, 4) the response of output of the commodities. The first of these, the response of stocks, can be almost immediate, but for most commodities apart from coffee the stocks held in underdeveloped countries in the post-war world have generally been rather small. Many, probably most,

of the commodities exported by underdeveloped countries are intrinsically expensive and difficult to store. It is unlikely that the total elasticity of supply of exports is significantly affected by this factor in many countries. As for the second, this too is unimportant for most countries and most commodities apart from rice and perhaps groundnuts. In general the amounts of export products consumed in underdeveloped countries are small and probably rather insensitive to price because they are staple foods. The third may be important for Malaya and perhaps in African territories whose neighbours have fixed prices for cash crops and where smuggling is easy and profitable. Even all three of these together probably add up to a very small element of elasticity for the typical underdeveloped country. For most the only significant response possible is a change in output.

We are concerned here with agricultural products almost entirely since the income-smoothing schemes which Nurkse criticises are aimed at peasant farmers. In the case of tree crops and certain other products, such as hard fibres (sisal, hemp, etc.) capacity to produce cannot be increased in the relevant period, i.e., the new plants require five or more years to start giving a commercial yield and take still longer to reach maturity. If prices are exceptionally high it may be possible to increase the rate of tapping rubber trees or of stripping the leaves from the sisal plant, but these activities damage the plants and decrease yields. If there are some wild rubber or cocoa trees high prices may increase the search for their products, but as a percentage of the total crops these are likely to be very small and percentage changes in the total yield due to these activities infinitesimal. Nurkse relied here on evidence from the

Bauer-Paish articles which is in fact very weak and at best supports only the case for some positive elasticity, but certainly cannot in the case of tree crops be regarded as demonstrating their supply to be "rather elastic."<sup>21</sup> It seems very unlikely that even after due allowance is made for all these possibilities that the relevant elasticity of supply of exports of products such as tree crops or hard fibres can be significantly greater than zero. New planting may well respond to price incentives, but this brings the serious danger of excess supplies in 5 or 7 years time, a threat which Nurkse says must be avoided by the imposition of controls. In view of the chequered history of agricultural controls this has its dangers too.<sup>22</sup>

With annual and semi-annual crops such as grains, cotton, groundnuts, and oil seeds, output is likely to be flexible over a 2 to 2-1/2 year period. Several studies have shown a positive producer response to price incentives, particularly to changes in the relationship between the prices of different crops which compete for the same land.<sup>23</sup> However, although positive, these producer responses have generally been lagged one year, related to price ratios between substitute crops, and even so have invariably indicated considerably less than unit elasticity of supply. If, for example, demand for such crops were to rise in year one, the producers' reaction would not result in any marketable increase in output till the following year. Whether demand would still be high then is largely a matter of luck. It depends on the probability that can be attributed to the expectation that an increase in demand and prices this year will continue in the subsequent year. We have very little evidence on which to assess this possibility. One scrap of evidence can be found in a table constructed by Michael Michaely. This presents the results of calculations

of Von Neuman Ratios for a group of countries' export prices and terms of trade. <sup>24</sup> If the ratio approximates to 0, it indicates the existence of a strong trend; year-to-year changes are seldom if ever reserved. If it approximates to 4 the direction of change will have been altered every alternate year throughout this period. At or around 2 indicates a roughly equal chance that the direction of change in each following year will be the same or opposite to the previous year's. Sixteen of the countries listed are underdeveloped countries which export mainly primary products. The average ratio for them was 1.2 for both export prices and the terms of trade. This indicates a slight preponderance of probability that the following year's direction of change will more often than not be in the same direction as the current year. Where this happens and the exports of the crop from the country do show positive elasticity the country may gain some increase in foreign-exchange earnings.

The fourth assumption that lagged responses are not important or can be controlled has been partly covered in the above discussion. For many products there are serious risks that unusually high prices will produce exaggerated responses in the form of increased capacity which leads to marketable output long after the surge in demand has passed. The outstanding example of this among commodity exports has been coffee where peak prices in the early 1950's led to new plantings whose fruits subsequently seriously depressed world prices forcing the carriage of enormous stocks by producer countries, in particular Brazil. This sequence of events led to the formation of the new World Coffee Agreement to prevent further price declines. Nurkse argued that this kind of lagged response could be prevented by taxes on new plantings or physical controls,<sup>25</sup>

but as we noted earlier such schemes in the past have proved very difficult to enforce and relatively easy to circumvent.

The Nurkse point concerning the possible risks of sacrificing long-run export earnings for the possibly lesser gain of producer income stability is potentially important for some countries. For the typical underdeveloped country it is probably a relatively minor matter. Probably the most useful recommendation which would follow from this discussion is that for some countries, where storage of stocks is feasible and inexpensive (e.g. coffee, rubber and most textile fibres) there is a good case for using stock adjustments as a means of reducing both domestic producer income fluctuations and of export price instability while avoiding the risk of sacrificing foreign exchange earnings.

#### Fiscal and Monetary Effects

As was pointed out at the beginning of this chapter income smoothing involves increasing and decreasing a reserve fund. If this is treated by the government as revenue it may have destabilizing effects on government expenditure. A sophisticated government which wished to maintain domestic income and price stability would maintain stable expenditure while allowing its overall budget to go into surplus in years of export boom and into deficit in years of export declines. Assuming that all instability in the domestic economy is the result of export instability such a policy would maintain domestic income stability. In very few underdeveloped countries have such stabilising budgetary policies been deliberately adopted.<sup>26</sup> In many, available revenue has been the determining factor in development

expenditures.<sup>27</sup> When revenues have risen more projects have been financed and when revenues have fallen either development expenditures have been cut or deficit finance utilised without the necessary reserves of foreign exchange to maintain imports. In the latter case inflation due to excess demand plus import controls has been the all-too-frequent result. This has certainly been a contributing factor in many of the Latin American inflations.

Whether total national income would be more or less stable with such government reactions contrasted with a situation where producers' incomes absorbed the fluctuations in exports depends on the relative marginal propensities to spend of farmers and government. This is an empirical question on which we have no evidence. All that can be said is that if governments allow their expenditures to vary with their revenues the stabilising effect of the smoothing schemes on national income would be impaired.

Another problem arises from the possible effects on the banking system. Suppose the stabilising agency deposits its surplus from a good year with either the central bank or with commercial banks what effect will this have on the availability of credit and the money supply? In the absence of offsetting action by a central bank the cash base of the banking system is increased and the commercial banks' ability to create new demand deposits through loans and advances to customers is enhanced. Central banks in most underdeveloped countries find it difficult to carry out such action. (See Chapter 11). If there are a sufficient number of credit worthy borrowers the effect may be to increase the money supply and stimulate demand for imports and domestic resources.<sup>28</sup> Either prices will rise or imports increase or both. In the absence of controls the probability

is that the foreign exchange accumulated for use when exports fall off may be dissipated making subsequent income support difficult or even impossible.

Once again a relevant consideration is what would have happened if the cash had simply gone to consumers. Possibly it would still have accrued to the banks and the net effects would have been much the same.

This discussion of possible fiscal and monetary byproducts of the smoothing scheme emphasises the fact that the contribution to national income stability made by export taxation or other income smoothing policies is only potential, and is contingent upon the overall fiscal and monetary policies of the government remaining consistent with this objective.

Another, possibly minor, qualification to income-smoothing schemes is that without various adaptations they do not guarantee a smoothed income to the individual producer, only to the group. This only matters where the fortunes of an individual are at variance with those of the group. If his crop is poor when everyone else has a good harvest the price adjustment needed to smooth the income of the others will depress his. This is however the kind of situation in which relatives and friends can assist, where, indeed, the extended-family system can most easily fulfil its social insurance function since the average farmer will be reasonably prosperous. The schemes can, in fact, be adapted to provide individual-income-smoothing facilities,<sup>29</sup> but this probably involves an uneconomic amount of administration and calculation for the smoothing authority.

## Conclusions on Income Smoothing Schemes

The only sensible economic criterion by which national buffer-fund schemes can be judged is the overall economic welfare of the nation. For most countries and products the impact on the welfare of the rest of the world is certain to be negligible -- at worst a slight increase in the instability of the prices of a few imported raw materials, food and beverage products, in general a tiny proportion of their total imports. The national economic welfare is a composite of current output, income distribution and growth considerations. Of these, in most of the countries we are considering, the last is probably the most important given their rates of growth of population and their expectations of higher living standards. The main benefits claimed from the schemes are reduction of hardship, encouragement of investment in export crops and increasing spread of the cash economy in underdeveloped countries. On the available, albeit limited evidence, it is not clear that the hardships are in general serious nor that income smoothing would necessarily increase investment or social and economic change. This, naturally, does not exclude the likelihood that producer income-smoothing schemes could be very beneficial for some countries. For maximum benefits the following main conditions should hold for the country: producers should be small-scale peasants unwilling or unable to accumulate reserves against bad seasons and unable to borrow on reasonable terms, but who are nevertheless fully specialised on a single cash crop. Their ability to vary output in the relevant time period of under 2-1/2 years should be slight. There should be a large number of subsistence farmers who are enamored of a cash income provided it is stable and will enter the export market for this. Producers should be a substantial part of the population and

politically sensitive. The government should be capable of accumulating budget surpluses without allowing this to lead to increased expenditure and should be able to tolerate deficits in years of poor returns from the export crop.

With some or all of these conditions absent national economic welfare might be better served by directing government energies to more directly developmental activities. Only if the real costs of the scheme were very small would it be justified.

On the assumption, which we have held throughout this section, that the automatic smoothing scheme would be honestly and efficiently operated, neither the case for nor the case against is very strong. The schemes, in principle, might do a little good and probably would do very little harm. In the next section the respective merits and demerits of the various mechanisms for producer income stabilisation are discussed along with some illustrations of their past performance in practice.

#### Mechanisms for Stabilization of Producer Incomes

Were it not for the fallibility of human nature and human institutions there would be little to discuss in this section. Given clearly defined objectives, honest management and an automatic formula to build income smoothing, without risk of wide departure from trend, into the schemes, there would be little to choose between say marketing boards and export taxation as methods of operating the policy. Costs of operation and administrative convenience would be the main points of distinction. Unfortunately institutions have a way of altering their own functions and

objectives and of presenting different stimuli and temptations to the people who run them. This can readily be illustrated from the history of the West African marketing boards.

It would, however, be unfair to suggest that undesirable developments which occurred in their history were entirely due to the nature of the institution. Probably the main source of the difficulties of the marketing boards in Africa and in Burma was the lack of a clear definition of their aims. According to Bauer,

"The marketing boards were not warned of the fundamental difficulties they were likely to encounter, and they were certainly not given a mandate sufficiently specific to serve as a guide to policy. While it is difficult to reconcile the policies actually pursued with any reasonable interpretation of the idea of price stabilization, it is nevertheless necessary to state, in fairness to the boards, that they were never provided with any useful directive; indeed, the documents announcing their establishment served only to obscure the difficulties of the problem."<sup>30</sup>

It is clear from the Cocoa White Papers that prevention of short-term fluctuations in producers' prices was a main objective of government policy. They talk of, "the avoidance of short-term fluctuations,"<sup>31</sup> of "stabilization of seasonal prices to the West African cocoa producer" and argue that, "the remedy for many of the evils afflicting the West African cocoa industry lies in imposing a buffer between the producer and the international market which will protect him from short-term fluctuations of world prices and

allow him a greater stability of income."<sup>32</sup> It is clear that they intended this to be carried out by revolving funds which would make 'profits' in good years to subsidise by 'losses' the incomes of producers in bad years. "Thus on the average of a period of years, it is to be expected that the average price paid in West Africa will be substantially equal to the average net price realised on world markets and that the Boards' buying and selling transactions will therefore approximately balance."<sup>32</sup>

Unfortunately, no precise period over which this balance should come about or over which average producer prices would equal average net export prices was defined, but clearly long-period accumulation of surpluses was not intended. But without any defined balancing period latent tendencies to play for safety by accumulating surpluses may go unchecked. The higher prices climb the greater the funds required to check their fall. Moreover, the lower the producer price, relative to the export price, the easier it is to keep it stable. The objectives mentioned in the White Papers could be consistent with board policies which were far from the intentions of the authors of the papers.

Although it is clear from the White Papers and from the discussion in Parliament that smoothing of short-term fluctuations was a main objective it was not mentioned in the ordinances setting up the boards. For example, the functions of the Gold Coast Cocoa Marketing Board were defined as being: "to secure the most favourable arrangements for the purchase, grading, export and selling of Gold Coast Cocoa, and to assist in the development by all possible means of the cocoa industry of the Gold Coast for the benefit and prosperity of the producers."<sup>33</sup> This is typical. The charters of the boards gave them the sole right to purchase and export the crops

and all processed products derived from the crops which were under their control. This enabled them to define grades of quality of the crops to fix prices to be paid to producers for these grades. They can also bar the export of crops which fall below their standards.<sup>34</sup> Most of these powers are unnecessary to the purpose of stabilization, but may have been intended to serve other purposes e.g. regulation of marketing and prevention of excess profits to middlemen. The White Paper of 1946 paraphrases the pre-war report of the Nowell Commission as showing:

"How the producer, through the practices of the trade and particularly the activities of middlemen in West Africa, failed to obtain a fair price for his crop while at the same time the trade in general became unremunerative to buying firms and a conservative marketing policy was made impossible."<sup>35</sup>

These conclusions are dubious and a good part of Bauer's book is devoted to demonstrating their falsity. However, our concern with the marketing boards is with their function as an income-smoothing scheme and we merely note in passing that they had other objectives which may have influenced their ability and willingness to stabilize producer incomes.

It is difficult to suggest any advantages which they could possess in this sphere over the other schemes. It has been suggested that as monopolies they have greater powers of control over the internal marketing of the crops. This might give them the power to eliminate or greatly circumscribe the operations of the middlemen. However, this could only be relevant to stabilization policy if the gross profit margins of the middlemen fluctuated so that the prices actually received by the farmers

failed to reflect the changes in the prices paid to the middlemen. Then stabilising action such as the operation of sliding-scale export taxes which stabilised the incomes of the middlemen or exporters might have little or no effect on the incomes of the actual producers. However, quite apart from the questions of whether this really occurs or not there are no good grounds for suggesting that only a marketing board can get around the difficulty. In fact the French caisses de stabilisation have controlled prices received by producers, export prices and dealers' profit margins without the need for monopoly control.

"The Caisses aim primarily at establishing and maintaining conditions of orderly marketing of the commodities at stable producers' prices without eliminating private trading. Private trade is controlled by the Caisses through licensing, or approval of contracts for certain market operations. Fines, in some case very heavy ones, may be imposed on private traders who violate regulations. The essential functions of the private traders, however, are continued, both on domestic and export markets."<sup>36</sup>

In fact the caisses have successfully carried out all the operation which the marketing boards have, including quality control of crop exports, assistance to farmers in the control of disease and occasional stock piling of crops in addition to stabilising producer prices via controls and export premia and levies.<sup>37</sup>

Given neutrality in ideology there would seem to be few grounds for choosing one system rather than the other. But it has been argued that one

important benefit of international trade for underdeveloped countries is that it exposes their population to contacts with businessmen from the economically more advanced nations. Such exposure may assist in the development of attitudes and techniques which will aid economic growth.<sup>38</sup> This leads Bauer to condemn statutory export monopolies on the grounds that their establishment

"greatly reduces the external contacts of the local population. Local producers and traders are prevented from seeking external buyers and foreign merchants are discouraged or prevented from establishing themselves locally. This is apt materially to retard economic progress by restricting the transmission of new ideas, methods, crops and wants, which in turn are potent factors in breaking down traditional customs and attitudes, including those most detrimental to economic progress."<sup>39</sup>

This is a gross oversimplification of the situation in most underdeveloped countries. Peasant producers from rice farmers in Asia to cocoa farmers in Ghana have seldom dealt with foreign buyers in the sense of European or American businessmen. All this business has been transacted with dealers of their own race or more commonly with people of another race but nevertheless part of the resident population e.g. Chinese in Thailand and Burma, Indians and Lebanese in Africa. Under the boards they generally continue to deal with these same men who become licensed buyers for the boards. The only people whose commercial relationship with foreign buyers

is likely to be altered are the traders who formerly sold directly to the foreign purchasing firms. Under a marketing board system these transactions are handled directly by the boards. It would seem very unlikely that this should be a serious limitation on the transmission of western "know-how." The Chinese, Indian, Lebanese and West African traders probably need no lessons in commercial transactions from westerners. This particular criticism of the marketing board seems trivial.

A more serious reason for regarding the boards as potentially dangerous lies in their power to amass reserves and to dispense patronage. If they were strictly governed by the necessity to follow a formula for stabilizing producer incomes they would seldom, if ever, amass very large reserves nor could they easily divert them to other purposes. They would be more accountable. However, as independent statutory monopolies they are inherently more likely to follow courses of their own without adequate government supervision than would be the case where stabilization is left to the operations of a sliding-scale-export tax. Whether this is necessarily so or not it has in fact proved to be so in the recent history of the boards in West Africa. The findings of the "Coker Commission" in Nigeria show clearly that the substantial reserves of the Western Region Marketing Board were misused for political and commercial purposes.

"A substantial loan of £ 6,710,000 was made by the Western Region Marketing Board to the National Investment and Properties Co. Ltd....the company is now insolvent.

(paragraphs 2 and 3). Abundant evidence has been produced before us to prove that the National Investment and Properties

Co. Ltd. belongs to the Action Group...(para. 7).

We are satisfied that the present financial plight of the National Investment Property Co. Ltd. has been brought about by the substantial amounts of monies (described by the Company in their books as loans to the Action Group, but in the books of the Action Group as Special Donations) being paid out of its funds to the Action Group. (para.8)"<sup>40</sup>

The repeated refusals by other West African governments to allow independent inquiries into their activities lends credence to charges of widespread abuses. Given that stabilization objectives can be attained just as easily through systems less liable to such abuse, this forms a substantial argument for preferring them. In theory there are no valid reasons for supposing that one method should be superior to another in achieving stable producer incomes. However, in practice it might be argued that the marketing boards have historically become more engrossed with their other activities than, say, the caisses and perhaps less successful in stabilization. (They are not directly comparable because of French marketing arrangements for Franc Area Commodities which give substantial stability and support to prices of cotton, groundnuts and coffee.)

On the other hand, it can be argued that there may be advantages (e.g. economies of scale) in having one institution handle a variety of tasks. Most of the marketing boards in ex-British territories have undertaken a range of tasks: 1) stabilization of producers' incomes and thus indirectly of national income and prices, 2) tax gathering, 3) provision of advice and assistance in crop management and pest control, 4) development finance

for the export crop sector e.g. for agricultural improvements and transport. The question remains -- does this make for overall efficiency or would it be preferable to separate these functions and have them performed by different bodies or devices?

It seems probable that the concentration of several tasks of this sort in one semi-autonomous institution is dangerous. For one thing, the objectives may clash e.g. the achievement of short-term stability may run counter to the achievement of large reserves which can be used for general government finance or for special development policies. Secondly, taxation and developmental activities are more properly handled by the central government. Both should be subordinate to the general economic planning of the government and this is likely to be best achieved when they are directly ruled by the government and remain subject to the treasury and planning departments of the central administration. On grounds of an equitable distribution of the tax burden all taxation is best handled by the central authorities where it remains subject to parliamentary scrutiny and is not obscured by the other activities of a statutory corporation. Finally, since changes in the level of the boards' reserves and pricing policies have fiscal and monetary effects on the whole economy it is best that they should be clearly circumscribed. Otherwise they may run counter to the general policies of the government.

If, for any of the possible reasons and combination of reasons which were discussed above, it is decided by the government of an underdeveloped country that an income-smoothing policy for producers would be beneficial the balance of argument is against the marketing board system. As between the others the choice may be largely a question of taste. Our

preference is for the simplest. This is probably a sliding-scale export duty and subsidy. Export taxation in many or most underdeveloped countries is already a major source of government revenue. Where this is so a reduction in the tax which would normally have been paid is equivalent to a subsidy.

All that may be required of the government may be no more than the regulation of the sales receipts of the exporters. If all payments by foreign firms to the exporters have to be made through a special account in the central bank it would be a simple matter to block a proportion of these payments and allow only a percentage e.g. 60 per cent to be cashed immediately by the exporters.<sup>41</sup> The proportion distributed can be larger the more stable are normal receipts and vice versa. The remainder could be held until the end of the crop export sales season when the total value of current exports of the commodity can be ascertained. The next step is for the central bank to calculate a norm or target figure for exporters' receipts. An unweighted average of this year plus the preceding two years would yield a figure which should effect some smoothing without loss of contact with the trend. The difference between this year's current receipts and the norm gives the amount of the tax or subsidy which the government requires to pay to the exporters. This can be added to or subtracted from the blocked account which is then paid to the dealers in proportion to their sales.<sup>42</sup> If a formula of this type had been applied to cocoa producers' income smoothing in Ghana the average annual fluctuation from 1950-51 season to 1960-61 would have been 10 per cent instead of the actual 21 per cent for that period achieved by the Board.<sup>43</sup>

The minimum effect achieved should be stabilization or smoothing of dealers' receipts and reduction of destabilizing injections into

national income from fluctuations in receipts from sales of the commodity. If there exists a reasonably competitive <sup>44</sup> marketing system the benefits of a more stable income should be passed backward to the producers. If there should be a poor crop, dealers, knowing that their total receipts will not fluctuate very much from year to year know that the unit price they will receive will be high. They therefore have a strong incentive to bid up their buying prices to get hold of as much of the crop as they can handle in order to raise their profits. They have an incentive to go on buying until the price paid for the last units they buy, plus the marginal cost of handling them is equal to the expected unit value they receive from the central bank which is the expected total receipt divided by the quantity sold. If the crop is large they know that the price they receive from the bank is likely to be low and they cannot afford to pay high prices to the producers. Consequently the producer price which satisfies their demand schedules and producers' supply schedules and clears the market will be low. Thus variations in the size of the harvest and in the quantities sold are compensated by changes in prices. Both intermediaries and producers as groups should have more stable incomes than they would have in the absence of the scheme. The possibilities of individual gain from manipulation of output are slender and generally too risky for producers to undertake such a policy. Bargaining processes and contacts are maintained between buyers and sellers at all levels so the scheme involves minimal interference with the market. If dealers should find themselves short of money at any time before the final settlement it should be possible to make arrangements for them to borrow up to a certain percentage of their blocked payments against the security of these sums. To ensure equity the central bank could pay

interest on its blocked accounts.

If the assumptions of competitive behaviour and free entry into the market do not hold this policy of minimum government intervention will probably be insufficient. If the industry were controlled by a single monopoly or if the market were rigged by a few firms the fluctuations which would occur in producers' incomes in the absence of the scheme would still probably be reduced. The buying prices of the monopolised trading firms would still move in the opposite direction to changes in the quantity of the crop harvested and offered for sale. Assuming absolute rather than relative stabilisation of export receipts passed on to the dealing firms the demand curve facing the monopoly is of unit elasticity. Assuming absolute barriers to entry into the distribution industry the monopoly can maximise its profits by equating marginal revenue and marginal cost which it does at sales of OM given average unit costs shown by AC (fig. 10:2). The major element of these is the price paid to the producer. The only limit on the monopoly's ability to squeeze the producer is that he be left sufficient inducement to continue to produce the cash crop. Supposing weather conditions are beneficial and in year 2 shown in figure 10:3 the crop is larger than in figure 10:2. This means that unless harvesting costs are much increased the price to the producer can be substantially cut, for as long as his net income equals or exceeds the income from alternative pursuits he will stay in business. He has at least to be able to buy new seed and pay his other costs. If harvesting costs were constant price could be cut so that his gross income is held constant, but if costs have risen his gross income has to be allowed to rise a little above the previous year. The reduction in price per unit paid to producers lowers the average unit cost (AC curve)

and enables the monopoly to handle the larger volume of sales without reducing profits. At any price above or equal to the marginal cost of harvesting it pays the producer to sell. At any buying price which lowers his MC below MR the monopolist will continue to buy. Only sharply rising handling costs to the dealer or a relatively high marginal cost of harvesting would prevent the market from being cleared.

However, in this situation the power of the monopsonist is likely to be intolerable because of lack of alternatives for the producers, so that quite apart from stabilization policy the government should regard this as a situation for policy action to get rid of the monopsony or to control its effects. A situation of oligopoly or monopolistic competition of the Chamberlin type among the dealers would probably also require government intervention because of the extra uncertainties they import into the market relationships.

If the government is forced to intervene, probably the most useful method would be to declare government controlled minimum and maximum producer prices. These could be derived from a Bauer-Paish formula and enforced by a combination of legal sanctions, wide advertisement of their existence and if necessary some government agents who stand willing to buy or sell at the minimum and maximum prices.<sup>45</sup> Given the background of illiteracy, ignorance and political weakness of most of the peasant population in underdeveloped countries many abuses would continue, but it is difficult to think of any scheme which would avoid these and remain practical.

## General Conclusions

In almost all of the above discussions of the pros and cons of national policies to stabilize producer incomes we have assumed the operation of systems which prevent wide departures from the trend values of the exports as determined by world markets. But loss of contact with the trend is probably the most serious risk for such schemes. If prices are allowed to get too far out of line with world market evaluations the country concerned is likely to be sacrificing real income through under or over-production unless other controls which have their own costs are used to correct this. Moreover, if domestic prices and incomes have been supported above world levels a painful readjustment is likely to be necessary in the fairly immediate future. Few underdeveloped countries are in a position to support prices of major export crops for long. These are very obvious points which are not worth laboring. The main point which has been made in this chapter is that even on the most favorable assumptions regarding objectives and governmental understanding of fiscal and monetary effects income stabilization of producers as a group is no easy matter.<sup>46</sup> Unless it is clear that instability of producer incomes is producing real hardships and/or serious damage to the economy in general, specific measures to smooth incomes according to formulae are probably not worth the effort. If exports are regarded as a suitable object for taxation on other counts the adoption of an ad valorem tax will help to dampen fluctuations. If taxes on imports are also important sources of revenue the operation of these fiscal devices is already a built-in stabilizer which should assist in the control of the general level of income and even

provide some stabilization for producer incomes. We shall return to these aspects in the following chapter.

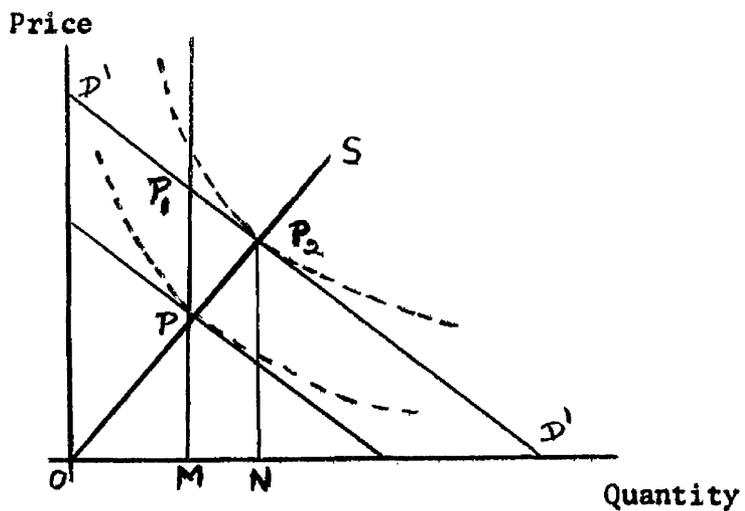


Figure 10 : 1 The Nurkse Thesis

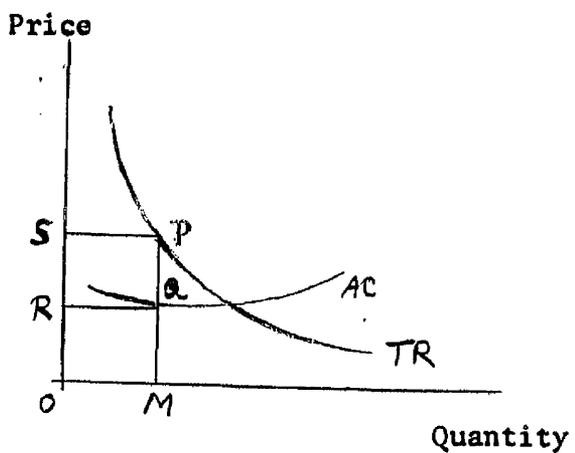


Figure 10 : 2

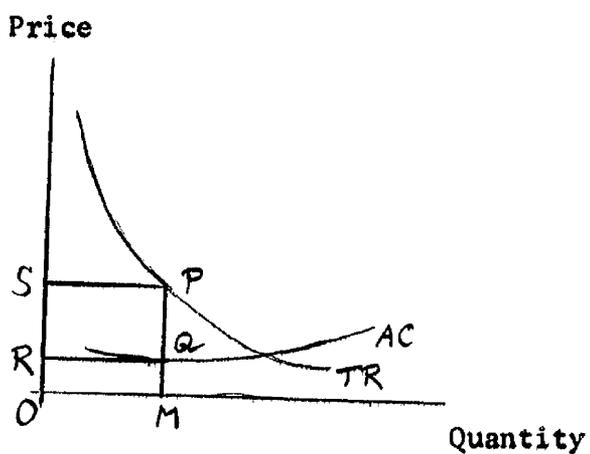


Figure 10 : 3

Footnotes to Chapter 10

1. Marketing Boards and indeed all of these devices have very mixed objectives -- regulation of marketing, ensuring fair prices to producers, improving the quality of crops, disposing of the crop in world markets, etc. See UN, FAO, "The Role of Marketing Boards for Export Crops in Developing Countries," mimeograph paper, Rome 1962. In this study we are directly concerned only with their stabilization functions.

2. See above, particularly Chapter 2.

3. Calculated from UN, 1962 a: Table 2.

4. In small scale peasant farming where perfect competition is approximated there would be no possibility of manipulation of output by individuals to bring benefits from the scheme.

5. Most of these points have been made by Bauer, 1962, and elsewhere.

6. Bauer and Paish, 1952 and 1954.

7. Bauer, 1962: p. 17. Bauer seems to accept this line of reasoning. To me it seems to involve a very debatable conception of the role of the extended family system in underdeveloped countries.

8. The significant correlation which we found between export instability and domestic price increase is at least consistent with this view. See above, Chapter 4.

9. Friedman, 1954: pp. 698-703 and Bauer, 1962: p. 15.

10. Bauer, 1962: p. 16, and Caine, 1958: pp. 188-9.

11. Caine, 1958: p. 188.

12. Yudelman, 1963: p. 10; Schapera and Goodwin, 1937; Colson, 1955. Questions put to Mr. David Muffett (a senior British Civil Servant in Nigeria for 17 years and author of several studies on African history and politics), Dr. Kwamena Bentsi-Enchill (ex-Senior Lecturer in Law at the University of Ghana and author of studies on African land law) and Dr. Eliezer Ayal (Expert on Southeast Asia and author of "Value System and Economic Development in Japan and Thailand") elicited the views expressed in this paragraph.

13. The theories of the "structuralists" include export instability as one among many so-called "structural" causes of inflation.

14. Nurkse, 1958: p. 247, footnote 4.

15. Nurkse, 1958: p. 249. The argument is presented first on pp. 149-151 and then restated more precisely on pp. 247-250.

16. Kitamura and Yang, 1959: pp. 319-21, present a similar critique of this point in Nurkse's thesis.
17. Nurkse, 1958: p. 148.
18. 1958, p. 149.
19. 1958, p. 150.
20. 1958, p. 151.
21. "The short-period elasticity of supply of certain tree crops is much greater than that of others as the rate of capacity working can be subject to wider variation. Thus rubber production from a given area depends on the rate of tapping, while cocoa production is not subject to this kind of variation." (1952, p. 768). In the case of cocoa they say "...even in the short-run, supply cannot be wholly unaffected by price." They cite a Nigerian Survey as "evidence that even the short-period supply (of cocoa) is not completely inelastic." (1954, p. 708).
22. Cf. jute controls in Pakistan and acreage restriction in most rich countries.
23. Stern, 1959: pp. 375-84. His study shows that the area devoted to cotton as a ratio of the area sown to other crops showed a positive response to changes in the previous year's price of cotton

deflated by the prices of the competing crops. MacBean, 1962 and other studies cited there show jute acreage and output response to ratio of the previous year's jute prices to rice prices to be positive. Falcon, 1964, has similar findings for cotton and maize in West Pakistan. Krishna, 1963.

24. Michaely, 1962: Table 15. His results are for the total commodity exports from each country, not for each country's exports of a single commodity. The Von-Neuman ratios are defined as the ratios of the mean square successive differences of a series to the variance of the series (p. 93).

25. 1958, p. 246.

26. Chapters 5 to 9, case studies on underdeveloped countries.

27. Cf. Dosser, 1958.

28. In many underdeveloped countries the commercial banks are branches of ex-patriate banking firms and may pay little attention to their cash reserves within any one territory. How much they allow local liquidity ratios to affect their local lending policies is an unsettled question. We return to this point in the following chapter.

29. Bauer and Paish, 1952: p. 770; Friedman, 1954: pp. 598-9. Niculescu, 1954: pp. 730-43, shows variations in output of cocoa in Ghana

between regions are large and the likelihood that they are much more diverse for individual producers is very high.

30. Bauer, 1954: p. 275. "The difficulties" are discussed by Bauer on pp. 271-274 and in the Bauer and Paish articles of 1952 and 1954. Most of them have been covered in our discussions on the principles of stabilization and of smoothing schemes above.

31. Report on Cocoa Control in West Africa 1939-43 and Statement on Future Policy, (Cmd 6554, 1944). Quoted in Bauer, 1954: p. 268.

32. Statement on Future Marketing of West African Cocoa, (Cmd. 6950, 1946). Quoted in Bauer, 1954: pp. 268-9.

33. Gold Coast Ordinance No. 16 of 1947. Quoted by Bauer, 1954: p. 276.

34. Cf. Extracts from Gold Coast Marketing Ordinance (No. 16 of 1947) Nigeria Cocoa Marketing Ordinance (No. 33 of 1947) and Nigeria Groundnut Marketing Ordinance (No. 11 of 1949) reproduced in Bauer, 1954: Note to Chapter 21, pp. 280-82.

35. Cmd. 6950, 1946. Quoted by Bauer, 1954: p. 206.

36. FAO, 1962: p. 14.

37. FAO, 1962: p. 14.

38. Cairncross, 1962: p. 215.

39. Bauer, 1962: pp. 12-13.

40. Coker Commission of Inquiry (into the affairs of Certain Statutory Corporations in Western Nigeria), (Ministry of Information, Lagos, 1962) Vol. IV.

41. It may stimulate smuggling, but probably less so than most other stabilization schemes.

42. Formula  $T = X_t - 1/3 \sum X_t + X_{t-1} + X_{t-2}$  where T = tax or subsidy, X = export receipts for the crop and subscripts t, t-1 etc. indicate this year, previous year, etc. Where the government normally imposes a revenue tax on exports of average 20% the formula can be modified to

$$T = X_t - \frac{4}{5} \sum X_t + X_{t-1} + X_{t-2} .$$

3

43. UN, 1962 a, Table 1 gives the data for this calculation.

44. This section is based entirely on the assumption of free entry and exit from the trade and highly competitive behaviour. We deal later with other possible assumptions.

45. The formula:

$$S_t = \frac{P}{X} + \frac{1}{n} \left\{ P_{t-1}Q_{t-1} + P_{t-2}Q_{t-2} \dots P_{t-n}Q_{t-n} - \frac{\bar{P}_{t-1}Q_{t-1} + \bar{P}_{t-2}Q_{t-2} + \dots + \bar{P}_{t-n}Q_{t-n}}{X} \right\}$$

$\bar{Q}_t$

where  $S_t$  = producer price,  $P$  = market price,  $\bar{P}$  = expected market price,  $Q$  = volume of crop,  $\bar{Q}$  = expected volume,  $1/X$  = fraction of the expected proceeds of the current year actually paid out,  $n$  = number of years over which proceeds are averaged for smoothing fluctuations. See Bauer and Paish, 1952, p. 771.

46. Since finishing this draft a manuscript by Harrison Wehner, "The Cocoa Marketing Board and Stabilization in Ghana: A Case Study" was sent to me by the author. He also finds that producers' incomes were probably destabilized by the Board's activities. For Ghana, however, he inclines more favourably to the Nurkse proposal than I.

## Chapter 11

### Fiscal and Monetary Policies

The object of this chapter is to evaluate the usefulness of general fiscal and monetary weapons in combating export-induced instability in underdeveloped countries. We discuss, first, the principles of such policies and the expected advantages, particularly vis-a-vis the more specific remedies discussed in the previous chapter. Secondly, the problems involved in designing and operating general economic policies with sufficiently sure and swift reactions to offset fluctuations are discussed. Finally, we consider the difficulties of reconciling these policies for the maintenance of internal income stability with the maintenance of the country's ability to pay for imports, at least essential imports, without incurring serious depletion of reserves.

#### Principles

In abstracto there are no discernible differences between the general methods of fiscal and monetary policy in advanced and in underdeveloped countries. In the case of fiscal policy, or functional finance, the object is to use the government's budget as a counterpoise to changes in aggregate demand in the private sector. When aggregate demand becomes too great to be met by aggregate output at stable prices without excess imports the government has to take action to reduce overall demand by increasing tax revenues and/or decreasing its own

expenditures. These actions by the government, if they are carried out sufficiently promptly and in correct strength, should maintain an aggregate demand for the whole economy which roughly equals aggregate supply. The surplus revenues which now accrue to the government can be sterilised in the form of cash reserves or by redemption of foreign debt. If the policy is successful prices should remain stable and imports should not rise above levels which can be paid for out of normal income derived from foreigners by sale of exports and ordinary capital inflow.

In the opposite case, where export earnings decline temporarily, causing a tendency for the purchases of the private sector to decline, the government may have to decrease its revenues and possibly increase expenditures to prevent a slump in national income.

With monetary policy, the central bank would attempt to lower interest rates and increase the availability of credit in the face of an export slump and raise rates and decrease the liquidity of the economy in times of export booms. The object being to influence private savings and investment so as to offset the expansionary and contractionary effects of the export fluctuations.

The techniques by which these policies are put into effect may differ very considerably between advanced industrial countries and underdeveloped countries and between various underdeveloped countries themselves, but discussion of these differences is postponed to a later section of this chapter. Our main concern here is with the expected advantages of such policies over the more specific policies of producer income smoothing.

In the Kyklos discussion Nurkse (1958) advocated general fiscal policies as an alternative to policies confined in their direct effects to the export sector. His reason for this was that general tax measures would interfere less with the operations of the price mechanism in producing supply responses which would tend in his view to benefit long-run earnings and assist the growth of national income. An additional reason is that on grounds of equity too much of the tax burden should not be borne by a section of the community which is not necessarily the most affluent. We have discussed the first point at length in the previous chapter and found it very dubious.

The second point, the question of equity can bear a little further analysis. If a producer-income-smoothing scheme is in use as a device for a) stabilising producer incomes about the trend and b) by so doing reducing repercussions on national income then, as long as it functions as planned, it should be neutral in its effects on tax incidence as between sectors. It merely collects a proportion of income in good years from the producers as a group and returns it to them in subsequent years. Strictly speaking it leaves income unaltered for producers as a group (apart from minor interest and discount rate problems). All that is affected is the time pattern of their cash receipts so that windfall gains and losses are reduced, but income, properly defined (Hicks, 1939: pp. 172-81) is scarcely altered at all.<sup>1</sup> There is no extra tax burden imposed by the scheme. Of course the government may make use of the scheme as a convenient method of raising revenue through generating surpluses and transferring them to general use, but this is a separate issue. It is not normally necessary to have a stabilization scheme in order to tax exporters (though it may be

politically convenient to disguise a revenue tax as a stabilisation scheme). We have already made clear in the previous chapter our objections to mixing up different policy objectives in these schemes. However, it is evident that one cannot blame an export-oriented tax/subsidy scheme qua stabilisation policy for shifting the incidence of tax onto exporters or producers of exports, for if it is run properly it cannot do that. The burden on producers should be minimal because the tax payments are made when they are at their most affluent as a group and the subsidies are received when they are at their least affluent. With general tax measures this is much less likely to be the case, particularly if the tax rates are changed by administrative action rather than revenues rising and falling appropriately because of built-in-flexibility (tax revenues highly elastic with respect to income).

This is one disadvantage of general fiscal action. Where different sectors of the economy have differing periods of affluence and penury little will be done to stabilize their incomes and such action as is taken where one group's income is large may actually destabilize the incomes of smaller groups. This could easily happen in a country like Uganda where there is no guarantee that cotton and coffee export proceeds will move together. Indeed they most often do not (Chapter 5). If a substantial rise in the price of coffee were to cause national income to rise, even though cotton exports fetched less that year, any attempt to moderate the rise in national income by general weapons could depress cotton export producers' incomes still further. A separate income smoothing scheme for each of the main export crops would avoid this problem.

If the Nurkse policy is to result in increased earnings it requires,

as we pointed out in Chapter 10, significantly positive elasticity of supply of exports and in most cases the adjustment has to take place in output. Where this requires reallocation of labor, land and capital from one use to another certain costs of adaptation may be imposed which are not directly borne by the export industry and hence are not reflected in the opportunity costs of producing more of the export. For example it may raise the level of frictional unemployment, reduce the level of skill of workers acquired through specialization in a smaller range of activities and increase social costs such as frustration and readjustment of attitudes imposed on labor and their families when changing jobs. These costs even if measurable are probably very small, but then the benefits in terms of the marginal differences in comparative advantage between different occupations for the same factors of production which result from the cyclical changes in relative prices and the lagged responses of supply are also likely to be very small.

All of these points are relevant to the merits and demerits of specific versus general-income-stabilization policies. But perhaps the most important argument relates to the questions of whether stabilization as such is a sufficiently important objective. If it should prove that an unstable national income were more conducive to growth than a smoothed income this would be a telling argument against either general or specific policies aimed at reducing fluctuations in national income. On this question we have no concrete evidence. General opinion among economists is probably against it, but it is not unreasonable to suppose that an export boom may trigger off many developments in the economy since it provides the finance and the optimism at the same time and may lead

individuals and companies to take risks which they would not undertake in the absence of these booms. Subsequent slumps may largely weed out the less efficient and less tough as well as the unlucky and thus allow still more progress in the next boom. Our finding of a significantly positive association between export instability and investment is at least consistent with this view of progress. At present it remains an open question. But, even though there is no readily available answer policy makers would be wise to note the possibility of conflict between the objectives of stability and growth. In specific countries there may be qualitative evidence on this point which could enable a reasonable assessment of the probabilities that national income smoothing should aid or retard growth.

Even if it were true that a relatively stable path of national income was conducive to activities which would lead to growth the possibility that the means adopted to achieve the smoothing process would themselves inhibit development remains as a highly disturbing question. It is certainly possible that either fiscal or monetary mechanisms used by governments to achieve a smoothed national income path would have disincentive impacts on work and saving in the private sector, might distort allocation of resources between different activities and might discourage entry into the market nexus. These possibilities have to be examined before any stabilization policy can be given a "clean bill of health." In the following sections we take up these points in discussing the fiscal and monetary techniques normally available to underdeveloped countries for countering fluctuations in national income. Fiscal and monetary policies, both from necessity and choice are normally operated together, but in our discussion we follow normal practice in splitting up the various

techniques and considering them separately under the two broad headings. Where necessary we shall point out the monetary corollaries of a fiscal maneuver and vice versa.

### Fiscal Policy

The definition of fiscal policy implicit in our discussion includes the use of variations in government expenditure as well as in tax revenues, as means of combatting fluctuations. Indeed, some debate does focus on which of these alternative methods of producing budget surpluses and deficits is likely to be the more effective in the context of underdeveloped countries' economies. We shall consider first the possibilities for gaining flexibility in the revenues of the government.

Assuming government expenditure to be held relatively constant around its trend values surpluses and deficits in the budget will be achieved by variations in revenue. In order to moderate fluctuations in national income it is necessary that revenues should change in the same direction as changes in gross national product, and preferably more than proportionally to them. This can be achieved either through changes in the rates of taxation or through the basic design of the tax system. Such design requires that the taxes yield revenues which are elastic with respect to changes in national income.

It may be possible to change tax rates simply by administrative fiat, but in many countries legislative enactment is a necessary requirement for tax changes. Even if it is only a decision by government officials which is required there is a strong likelihood of delay. The statistical information

required to make the decisions is inadequate, subject to serious time lags and large margins of error even in advanced countries with large statistical departments with great experience in collection and analysis of statistical data (cf. Morgenstern, 1963); how much more so in underdeveloped countries!

If the approval of the legislature is required before tax changes can be put into effect still more delay is involved. Even after the changes are made in the tax schedules there are normally considerable time lags before any appreciable change in tax revenues occurs. Given a chain of delays there are serious risks that the policies of the government, far from stabilizing the economy may exacerbate its tendencies to fluctuate. Like a clumsy crewman in a sailing dinghy whose slow reactions to changes in the thrust of the wind rock the boat violently or even capsize it so may lagged shifts in the budget unbalance the economy.

To avoid these practical obstacles to a smoothly adjusting policy a government may seek to devise automatic mechanisms whereby a rise in national income automatically increases tax revenues and a slump automatically lowers them. This requires a tax structure whose returns are elastic with respect to changes in national income. It is generally supposed that this is most readily achieved by a tax system which leans more heavily upon taxation of private and corporate income and less heavily upon taxes on wealth, e.g., land and property, or on poll taxes. Taxes on goods and services will respond, but normally the marginal increase in revenue from them is expected to be much less than the increase in income derived from their sale. The general recommendation for a tax system which would be highly sensitive to upward or downward changes in GNP is to have highly progressive income taxes on corporations

and individuals; to emphasise, within the field of indirect taxation, high rates of tax on goods which are in elastic demand with respect to changes in income and reduce emphasis on fixed taxes such as poll taxes, land taxes and property taxes, for they respond little to changes in income.

There are serious objections to such a tax structure: (1) if it works it is liable to violate other important canons of a good tax system in underdeveloped countries; (2) the probability of success simply as a stabilization device in the context of underdeveloped countries is low even if it is possible to set up the system; (3) the lack of good administrators, the low levels of income and the high level of illiteracy would rule out such a tax system in many underdeveloped countries. These objections overlap, but there may be different degrees of emphasis on them in different underdeveloped countries.

As we have stated repeatedly in this study, for most underdeveloped countries the most important objective of economic policy is growth. A highly progressive tax system may militate against this objective. Consider first taxes on firms' profits. These firms may be expatriate or indigenous. In most underdeveloped countries the largest of them will generally be foreign owned. Foreign firms' profits will normally be divided between repatriated moneys: dividends, interest, funds for reserve and purchases from abroad; and local investment expenditures. Highly progressive taxation of these foreign firms (at least once it has past the level of taxation in their home countries and ceases to be deductible under double-tax agreements, where these apply) is liable to discourage new firms from settling in the underdeveloped country and to discourage further investment by the existing firms. Given most underdeveloped countries' need for capital and the

technical and administrative techniques which often accompany foreign direct investment it would be a serious obstacle to growth if direct taxation were allowed to rise to a level which deterred foreign investment. Of course 'tax holidays' and other discriminatory incentives may be given for new investment, while taxing heavily the profits on existing investments. This however will do little to stabilize the internal economy. All it does is reduce the peak flows of remitted profits. This helps conserve foreign exchange in peak years, but makes no difference to the general level of demand within the economy. Indeed if it encourages foreign firms to switch profits into local investment in fixed capital or inventories in boom years to avoid incurring maximum tax liability it may increase internal instability by stabilizing the flow of repatriated income at the expense of destabilized expenditure within the underdeveloped country.

An increased tax burden on local firms would be liable to discourage new entrants into manufacturing or divert energies into tax avoidance and evasion with serious risks of corruption among tax officials. Evidence on the effects of income taxes on willingness to work, save and undertake risks even in rich industrial countries is inconclusive. However, it seems probable that it makes risk-taking less attractive since progressive taxes tend to bear more heavily on high profits without equal compensation for losses. Effects on willingness to work depend on the taxed persons's ability to substitute non-taxed activities for taxed ones. For most salaried employees this is usually not possible, but for many small businessmen and farmers subsistence farming and bartering activities may enable increased retained real income. For these people an increased reliance by the government upon income taxes may mean a reduction in

production and a distortion of resources towards activities which yield lower social returns. It is also generally believed that income and profits taxes discriminate against saving though this is debatable.

Another aspect of income taxes is that they tend to be relatively expensive taxes to collect. They require more bookkeeping and more administration than do most other taxes, so that it costs the economy more in terms of real resources for each dollar collected via income taxes than alternative systems of taxation. Moreover, there are greater time lags involved in their collection than for most other taxes. Normally they are paid in arrears and as we saw in our case studies more than a year can often elapse between incurring liability and actual payment of taxes.

In the area of taxation on goods and services it is possible to select those goods which tend to be sensitive to changes in income as the best subjects for taxes designed to stabilize GNP. However, just because they are goods for which demand is highly income elastic these are generally the main incentive goods in the economy. If taxation makes them too expensive for large groups of people the goods lose their role as targets which can be attained by a fair amount of hard work and thrift. Such an effect could form a serious brake on economic growth.

Depending on the nature of the products and the situation of the country high sales taxes on these "luxury" goods may lead to increases in smuggling (already a serious problem in many underdeveloped countries) with consequent loss of foreign exchange and tax revenues.

Many of these goods will in any case be imports. If the government taxes them too highly this can have allocational effects and inflationary effects. High customs duties form a protective barrier behind which local

firms may operate to produce substitutes which would be high cost and represent a distortion of the comparative cost structure of the economy. In so far as imports are reduced by high taxes demand from increased incomes will be directed to home produced goods. Unless the price elasticity of supply of these is high there is a strong likelihood of inflationary price increases in domestically produced food and other consumption goods. In general the expectation is that the elasticities of supply over the relevant time period will be fairly low. Consequently the risk that high taxes which deter imports should tend to have inflationary effects is quite high in many, if not most, underdeveloped countries.

From the viewpoint of allocative efficiency and rapid economic growth probably the least harmful taxes are those levied on land or property and poll taxes. They are more likely to increase effort because reduction of effort does not reduce liability to pay the tax and if a person is accustomed to a particular standard of living an unavoidable increase in tax may induce extra efforts to increase income in order to maintain living standards. Poll taxes can also force people who live on the fringes of the cash economy to earn cash to pay the taxes.

Not only are tax systems which place more stress on direct taxes of personal income and profits likely to violate the growth and efficiency criteria for tax policies but they are also likely to fail in their objective of producing a tax structure with a high income elasticity. Even in a country such as India which has very high standards of administration compared with most underdeveloped countries tax avoidance and evasion have been on such a scale that revenues derived from the

personal income tax have shown only a very low elasticity. Sahota (1961, pp. 42-51) estimates that the revenue from income tax at constant rates should have increased 1.8 times faster than national income over the period 1952-58 which he studied. In fact he estimates that it did not increase at all, but probably declined. This decline occurred even though there were small increases in the tax rates and income rose. He says that this cannot be accounted for by redistribution of income. Clearly the quality of tax administration and the dishonesty of the taxpayers have been the major causes of this. Particularly interesting in our context are his findings on yields from income tax during price fluctuations. When prices fell the yield fell just as much, but when prices rose it did not recover proportionately. Sahota estimates that tax evasion rose during that period so that the yield of the tax fell by nearly one-third. He has similar conclusions on corporate taxes. Corporate profits tax, net of rate changes, increased by only one per cent per year while over the same period industrial profits grew by 7.9 per cent, value added from manufacturing 6.6 per cent, and income in the urban sector by 3.3 per cent. Development rebates, depreciation and exemptions no doubt explain part of the discrepancy, but Sahota regards evasion as the main cause. The moral of his study seems to be that built-in-elasticity in the case of income and corporation taxes is likely to fail to work in most underdeveloped countries because increases in income and profits will simply not be reported by the majority of tax payers and the administrative machine is unlikely to be capable of enforcement. If we accept this as suggestive for the economies of most underdeveloped countries it would seem that built-in-stabilizers in the general body of the tax structure are a chimera not worthy of pursuit until many other changes and

and developments have occurred in their political and economic situations.

We have already covered most of the points relevant to our third major argument against the feasibility of built-in-elasticity in discussing the first two. However, in some countries it may be immediately apparent that little or no tax can be collected via income taxes on the clear evidence of illiteracy in the tax payers and lack of trained personnel in the revenue departments.

There are many other difficulties which face attempts by governments to use the general tax system as a balancing force in the economy. There may for example be strong political opposition to budget deficits from proponents of pre-Keynesian orthodoxy. This occurs in even the best educated circles and it does also occur in several underdeveloped countries. Perhaps a more general obstacle in underdeveloped countries however is the difficulty of achieving a budget surplus in the face of widespread demands for increased government expenditure. Many of these demands may be perfectly genuine, for extremely worthwhile social and economic projects, and may be argued forcefully by powerful ministers within the government. The finance minister may easily find himself in a position where it is extremely difficult for him to convince his colleagues of the risks that the country's present prosperity will probably be reversed in the near future. His position is likely to be impossible where an election is in the offing and any provident behaviour by the current government may result in substantial sums falling into the hands of a rival party who will gain the benefits and popularity of spending it. Only a very strong finance minister, backed by the head of the government or a few powerful colleagues is likely to be able to resist such pressures.

If surpluses cannot be created in good years it is highly probable that stabilization policy will be at best difficult and at worst impossible. Without the budget surpluses in good years to restrict home demand and cut down imports the deficits in bad years will set up a serious drain on foreign exchange reserves which is likely to become intolerable. When this occurs only a barrage of controls upon the use of foreign exchange can allow income support to continue at all. But these controls bring with them many problems. They demand administrative machinery which is often lacking. They create a market for illicitly obtained foreign goods or currencies. They distort patterns of demand and supply away from those most conducive to efficiency. They block up one safety valve ~~to~~ inflationary domestic price increases.

Without government reserves deficit finance may only be possible through printing money or borrowing from the central bank. Unless the credit of the government is good other private sources are liable to be unavailable. This may present difficulties in some underdeveloped countries where legal barriers to either of these policies exist. However, nowadays this is not a widespread difficulty.

A final question relevant to general tax policies is that even if they succeeded in maintaining national income in rough balance they could fail to alleviate the difficulties of the export sector. For example, a good harvest for food crops consumed internally would raise GNP, but the value of the export crop might be low for reasons external to the economy or for factors specific to its production. Then GNP might remain fairly stable while export producers' standard of living dropped sharply. For some countries the main reason for any stabilization policy may well be the

question of personal hardship for producers. Where this is the case evidently a more specific policy is appropriate.

These points sum up roughly the main pros and cons of general tax policy in dealing with instability. We should also discuss the parallel questions relating to government expenditures. It has been argued by some economists that expenditure policy can be more flexible, certain and rapid in its effects on the economy as a whole than can tax policy. (Higgins, 1959: pp. 564-68).

#### Expenditure Policy

Expenditure flexibility would seem to be subject to at least the same doubts as were posed in the case of tax flexibility, either through rate changes or built-in-elasticity. If decisions to change government expenditure are required from either the executive or the legislative or both, similar delays in putting the policies into effect are to be expected. It may be true that once the cuts or increases in government expenditure are made the effect on the general level of demand in the economy should be much more rapid than in the case of tax cuts where delay is imposed by the normal time lags which exist for many taxes between incurring liability to pay and actual payment. But just as great or even greater time lags may occur between the decision to increase or cut government expenditure and the actual change in it. In the best possible circumstances the government has a list of relatively small-scale projects which can be put into operation and which reach completion at fairly frequent intervals. However, unless the economy has a permanent reserve of unemployed labour it is

difficult to see where the labour will be drawn from to undertake the projects. A decline in the value of exports does not necessarily release labour. One can conceive of circumstances where in fact the producers of the exported commodities may even work harder in their own sector either because their supply of effort is backward sloping or because they have to grow more of their own food to compensate for the reduction in their cash income. To find the right kind of labour at the right time requires a mobility of labour<sup>2</sup> which is unlikely to exist in most underdeveloped countries. In addition it requires a corps of lower management and technical staff -- foremen, supervisors, surveyors, architects, engineers, etc. -- which exists in few underdeveloped countries and would be very expensive to maintain as a matter of policy. If the supervisory staff does not exist the series of development projects are liable to be very inefficient and very costly. Since cyclical unemployment is seldom an important feature of fluctuations in underdeveloped countries, 'make-work' projects have little justification. The cost in terms of sacrificed efficiency and growth would be too important for the possible benefits of increased stability.

In most cases it would probably yield greater benefits to underdeveloped countries to maintain a steady trend in government expenditure, particularly that part of expenditure which is on development projects. This should aid planning, increase confidence and lower costs. In construction projects in general, delays and difficulties in co-ordination are frequently the major reasons for final costs greatly exceeding planned costs. In our view anticyclical timing of public developmental expenditure is seldom likely to be a worthwhile objective of underdeveloped country government planning.

In very few underdeveloped countries have government transfers of

the social insurance, family allowance, pensions, unemployment benefits etc. type become important. Given the prevailing levels of per-capita income and the agricultural nature of their employment in most of Asia, Africa and the Near East, the vast majority of the citizens of underdeveloped countries are unlikely to live in countries which have any prospects of establishing such measures save in the distant future. Given these limiting factors there seem to be few possibilities for governments to attempt anticyclical variations in either current or capital expenditures with any hopes of worthwhile benefits to the stability and growth of the economy.

#### Monetary Policy

This is an area of economic policy in underdeveloped countries which has been very thoroughly discussed in the course of the 1950's. The staff of the IMF in particular have been prolific writers on the subject of central banking techniques in use in underdeveloped countries. The object of this section is to summarize the main points which emerge from these discussions and to consider the usefulness of monetary policy in combatting the effects of export instability.

The orthodox weapons of monetary policy are the discount rate and open-market operations. Changes in the first are intended to affect the cost of commercial bank borrowing from the central bank and through this the terms at which they are able to lend to their customers. The purchase or sale of government securities in open-market operations of the central bank are intended to lead to withdrawals from or additions to the cash reserves of the commercial banks and thus enforce reductions in their

liabilities or enable increases in their liabilities. Changes in the commercial banks' liabilities involve changes in the supply of money since the deposit liabilities of the commercial banks are the major component of the supply of money in the countries for which orthodox monetary policies were designed. There are certain essential preconditions for successful use of these devices. They include a commercial banking system which is in the habit of rediscounting bills at the central bank, a reasonably wide market for government securities including non-official buyers, banks which operate at or close to fairly rigid reserve requirements and without possibilities of resort to external sources of extra cash, and finally a substantial amount of local investment and consumption should be financed by commercial bank credit. In reality, the money markets of few underdeveloped countries meet all, or even any, of these requirements.

"Commercial banks in the majority of underdeveloped countries do not discount at or borrow from the central bank to any great extent or on a frequent and regular basis." (Exceptions to this rule are: S. Korea, Chile, Colombia, Paraguay, Guatemala, Costa Rica and Nicaragua).<sup>3</sup> A. Bloomfield goes on to say that in underdeveloped countries, "The evidence at hand does not suggest that (changes in discount rates) had any pronounced effects in the majority of cases upon the volume of commercial bank rediscounts and borrowings at the central bank, upon commercial bank loan rates or other market rates or upon the volume of commercial bank loans to their own customers. Even less does the unorganized sector of the money market appear to have been influenced by changes in central bank discount rates." (1956, p. 253).

As for the other prerequisites, in most underdeveloped countries

the market for government securities is so small that any sales sufficient to absorb bank liquidity would send security prices plunging down, inflict serious damage on investors' confidence and probably postpone prospects of creating a capital market for local funds indefinitely. Moreover, the banks in any case are very often in possession of considerable "free" reserves, i.e. reserves in excess of the legal conventional minimum requirements, which make it impossible for a central bank, limited to orthodox weapons, to enforce a contraction of credit. In many cases it would be possible for the banks to call upon head offices overseas or upon correspondent banks for cash reserves should they need them. This is true of the major banks in Africa, Asia, the Middle East and even in many Latin American countries. Finally, activities financed by commercial bank credit in many underdeveloped countries form a small proportion of GDP. Large sectors of agriculture for instance are often quite outside the money nexus. Even where money is in use credit seldom comes from the commercial banks. In most Asia and Africa most credit used in agricultural production comes from traders, money lenders, or cooperatives. These conditions, which exist in all but a few of the better-off Latin American countries, rule out orthodox central banking policy as a method of influencing the level of demand in these economies. The question remains whether unorthodox techniques can fare much better. The most general and most widely used of these is variation in the required reserves of the commercial banks.

#### Variable Reserve Requirements <sup>4</sup>

The existence of a fixed reserve requirement sets a limit to the secondary expansion of the money supply consequent upon a change in the cash base, or primary expansion. The latter, in the case which particularly interests us here, would stem from a balance of payments surplus which forces the central bank to pay out local currency for foreign exchange surrendered to it by exporters. An increase in the total reserve requirements of the banks can be made to absorb all of the secondary expansion and even, if sufficiently great, the primary expansion can potentially be offset by forcing a contraction in deposit money equal to the increases in currency. In the opposite case, a balance of payments deficit causes a reduction in the currency base as importers buy foreign exchange from the central bank with local currency. Then available reserve requirements can be lowered so as to prevent the banks from being forced to reduce their deposits when their cash reserves fall. But unless the banks are willing to expand loans at this time a reduction in reserve requirements can never offset the primary effect of the balance of payments deficit on the money supply.

Variable reserve requirements possess certain advantages over the orthodox controls. Their use avoids the need for close normal discounting and borrowing relationships between commercial and central banks. The technique circumvents the need for an operational security market. It is in principle quicker and more certain in its effects than open-market operations. Moreover, the measure can to some extent be made discriminatory. "A high reserve requirement means that, within the limits of any specified monetary expansion, the central bank can increase its

assets more, and commercial banks can increase their loans and investments less, than would be possible with a lower reserve requirement. In most countries, this will tend to divert credit from the private sector to the government sector since the central bank's domestic assets usually include a large proportion of loans to the government and government securities." (Goode and Thorne, 1959: p. 14). If the initiating force is a balance of payments surplus a high reserve ratio, by forcing the commercial banks to increase their deposits with the central bank enables it to increase its holdings of foreign securities which can subsequently be sold to help cover a balance of payments deficit. Finally, if required reserves can be met by prescribed assets other than cash, e.g. government securities or certain approved investments, the reserve requirement can be made discriminatory. The commercial banks are likely to take advantage of such means of making up their reserves as they yield some return compared with cash deposits at the central bank. The ability to discriminate not only allows the bank to influence the allocation of credit, but enables more severe general restriction without damaging priority investment. Variable reserve requirements can also be used to supplement as well as to replace orthodox measures. If the commercial banks possess excessive reserves and have no need to rediscount at the central bank a large increase in the requirement can force them "into the bank." They may have to rediscount some of their assets to obtain the cash to deposit with the central bank. Similarly, raising reserve requirements makes open-market operations more feasible since excess reserves can be eliminated by the more direct measure.

Naturally, as is the case with any policy measure, there are many

possible objections. It is a direct control and thus carries with it an element of arbitrariness which is more apparent, and to some, distasteful, than the more subtle control involved in the use of discount rate and open-market operations which work at least partly through the price mechanism. In the case of underdeveloped countries this is very readily answered. If control of the money supply is an important objective and orthodox techniques are useless then the only question is whether there are better techniques than this one. In fact most of the others involve much more direct intervention and more severe limits on the freedom of the banks to operate their business as they wish than does this measure. Moreover, if additional argument is required it can, as suggested above, be combined with the more flexible orthodox measures.

Another objection encountered is unfair discrimination. An increase in reserve requirements can involve several elements of discrimination. Firstly, it discriminates between commercial banks which because of the nature of their business or the timing of the measure have different liquidity ratios. These with lower than average ratios of reserves to assets will be more affected by the measure than are others. Secondly, non-bank and special bank sources of credit, if they are not included, are left free when the commercial banks' activities are restricted. Normally, savings banks, specialized banks such as development banks, agricultural banks, cooperative credit organizations, mortgage associations and hire-purchase concerns are not subjected to variations in reserve requirements. In a period of credit restriction they may gain customers whom the banks are forced to turn away. They may also weaken the effects of restrictive credit policies. A third form of discrimination is between

the private and public sector. It may be argued that use of high reserve requirements allows the public sector an unduly large share of credit at the expense of the private sector.

Discrimination between banks also applies to the effects of open-market operations. Either measure affects equally only banks which have the same liquidity position. Both measures, if they work at all, inflict more hardship on banks which are operating with lower cash ratios than most. These may be the very banks one would wish to encourage as being more active forces for development. However, the central bank can alleviate any serious inequities by rediscounting at a fair price assets of any banks which seem to have been hard hit by the measures to restrict credit. The second form of discrimination, between the banks and other credit sources, seems to be particularly resented when some commercial banks, small ones or the private banking section of the central bank, escape the need for the increased reserve ratio. This is easily remedied by extending the measure to cover all commercial banking institutions if this is administratively feasible. Opinions differ as to how much advantage would be gained by the other financial intermediaries during a credit squeeze and how far increased activities by them, especially mortgage and hire purchase concerns, would weaken the effects of restrictions on the commercial banks. But, on the whole, these questions are more relevant in the industrial countries than in underdeveloped countries at present, and even in the advanced countries a recent serious study concludes, "The tendency for non-bank intermediaries to usurp some of the payments functions of the commercial bank may reduce this latter's importance (but) it is not a significant factor from the angle of

short-period contra-cyclical policy." 5

It is true that raising reserve requirements may help to transfer resources from the private to the public sector, but would lack of this facility prevent the public sector from acquiring the resources? The probability is that if the government wants the resources it will obtain them anyway either tolerating the inflation which results or using other means to restrict private demand.

Possibly the most general answer to the criticism of discrimination is that while variable reserve requirements may indeed discriminate more than do orthodox monetary weapons, nevertheless they involve much less direct discrimination than say, detailed restrictions on bank lending which are the likely alternatives.

It is claimed that the use of marginal reserve requirements 6 against increases in commercial bank deposits avoids discrimination between banks. However, unless the controls are adjusted to the specific circumstances of individual banks they tend to discriminate against new, growing banks.

A further objection frequently raised is that increasing reserve requirements reduces the banks' profits. It generally means they have to cut down on their earning assets to make non-interest-bearing cash deposits at the central bank. Some central banks alleviate this by allowing them to hold interest-bearing government or central bank securities for some of their reserves. When reserve requirements are lowered the banks can increase their holdings of interest earning assets. Provided that the average level of the reserve requirements over booms and slumps is no higher than the banks would have held anyway in the interests of financial

prudence they should suffer little hardship.

There are, no doubt, some administrative problems as compared with the use of discount rate and open-market operations, but the viable alternatives almost certainly involve more detailed regulation of commercial bank activities and would involve more administrative problems than do variations in reserve requirements.

#### Effectiveness of Reserve Requirements

Most of these objections are fairly trivial. What really matters is whether variations in reserve requirements can in the real world of politics and business be made to influence the supply of money and whether this in turn can exert significant influence on the general level of demand in the economies of underdeveloped countries. Bloomfield comments, "Experience with these devices, especially in Mexico and Colombia which have made most use of them, has indicated their considerable potentialities as control instruments, although in some cases their effectiveness has been hampered by the tendency of the banks to hold large excess reserves." (1956, p.256) There is a delicious hint of musical comedy in the concluding sentence of a recent IMF article, "It is convenient to have all banks report on the same day to prevent the shifting of reserves from bank to bank as a means of circumventing reserve requirements." (Goode and Thorne, 1959, p. 43).

Several factors in the situation of underdeveloped countries weaken the effectiveness of variable reserve requirements. Many, indeed most, of the banks have very high ratios of reserves to assets. This is particularly true of the large expatriate banks. Moreover, they have immense resources

abroad. If they particularly wished to expand loans and advances at a time of high reserve requirements they could bring in extra cash to do so. Some indigenous banks may be less strong hence an overall increase in reserve requirements would probably discriminate against the very institutions most nationalist governments wish to foster. But to favour them might lead to friction with the powerful foreign banks. The existence of "free reserves," particularly where this free reserve ratio is unstable as it characteristically is in underdeveloped countries (Ahrens Dorf and Kanesathasan, 1960:p.126-49), and unwillingness to antagonise the commercial banks set severe limits on the usefulness of the technique. In many countries the powers to vary reserve requirements have been on the statute book for years without the central bank making use of them. A. K. Cairncross comments, "It has proved easier to reduce reserve requirements, in peace time at least, than to increase them; an increase may present difficulties either because it shatters the bond market or because of evident unfairness to particular banks." (1962, p. 164) Thus, while variable reserve requirements are probably the most powerful general instrument for control over the money supply in underdeveloped countries there are many limitations on its usefulness. This probably makes it desirable in many underdeveloped countries to supplement this measure with more direct controls on banking.

#### Advance Deposits on Imports

Indonesia, the Philippines, Pakistan and several Latin American countries have made use of a technique forcing intending purchasers of imports to make a prior deposit of cash with the central bank before

receiving a licence to import the desired goods. This measure has certain attractions as a short-term expedient in an inflationary situation. To the extent that it deters potential importers, either because of the difficulty or cost of obtaining the cash for the deposit, it saves foreign exchange, but at some cost in terms of further increases in domestic prices. If importers are not to be put off the deposit requirement drains some cash out of circulation and reduces bank reserves by the amounts deposited with the central bank. This is a fairly temporary, once for all time, benefit merely pushing forward in time the cash drain which would in any case occur when the imports were paid for.

I. G. Patel (1954: pp. 81-82) argues that the effect will be felt more on the general money supply than on the demand for imports. He thinks that the additional interest cost involved in borrowing for this purpose is likely to be a minor deterrent in an inflationary situation. Although the banks have an incentive to avoid lending for prior deposit on imports they are not able to determine precisely the purposes to which their loans are put. As they lend for prior deposits their reserves will be depleted checking their ability to expand credit, always provided that they do not have sufficient excess reserves to render the whole measure impotent.

In the context of inflationary pressure produced by an upsurge in the value of exports and a balance of payments surplus the most beneficial effect would be achieved if the measure's effects were general. If it served merely to reduce imports this would add to internal instability by increasing the pressure of demand for local goods which are generally in inelastic supply. This would tend to push up domestic prices. Assuming

that the reserve position of the commercial banks is sensitive the likelihood that the effect will be general or specifically on imports depends mainly on the ability of the commercial banks to discriminate between loans for import financing and loans for other purposes. However, if the desired effect is general credit restriction this measure has no evident advantage over variable reserve requirements, contains some of the same elements of discrimination, in addition interferes with banks' choice of assets and inflicts more hardship on those banks which normally have greater dealings with importers. B. Higgins claims that in Indonesia the system of advance payments for foreign exchange and for import surcharges withdrew large rupiah sums from the money supply. But he acknowledges that these may have been met from idle deposits and he gives no evidence that this measure effectively reduced monetary demand.<sup>7</sup> J. Ahrens Dorf is skeptical. He says:

" In Indonesia, Nicaragua and Paraguay, the central bank attempted to counteract increases in monetary liabilities by imposing or raising advance deposit requirements for importers... The restrictive effects of these requirements were, however, only temporary, as might be expected in view of the limitations of this device, which by its nature can scarcely be more than a stopgap." (1959,p.283)

If it does succeed in reducing imports this measure has further definite limitations for it may react adversely in output and employment in industries which are dependent on imported raw materials and capital equipment. For such reasons the central banks in all three of these

countries relaxed these measures shortly after their imposition.

(Ahrens Dorf, 1959: p. 283).

The main occasion, relevant to our purposes, for which advance deposit requirements might be a useful ancillary measure is where a country, faced by a decline in exports and unsure of its ability to finance a balance of payments deficit from reserves or foreign borrowing, seeks to combine income support with restrictions on imports. Here the instrument probably possesses certain advantages over import quotas or increased tariffs since it can be put into effect at very short notice if it is provided in the statutory powers of the central bank. Such general credit restriction effect as it might have here could be offset by easy rediscounting by the central bank and reductions in reserve requirements.

#### Credit Ceilings

If the methods, enumerated so far, which operate on the reserves of the banks cannot be made effective, attempts to limit the total assets or particular assets of the banks may be a possible way to reduce the supply of money. However, ceilings on total bank assets are generally felt to be too restrictive and as yet have not figured in any stabilization program. But in a number of countries ceilings have been set on credits to specific activities in the economy. ("Moral suasion" may be regarded as a special case of credit ceilings.) If effective, this would usually restrain credit to the private sector. If there were an expansion in the money base from a balance of payments surplus a ceiling on claims against the private sector should prevent a secondary expansion of the money supply.

Within private sector loans it may be felt desirable to limit loans for particular purposes. In an inflationary context investment in stocks and in construction become attractive, but in a sense antisocial since they increase demand without making any contribution in the current period to increased output. Consequently they tend to add to price inflation. For these reasons, or because some investments are contrary to the government's views of correct investment allocation, selective credit ceilings may be used. They can prevent some of the undesired effects of the inflation and, to the extent that the investments deterred are particularly inflationary, they help dampen the inflationary pressure. Eduardo Laso (1958: pp.436-7) claims some success for such controls in Costa Rica in the early nineteen fifties, but another International Monetary Fund study, by G.S. Dorrance and W. H. White (1962, p. 326) is severely critical of these instruments. They say:

"Insofar as they are not associated with other restrictions on monetary expansion, they may be expected to have little effect on the total volume of credit, and hence on the general pressure toward inflation. The basic reason for this ineffectiveness is that even in countries that are not highly developed, 'there is an underlying unity in the market for loanable funds.' If one type of lending is cut back, lenders will turn to other borrowers. If one source of borrowing is restricted, borrowers will obtain the funds they desire from other sources, or will change the stated purpose of their borrowing." 8

Where entrepreneurs typically engage in a variety of activities the difficulty of selective credit control is immensely increased. A general objection raised by Dorrance and White is the interference with competition. They maintain that ceilings would have to be imposed on each banking institution and that this would tend to maintain the status quo, encouraging rigidity rather than flexibility in the economy. However, if the restrictions are only as a short-term measure this objection loses much of its force. The general conclusion of Dorrance and White is that credit ceilings are for emergency use only.

Clearly the more specific controls are, the more administration is required. But in underdeveloped countries administrative talent is a very scarce resource. This implies that the more reliance is placed on selective controls the more costly in terms of skilled personnel an effective policy will be. If the administrative talent is not devoted to the policy the more costly it will be in terms of wrong selection of objects for control and ineffective enforcement. Secondly, if inflation is persistent these specific measures will in general be insufficient. More loopholes will be found in the regulations and some, such as prior deposit requirements on imports are merely of a once-for-all nature. General measures to reduce the liquidity position of the banks will be necessary. But thirdly, within limits, selective credit controls can, in principle at least, and in many countries probably also in practice, achieve desired objectives such as temporarily limiting imports and inventory accumulation.

## Political and Institutional Limitations

One hard reality which has to be faced by central banks is that if they are to be effective agencies for the control of the supply of money they are likely to be very unpopular. This political fact of life is probably the major reason for the relative ineffectiveness of central banking policies in most underdeveloped countries, particularly in Latin America. In many cases they are relatively new institutions. They have yet to build up the respect necessary for acceptance of their views on credit and the state of the economy. They are particularly vulnerable in underdeveloped countries to criticism which claims that their attempts to restrain demand stifle economic progress by preventing "productive" investments, or that restrictions will hurt mainly national but not foreign banks and businesses. Few central banks have proved willing to jeopardize their status and prestige by taking a tough line in these situations.

In addition there may be actual legal barriers to certain types of credit restriction. For example, in Nicaragua there is a legal requirement to provide unlimited credit to agricultural borrowers as long as they have acceptable collateral. Central banks have to combat widespread belief (which they sometimes appear to hold themselves) in the "needs of trade" doctrine of finance. Particularly in Indonesia accepted theory seems to hold that "productive" investment is not inflationary. There is apparently no recognition of the implications of the time lag between the increase in demand due to the investment and the eventual increase in supply of output which it subsequently facilitates. It is obviously very hard in countries

which are struggling to increase the rate of growth to adopt policies which may cause some loss of output. Even if they might make growth faster in the long run this is not generally recognized or the future is heavily discounted.<sup>9</sup>

### Conclusions on Monetary Policy

Central banks in underdeveloped countries are now, in general, equipped with a full arsenal of weapons for dealing with short-term cyclical instability. That these weapons are potentially powerful is clear from their successful operation in an advanced dependent economy such as Australia. David Rowan (1954) shows that the Commonwealth Bank of Australia played an important part in stabilizing the Australian economy in the face of the wool export boom and subsequent slump of 1948-52. But several factors place serious limitations on the usefulness of central bank action in the environment offered by the great majority of underdeveloped countries. These factors may be summarised as the small size of bank finance in the total economy, the possession of "excess" reserves and access to overseas funds on the part of many of the largest commercial banks, shortage of administrative talent and the relative weakness of the new central banks in a rather hostile setting where they dare not take unpopular actions for fear they lose whatever influence they may at present possess.

From their study of British Colonial Africa, W. Newlyn and D. Rowan (1954, p. 271) conclude, "In territories which are highly economically dependent and financially underdeveloped, the view that a central bank can

promote economic stability by monetary management is to put matters tersely nothing but an illusion." Their view is largely confirmed by a more detailed study of East Africa by D. C. Mead (1963, pp. 92-97) who finds that interrelationships between monetary variables and expenditures flows "are not of great importance in the East African context," and that the prospects for effective central bank action to stabilize the internal economy are poor.

A revealing comparison with Rowan's description of the success of Australia's monetary policies is the experience of Ceylon over roughly the same period. H. A. de S. Gunasekera (1954, p. 156) concludes an analysis of the role of the Central Bank of Ceylon in the boom and slump in exports 1950-53 with these remarks:

"No doubt the Central Bank can within limits prevent an excessive contraction or expansion of credit. It can prevent a 'non-essential or speculative expansion of credit' and the financing of mushroom adventures. It can contribute towards healthy banking practices by bank supervision. It can advise the government on financial and economic matters. In all these fields it can achieve a lot. But in the major tasks of central banking -- the stabilisation of incomes, prices and money supply -- it fares very badly. This is the lesson of recent experience." (italics mine)

## Internal and External Stability

The preceding discussion has concentrated upon the advantages and disadvantages of various stabilisation techniques which fall within the general headings of fiscal and monetary policy. Some political and institutional factors which are characteristic of many underdeveloped countries have been described as limitations upon effective general policies for stabilisation. Now we discuss a little more fully a question we have touched on earlier -- the question of reconciling policies for internal stability with the maintenance of balance of payments stability.

Most economists seem to agree that the marginal propensity to import, in the absence of restrictions, tends on the average to be higher in underdeveloped countries than in rich industrial countries. If this is so, and if the initiating cause of instability is a change in exports then this high marginal propensity to import forms a powerful stabiliser acting on both the balance of payments and on the level of demand in the economy. (See Chapter 3) It reduces the secondary effects on both incomes and the money supply of the change in exports. Unfortunately, however, there are at least two possible defects. The change in imports may be lagged by too long a period to be tolerated and it may not be symmetrical for increases and decreases in national income. If there is a long lapse of time, nine months or a year, between the response of imports and the initiating change in exports there will be an increase or decrease in domestic incomes and an addition to or subtraction from the reserves of the banking system. At the

same time there will be a surplus or deficit on the balance of payments (assuming no change in other sectors of the balance of payments). A balance of payments surplus is not particularly worrying in an underdeveloped country context unless it gives rise to internal inflation. As long as the supply of imports is elastic this danger is slight. A deficit may cause problems if the country has insufficient foreign exchange reserves or cannot find willing foreign lenders of short-term finance to pay for the excess imports and to avoid crises of confidence in the stability of the exchange rate which could cause capital flight. The deficit will cause a reduction of bank reserves as customers draw down their deposits to purchase foreign exchange to pay for imports ordered previously. Whether this will cause secondary contractions of the money supply depends on the policies of the commercial banks and of the central bank, if it can intervene effectively.

The dilemma which arises from the viewpoint of economic policy is that an attempt to offset any internal contraction of demand will tend to delay the adjustment of imports to the new export level and thus maintain the decline in foreign-exchange reserves. In theory there are many possible solutions. One is simply to let the exchange rate fluctuate. This will increase the returns to exporters in domestic currency, but because of inelastic supplies of exports is unlikely to increase earnings of foreign exchange significantly. Depreciation of the exchange rate also raises the cost of imports and increases the attractions of import substitution. Here there should be some effect, but it is unlikely to be very substantial in the short-run. Import orders may have already been placed and may be difficult to cancel and the short-run price elasticity of demand for imports

may be very low. Moreover the fall in exporters' incomes is partially offset by the depreciation of the exchange rate since it raises their money income in terms of local currency and this may support their demand for imports. Production of import replacements is likely to be very inelastic in the short-run and would normally require imports of capital goods and new materials in any case. Consequently, the likelihood of devaluation correcting the balance of payments deficit arising from a fluctuation in exports is low, at least until sufficient time has elapsed for adjustments to take place in the supply of exportables and import-competing products. On the other hand, the devaluation assists in the maintenance of exporters' incomes in money terms and in real terms in so far as they buy locally produced goods, unless the prices of these goods increase by as much as the increase in exporters' money incomes.

Another possible policy for combining internal income support with measures to reduce the deficit is to impose controls or raise taxes on imports. The imposition of controls on imports suffers from many defects, particularly in underdeveloped countries. First, it requires diagnosis of the problem and then probably legislative or at least administrative approval. This involves delay. Once in force import controls tend to cause serious discrimination, inequities and a powerful inducement to corruption. Those firms which succeed in obtaining imports can make large profits since imports are made scarce in relation to domestic demand. If the restricted imports are raw materials or capital goods they form a subsidy to those firms which obtain licenses for them. There is no reason to suppose that they will be the most efficient firms. They may

simply be the luckiest or the ones with the ear of a minister or civil servant. It is possible to avoid some of these difficulties by such devices as auctioning import licenses or quantities of foreign exchange to the highest bidder, but few countries have made use of them. There are risks in these too for if the market for foreign exchange is small and the number of firms in it few they may form a buying ring, hold down the price of foreign exchange and make monopoly profits on the sale of the scarce imports.

Increasing import taxation is probably subject to the same delays, but avoids the rationing problems involved in import controls. However, increasing either controls or taxes on imports creates risks of smuggling and tends to raise domestic prices and to stimulate uncompetitive import replacement industries which will later prevent reduction of the import duties or involve straight subsidies. The alternative of allowing them to die tends to be politically very unattractive to most governments.

Even if a country is relatively short of reserves it should in general be possible to adopt a policy of domestic income support with the aid of short-term finance from the International Monetary Fund. In recent years it has frequently allowed stand-by credits and use of quotas for this purpose. In recent publications it has made clear that requests for drawings within the "gold tranche" and first credit tranche will be treated very liberally when required for financing a balance of payments deficit due to a decline in export proceeds. Further sums can be made available after discussions of remedial policies and approval by the Fund of the policy intentions of the government.<sup>10</sup> This method has the defect of involving some interference from foreign experts. But the only

likely cause of a difference on policy here would be a different view on the probable trend in exports, e.g., if the Fund thought the current drop indicated the future course of the country's exports rather than a temporary aberration, but it seems improbable that the Fund experts would take such a view without good evidence.

Such a policy of foreign borrowing in deficit years would involve repayment in the following years with larger repayments in years of surplus over trend so that this might be regarded as a stabilisation policy on the installment credit system. It is probably rather easier for a government than the puritan system of saving foreign exchange in surplus years to support imports in deficit years. The policy of requiring prior deposits against imports may be a useful auxiliary measure since it can be brought into operation quickly and operates in advance rather than in arrears as is often the case with tax policies. If it is effective it may reduce the balance of payments deficit a little and in the best possible case the general credit restriction effected by the withdrawal of cash from the bank reserves will more than offset the effect of diverting demand towards import substitutes.

#### General Conclusions

As we have pointed out repeatedly the circumstances of underdeveloped countries vary enormously. Few would expect policies suitable for a country like Brazil to fit the context of a country like Uganda. However, we are at least considering a limited problem -- methods for dealing with the internal effects of export instability. For most underdeveloped countries

our inquiry indicates that these effects are relatively minor. Since other objectives, such as more rapid growth of per-capita income are paramount great care has to be taken to ensure that policy measures designed to alleviate the lesser problem do not handicap the economy in attaining the more important goal. For this reason after examining the arguments of Nurkse and the feasible general fiscal and monetary weapons available our view is that most underdeveloped countries would be well advised to avoid ambitious stabilization policies. The existence of a high marginal propensity to import and of a large internal cash drain<sup>11</sup> which are typical phenomena in underdeveloped countries greatly reduces the second stage expansionary or contractionary effects of balance of payments surpluses and deficits. The addition to these natural built-in-stabilizers of designed stabilizers in the form of ad valorem taxes on exports (if necessary on a sliding scale basis) and imports should be sufficient to smooth out most export fluctuations.<sup>12</sup> If the general trend of exports is upwards such policies are fairly easy to operate and the country can amass sufficient reserves to carry it over temporary balance of payments deficits. If the trend is down the government has to be more prudent and will have less leeway for errors. The vital point for these measures is that government expenditure should be determined only by the trend in revenues, not by the current revenues of the government.

Footnotes to Chapter 11

1. If the diminishing marginal utility of income is a real phenomenon to producers then smoothing out the bumps may actually increase the utility of the income stream.

2. Migrant labour in Africa may give this flexibility in some agricultural activities. (Berg, 1963)

3. Arthur Bloomfield, 1956: p. 241.

4. Most of the information in this section is drawn from Goode and Thorne, 1959.

5. Clayton, 1962: p. 886. The question is not quite irrelevant to underdeveloped countries. "At least three underdeveloped countries -- Chile, Peru and the Federation of Rhodesia and Nyasaland -- have introduced controls over instalment credit terms." Cairncross, 1962: p. 166.

6. Marginal reserve requirements have been used in Mexico, Peru and India among others. Australia relies solely on a very similar system. It may be regarded as the ultimate in discrimination since the Australian "special accounts" involve a separate reserve ratio for each bank.

7. B. Higgins, 1959: pp. 562-3. Actually the largest of the banks in Indonesia were expatriate concerns with access to large reserves abroad

which makes it likely that the banks' compliance with the government's wishes could not be forced by this measure though they may have complied for other reasons such as maintenance of goodwill.

8. The internal quotation is from Committee on the Working of the Monetary System, (Radcliffe Report) Cmnd. 827, London 1959, p. 108.

9. For a more detailed discussion of reasons for the lack of firm action by central banks in underdeveloped countries see Ahrens Dorf, 1959: pp. 295-99.

10. IMF, 1963: pp. 10-11. This assumes the decline is due to a decline in world prices or a bad harvest and is not due to domestic inflation or stockpiling of exportable goods. The Fund's policies will be discussed more fully in Chapter 3, "International Compensatory Finance."

11. Many residents prefer cash to bank deposits hence the expansionary effect of a primary increase in the money supply is greatly reduced.

12. Many countries did succeed in reducing the impact of even the Korean Boom in their exports by means of export taxation.

## Chapter 12

### International Commodity Agreements

Current interest in International Commodity Agreements (ICA's) is very high. Two main causes of the recent heightened interest lie in the decline in the prices of the commodity exports of underdeveloped countries over the last ten years and in the problems arising from economic integration in Europe. Both of these give rise mainly to schemes for price support or market rationalisation rather than for the moderation of short-term fluctuations which is our main concern. In fact most recent discussions of ICA's seem to view their main role as that of supporting commodity prices at levels higher than they would receive in an open world market.<sup>1</sup> They thus become a form of economic aid which transfers resources via higher prices from consumers to producers. We postpone discussion of this form of ICA to the second section of this chapter.

#### ICA's Combat Short-Term Instability

Most ICA's have as one important aim moderation of fluctuations in commodity prices. Some also attempt to influence export incomes. Our main concern is with possible damage which export instability may inflict on underdeveloped economies. Consequently, it is important to have some idea of how far policies which limit fluctuations in commodity prices are likely to reduce fluctuations in the export incomes of commodity exporting underdeveloped countries, both individually and collectively. The latter

represents one motive for the industrial nations' concern with ICA's. Although underdeveloped country export instability is often regarded as largely a function of fluctuations in the rich industrial countries there could be feedback effects through sympathetic fluctuations in underdeveloped countries' demand for imports from industrial nations.

Most ICA's make price stabilization their direct aim. However, the methods adopted usually also involve some stabilization of the quantities exported, e.g., under quota provisions or contracts for specified purchases and sales. They should thus exert a stabilising influence upon underdeveloped country proceeds through stabilising both prices and quantities. International buffer stocks schemes, on the other hand, may destabilize export proceeds by holding price movements within relatively narrow limits when fluctuations in quantities exported cause the instability. Whether such an effect is likely depends on the relative price elasticities of supply and demand.<sup>2</sup> However, even where conditions are such that short-term fluctuations in total value are increased, price stabilization might pay off in the longer run in terms of modified quantity fluctuations. For example, if current outputs are influenced by prices attained several years earlier, production intentions would gradually be stabilized by reductions in price fluctuations. Stabilization of prices should also remove most of the incentives for speculative stock adjustments and thus modify one source of instability in commodity markets. Moreover, if fluctuations stem from changes in demand a stabilized price will limit the fall or increase in earnings to an amount proportionate to the fall in the quantity demanded. If price were left free to fluctuate its effects on earnings would be additional to the changes in quantity (assuming an inelastic demand and supply which seems realistic in

the relevant short-term time period). Consequently, it appears reasonable to suppose that while price stabilization will not remove all earnings' instability it will probably remove more than appeared likely from our statistical evidence on the causes of export instability (Chapter 2).

Moderation of fluctuations in price alone should reduce fluctuations in the total value of world exports of the commodities involved. Fluctuations in the value of any one country's exports should also be moderated whether the quantity of the commodities they export varies in line with the world totals or not. Naturally, since the probabilities are that quantity variations will be proportionately greater for any individual country than for the world as a whole, export proceeds from individual underdeveloped countries will be stabilized less than the value of world sales of the commodity.

Given that ICA's can reduce instability in world prices and total proceeds of commodities, the significance of their effect on underdeveloped countries depends on the number and importance in underdeveloped countries' exports of the commodities which are subject to their control. At present these are very few: tin, wheat, sugar and coffee. Out of these wheat is almost entirely exported by the rich countries, the Sugar Agreement has been disrupted by the Castro take over in Cuba, the Tin Agreement has run out of stocks or funds twice and the Coffee Agreement is a new venture and as yet untried.

It is not without significance that, despite all the advocacy of ICA's in UN and other official writings, up to date only these four agreements have been formed in the post-World War II era.<sup>3</sup> (The Olive Oil Agreement does not affect prices or quantities.) There are probably many

reasons for this: some political, some technical. To assess the difficulties which have stood in their way and to give criteria for judging schemes which have existed, are operating or proposed, it may be worthwhile considering some principles or guidelines for ICA's. Numerous groups of experts and individual scholars have already set out lengthy lists of such principles. However, if moderation of fluctuations in exporting countries' earnings from commodity exports without causing serious divergence between long-run demand and supply is treated as their sole objective many of their statements become superfluous. With this limited objective the following fairly simple set of rules and preconditions probably covers most contingencies.

#### Guidelines for ICA's

1. Both the main producing and the main consuming countries should be represented in the negotiations and operation of the agreement. There are at least three reasons for this: (a) to avoid bias against either producing or consuming countries the rights of both can best be protected by including them in the ICA; (b) to facilitate enforcement of the rules upon producing countries through obtaining the co-operation of the importing countries; (c) to prevent exploitation of the agreement by non-member nations.

2. Products selected should be more unstable than average, form a significant part of world trade or be very important in the trade of particular countries and be technically feasible objects of an ICA. The latter point involves thorough study, for the problems of regulation are often very complex and the potential side effects difficult to foresee. The most commonly discussed commodity markets are much more intricate than is

usually recognized. The Director of the Stanford University Food Research Institute has said, "What we call simply wheat, coffee, tin, wool or cotton is not a homogeneous commodity but a complex of commodities differing greatly in value; what is called the 'world price' is not a point but a range; and the 'geographical structure' of prices is fluid, not static, even in the absence of important governmental interventions." (Davis, 1947: p.32)

Accurate statistical information and the best possible estimates of future demands and supplies are essential to the success of ICA's. Without such guidance schemes tend to make serious errors whose costs may be very inadequately measured by the direct financial losses involved. To ensure constant maintenance of close contact with underlying trends in supply and demand requires frequent revision of quotas, stock policies and contracts.

3. The national policies of the members must be consistent with the operations of the schemes. If export quotas are exceeded by production it must be clear that this is not because of direct or indirect government subsidies to producers.

4. The agreements should not frustrate increases in productivity, bar new entrants or prevent expansion and contraction of efficient and inefficient producers. This involves frequent revision of quotas or contracts. It may be advisable to utilize some mechanism which would partly insulate such revisions from the area of political controversy.

5. An additional safeguard against abuse of ICA's is representation of some of the relevant international organizations: FAO, GATT or IMF. They can fulfill some of the functions of independent arbitrators in the bargaining situation which inevitably tends to arise in determining policies.

## The Main Features and Modes of Operation of ICA'S

### Buffer Stocks

Probably the most widely advocated measure for stabilizing commodity markets is the International Buffer Stock.<sup>4</sup> Such a scheme involves fixing a price range within which commodity prices are left free to vary, and which is maintained by the stock agency's purchases and sales. When price falls to the lower limit the agency stands ready to buy the excess supplies at the floor price. Provided the agency has sufficient funds price can be held at the lower limit by purchases for stock. If the price rises above the upper limit the agency sells the commodity from its stocks at the ceiling price and so long as its stocks last the price can be held at or below the ceiling. The effectiveness of the scheme in reducing fluctuations in exporting countries' export prices depends on the relative size of the gap between the ceiling and the floor price and the ability of the agency to defend these. This latter in turn depends on the resources of the scheme in the form of stocks of the desired types and qualities of the commodity and cash. Contact with long-run trends in demand and supply can theoretically be maintained either through periodic re-negotiation of floor and ceiling prices or through initial agreement on some formula for automatic adjustment of these prices.

In principle such a scheme possesses great merits. It interferes as little as possible with the free workings of the price mechanism as an allocative influence on producers and consumers. Moreover, when it does interfere it does so minimally, avoiding such distasteful if not tragic features of some agreements, as destruction of crops or restriction of

output. It allows free entry and exit to and from the industry, thus enabling the more efficient producers to grow and the less efficient to decline. These features make it as nearly possible a neutral influence on the efficiency of the industry and in most cases this is likely to be optimal.<sup>5</sup>

There are certain important disadvantages attached to international buffer stocks. All ICA's are likely to involve lengthy and difficult discussions both in setting them up and in subsequent renegotiations of the terms. Certain features of buffer stocks however may make negotiations of this type of agreement peculiarly difficult. The main one is the cost involved. If the scheme is to make a significant reduction in price instability the range of price movements must be kept fairly narrow. But if stabilization within these limits is to be maintained by purchases and sales of the commodity by the agency it must be given a very large initial fund or stock. For natural rubber alone a relatively modest stock of 200,000 metric tons would represent an investment of around \$ 100,000,000 at current prices. Admittedly the true cost in terms of world resources may be substantially less since privately held stocks may be reduced as their role is partly usurped by the international stock, but someone still has to put up the money and the United States traditionally looks askance at international buffer-stock policies. The question of who should provide the substantial sums involved is likely to be vexed.

Further difficulties arise from the need to confine the scheme to commodities which can be stored without serious deterioration and at relatively low cost. This eliminates most fruits because of their perishability and petroleum because of its bulk.

The lack of homogeneity which in fact characterizes most primary commodities forms another technical problem. There are in general several different markets and many grades for each commodity. This would seldom be very important if the price differentials between them remained fairly constant and if the geographically separated markets moved in close harmony. Unfortunately neither of these possibilities is supported by the facts. According to Davis (1957, p. 32), "The experience of the Canadian Wheat Board and the Federal Farm Board and Commodity Credit Corporation in the United States has shown that price differentials for type, quality, and location normally vary considerably, and that fixed differentials often lead to unexpected and undesirable results." With some goods the diversity of experience of the grades may be so great that for practical purposes the different grades should be treated as separate commodities.

A further technical difficulty lies in the possibility that instead of eliminating speculation the scheme stimulates it by providing a one-way-option which presents the speculator with the possibility of great gains and negligible risk of loss. This is analogous to the debate on free versus pegged exchange rates.<sup>6</sup> If, for example, the speculator suspects the ability of the scheme to hold the price of the commodity at the ceiling because of suspicion that the stock is too small the speculator will buy as much of the commodity as he can obtain at the ceiling price. If the forward market is also controlled he can buy there on relatively small margins. These activities actually make the buffer stock's position worse and may generate a cumulative pressure as more and more speculators and ordinary businessmen, anxious to secure their raw materials at the lowest prices, become convinced that the agency's stock will be exhausted. If the

agency has to stop sales because of its depleted stocks the prices will shoot up and the speculators can then unload quickly at a large profit. Even if the speculators have guessed wrongly the most they can lose is the full amount of the gap between the agency's buying and selling prices and this would be exceptional. Equally, speculators can take a "bearish" attitude if they consider the funds of the agency insufficient to absorb an excess supply of the commodity.

These risks of speculation make it essential that the management of the agency have large resources and be left a fair amount of discretion as to stock operations. If they are free to buy and sell within fairly wide limits and have sufficient resources they can inflict losses on speculators and greatly increase the risks involved in such antisocial activity, but this makes for additional complications in buffer-stock policies. To avoid error in judgment of long-run trends is made even more difficult if the management has to conceal its policies from the public and constantly change the floor and ceiling prices which it is prepared to defend. But the difficulty should not be exaggerated. After all, exchange equalization accounts have had a fair amount of experience in such activities. However, it does mean that a buffer-stock policy requires a heavy initial investment at a time when underdeveloped countries are crying out for capital for long-term investments within their economies. Moreover, there is a strong element of risk. The future is so uncertain that even the most expert management can make costly errors of judgment resulting in accumulation of stocks at what turn out to be relatively high prices and the subsequent unloading of the commodities at a loss.

Boris Swerling comments on these risks, "'Secular changes' in supply

or demand of particular commodities have long-run effects, but can take place with shocking rapidity...Shifts between different producing regions may be equally spectacular and disturbing. Operation by a buffer-stock agency may not merely impede adjustment; there is also a serious risk that the agency will in the course of time find itself saddled with obsolescent commodities or obsolete grades." <sup>7</sup>

Another point made by Swerling concerns the possible effect of the policy on the trend in supply. He suggests that elimination of short-term instability may reduce desirable short-term supply responses from existing capacity, but tends to cause a secular increase in capacity. (1953, pp.781-82) This must be based on the assumption that producers will tend on the average to increase capacity more with relatively stable prices than with more widely fluctuating prices. We have discussed this point before. <sup>8</sup> There seems to be no clear evidence on producers' reactions to such policies, and no convincing reasons for expecting increased rather than stable or decreased capacity to be the result of more stable prices.

Strategic considerations may affect the choice of location of stocks and may conflict with economic criteria. This may increase the range of bargaining discussions and result either in inefficient location or costly duplication of the international stock by national stocks felt to be essential for strategic reasons.

Most of the points which we have listed may be regarded as technical, but in fact ICA's belong in the field of political economy not technical economics and in the real world it is seldom likely that the basic price targets for a buffer stock would approximate closely to the technical optimum for they are the result of bargaining and only by chance would they

coincide. But if the basic price range does not balance long-run supply and demand, the buffer policy will inevitably run into difficulties. Then either the agreement must be abandoned and price allowed to find its equilibrium level or the principles abandoned and direct controls introduced to limit supply or demand. If the latter, inefficiency and increased social costs are perpetuated, if the former, dramatic changes in prices are likely to follow. Davis (1947, p. 35) remarks on this, "Experience under national commodity controls has shown that the most depressed prices have followed eventual abandonment of a policy involving heavy accumulations of commodity stocks."

In short, while international buffer stocks are prima facie the most appealing method of moderating commodity price fluctuations they are beset with difficulties. Of these cost and risk are probably crucial. Without enthusiastic support from the US and Western Europe the enormous sums required to finance a significant number of buffer stocks would not be forthcoming. The prospects of creating international money to buy them do not seem hopeful.<sup>9</sup> Other forms of control agreements have rather less evident virtues in relation to the chosen objective of moderating fluctuations without disturbing long-run equilibrium for they interfere more directly with supply and demand.

#### International Quota Agreements

Regulation of export quantities by adoption of quotas forms another method of moderating fluctuations in commodity prices. The overall permitted quantity of exports is determined at a level which will satisfy current and expected demand at prices approximating to informed estimates of long-run

equilibrium price. Individual country quotas are usually determined on the basis of historical market shares. Ideally, however, they should take into account differences in cost structures in the exporting countries and should allow frequent adaption to alterations in productivity -- increasing the quotas of the more efficient and decreasing those of the less efficient. Given the solution of these problems of adaption quota schemes could achieve the same aims as international buffer stocks without the high initial capital outlay and the risks of financial loss involved in buffer stocks schemes and with less need for storeability on the part of the controlled commodities. Despite these apparent advantages this type of scheme attracts more professional disapproval than any other proposed solution for commodity instability.<sup>10</sup>

The principal charges are misallocation of resources, protection of inefficient producers and restriction of production. It should be evident from our outline that these are not logically necessary attributes of such schemes. As usual the charges stem less from the mechanism than from past experience and expectations about the way the mechanism is likely to be handled. Historically quotas have generally been used as a means of restricting over-all supply which raises prices above equilibrium levels and protects inefficient high-cost producers. There is a pre-supposition in the minds of most commentators that price support rather than stabilization is the objective of quota agreements. This gains credence from the historical record. If true, the schemes will lead to misallocation and restriction and may in the long run be self-defeating as outside competition from non-member producers and from synthetics is stimulated by the high prices maintained.

The two major criticisms are: (1) quota schemes are inherently liable to breakdown, (2) if they do not break down they lead to inefficiencies in world production and marketing which will involve greater costs to the world than any benefits due to moderation of short-term instability.

Arguments in support of the charge of inherent instability stem from the difficulty of obtaining initial agreement on size of quotas and subsequent adjustments. Each member country has motives for desiring a low overall export quantity while obtaining as large a quota for its own exports as possible. While the optimum arrangement would see the overall quota just correctly balanced with overall demand at equilibrium prices, few independent experts, let alone interested parties are likely to agree on the long-run equilibrium price. This is no more, nor any less, difficult than in the case of any other form of ICA. The real extra difficulty arises in the matter of allocation of the country quotas. The optimum here should reflect differences in cost and potential growth, but this is difficult to estimate and the most likely arrangement is historical shares in a given year. This has been the case in both the Sugar and Coffee Agreements. It is probably not too serious a defect as long as some method for allowing market shares to be reallocated over time makes possible adaptation to changes in relative efficiencies and trading patterns. If no such method, either through formulae or re-negotiation, exists, the expanding low cost producers will have powerful incentives to break the agreement.

Apart from this refined point, for agricultural products the sheer existence of quotas may become intolerable because of output fluctuations. The 1933 Wheat Agreement broke down for this reason. According to Davis,

(1942: p. 26) Argentina "faced with an unexpectedly large harvest for which adequate storage was lacking, exceeded her quota." This particular difficulty of lack of short-run flexibility can be met by combining national or international buffer stocks or funds with the quota scheme. They need not be very large since quota adjustments can take care of major shifts in production or demands. These quota adjustments, however, will produce clashes of interest between the expanding efficient producers who want larger quotas and are prepared to take lower prices and the less efficient countries whose interests may be felt to lie in preserving market shares and maintaining high prices. Agreements are liable to break down under the pressure of such conflicts. If the agreement survives these hazards, but maintains prices above long-run equilibrium importing countries will seek substitutes either from suppliers outside the agreement or through the efforts of their own industries to produce synthetics.

If the agreement continues despite all these possibilities over several years then, unless it happens to be in a product which, because of fewness of exporting countries and lack of substitutes is ideally suited to monopoly control, the probability is that the scheme is not guilty of serious misallocation. None so far have survived.

One of the difficulties is to devise criteria for changing the pattern of distribution of the export quotas. One suggestion, put forward by Nicholas Kaldor, contains some of the necessary ingredients. The suggestion is that member countries have limits fixed upon the level of stocks which they are permitted to hold. They should then use tax disincentives levied on producers to reduce output whenever their stocks grow too large. The tax levied per unit in any underdeveloped country

would then serve as a measure of the relative efficiency of that country's producers of the commodity. At periodic re-negotiations of quotas the size of the tax would serve as a guide for their reallocation. The countries with the highest production tax would have a claim for increased quotas. The main problem involved in this ingenious suggestion is that production is manipulable. A Government may impose a tax on output, but at the same time subsidize inputs so that the tax no longer serves as a measure of profitability. There are many ways in which an ingenious government could induce a balance between the tax and concealed incentives to increase output.

Given a serious interest in the moderation of short-term instability quota agreements might serve a useful purpose, but the difficulties of initial negotiation of quotas, of re-negotiation of quotas, the temptations to monopoly practices and the inherent tendency for efficient producers to break away make success unlikely.

#### Multilateral Long-Term Contract

The third major form of ICA is the multilateral long-term contract. This is a form of mutual insurance between importing and exporting nations. When prices fall below an agreed floor importing countries undertake to purchase pre-arranged quantities of the commodity at the floor price. If prices rise to an agreed ceiling exporters agree to supply pre-arranged quantities at the ceiling price. Between these contract prices trade is allowed to remain free. Trade may also continue outside the contract agreement at free market prices.<sup>11</sup>

Certain advantages may be claimed for this form of ICA. It assures

exporters at least a minimum income from exports of the commodity and also assures importers that they can obtain a minimum of their needs at moderate prices. The scheme thus moderates fluctuations in income of both exporting and importing countries. At the same time, since part of world trade is left free, the prices which obtain outside the quantities controlled by the agreement can serve as a guide for re-negotiation of the agreement floor and ceiling prices. In principle the scheme appears to achieve moderation of income fluctuations while preserving the allocative function of a free price. Since there are no quotas imposed it has less rigidity and allows of easier entry and exit of producers and producing countries than does a quota agreement. The degree of stabilization of world trade in the commodity depends on the price range, the amount of trade covered and any repercussions on the free market outside the contracts.

Naturally, it has its own drawbacks. It requires a relatively homogeneous product or one with grades for which differentials remain fairly constant. This limits the number of commodities for which it is suitable. As with all ICA's the scheme cannot ensure long-run equilibrium unless national production policies or consumption policies are consistent with the policies of the scheme. The movements in prices must be sufficient to induce rational adjustments of production to trends in world demand. To do this they must be allowed to have an impact on producers' decisions. There may also be a need for some regulation of traders in consuming countries since they may make excess profits by buying at contract ceiling prices and selling at the higher free market prices.

A technical drawback stems from the risk that the residual free

market may be made much more unstable as a result of the controlled share of the market. H. G. Johnson argues that "...in the absence of other national or international intervention, an agreement which fixes maximum and minimum prices for a part only of the total volume of a commodity traded is likely to give rise to more violent fluctuations than would otherwise occur. Consequently, the advantage of guaranteed maximum buying prices or minimum selling prices on that part of the transactions covered by the agreement will to a greater or lesser extent be offset by higher buying or lower selling prices on those transactions which fall outside the agreement." (Johnson, 1950: p. 626) This criticism applies equally to any control form of ICA which does not cover all of the traded commodity. Its theoretical validity is unchallengeable,<sup>12</sup> but its empirical significance is probably minor as long as the area under the agreement is much larger than the part of the market left free. The weighted average of the controlled price and the free price will then almost certainly show greater stability than prices would have been in the absence of the agreement.

The probability of inherent instability suggested in the case of quota agreements exists also for long-term contracts. The existence of a free market constantly gives an incentive to countries to leave the agreement whenever free market prices are substantially above or below the agreement price range.

#### Commodity Reserve Currency Proposal

These represent the three types of international commodity agreement of which we have historical and current examples. Before turning to consideration

of how they have worked in practice it may be worthwhile considering one further suggested ICA which has a certain dramatic appeal as holding out a much broader solution than any of these discussed so far. This is the proposal for a Commodity Reserve Currency Scheme.<sup>13</sup> It has two aspects which are not necessarily connected. One is the idea of setting up buffer stocks for a large number of commodities with a view to stabilizing the composite-commodity-price index rather than the individual prices of particular commodities. The other aspect is related more to questions of international liquidity than to commodity control. It is the suggestion that these stocks should be paid for by a newly created currency issued against the backing of the commodities. In this section the first aspect interests us more than the second.

#### Stabilization of a Commodity Index

The object of such a scheme is to reduce fluctuations in the purchasing power of commodity exporters in general. It is thus directed much more against general problems of world recessions and inflations than against the specific difficulties of individual countries confronted with the problem of living with a highly unstable export. The ideas were evolved in the 1930's and it may well be a legitimate criticism that this scheme represents a prime example of attempting to fight the last war all over again when the problems have changed radically.

The main claimed advantage is that it stabilizes the price of the composite unit while leaving the individual commodity prices free to vary and perform their normal allocative function. The degree of stabilizing

force exerted on the individual prices depends on the number of commodities included, the weights assigned to them and the price range for the index. For commodities which are assigned a heavy weight price instability may be significantly moderated. For commodities which have a low weight purchases or sales of the commodity block may yield little stabilizing influence or may even destabilize. For a country which happens to be highly specialized on the export of a good of relatively minor importance in world trade, insult may be added to injury if, when its export prices decline, purchases of the commodity block actually raise the prices of some of its imports by much more than the export. Since many underdeveloped countries specialize in one or two commodity exports this is a real possibility. Moreover, fluctuations on the supply side which are the major proximate cause of instability in underdeveloped countries' export proceeds would be largely unaffected, or even made worse. In cases where export quantity fluctuations would normally lead to partially compensating price adjustments the stock policy may tend to check these somewhat and so destabilize export proceeds still further. Such a scheme promises little relief for the instability problems of individual underdeveloped countries.

Another weakness of the scheme is that it may distort the allocation of resources between goods within the composite unit and goods outside it. This may occur either through the cyclical ups and downs of the non-stabilized goods vis-a-vis the composite-block commodities or through a secular preference by producers for more or less stability. Such misallocation would be undesirable but quantitatively it seems unlikely that it would be significant.

In common with other ICA's the problem of reconciling stabilization with maintenance of contact with the long-run trends in demand and supply

remains. This would be a very complex problem for a large group of commodities. It involves re-weighting the index and altering the price range.

The UN study group, of which the main proponent, Jan Goudriaan, was himself a member, concluded that, "The difficulties of operating such group stabilization schemes are considerable and, along with their beneficial effects, they are likely to have some distorting consequences. The schemes as here described are in any case relatively unattractive because of the difficulty of financing them." (1953, para. 188).

One claimed advantage is political. It is suggested that a multi-commodity agreement may be easier to negotiate than a single commodity one. The underlying belief here is that it avoids the direct producer-consumer confrontation, since most countries both export and import primary commodities. This in turn enables quid pro quo bargaining which is the kind that normally produces results. Against this view stand the complexity and costliness of the scheme besides the fact that because of its generality it may do very little for individual underdeveloped countries. Almost all the evidence which we have examined on underdeveloped country export instability in the post Second World War era suggests that it is due to very specific factors, usually peculiar to the individual country and often mainly on the supply side.<sup>14</sup> A scheme which merely aims at moderating fluctuations in a composite-commodity price index, made of 10 to 30 strategically chosen goods is likely to be unhelpful even if successful in its direct objective. However, the most recent advocates, Hart, Kaldor and Tinbergen point out that the scheme is not incompatible with the concurrent operation of orthodox single-commodity ICA's.

## ICA's in Practice

### Pre-War Experience

The very severe instability experienced in world trade in the inter-war period gave rise to much discussion and some action in the field of commodity agreements. Most of the agreements were national, or international only in the sense that several producing nations were involved. In very few cases did they confine their activities to reduction of short-term instability. In general their objective was to raise prices and support the incomes of producers at the cost of reducing the quantities of the controlled commodities which were exported.<sup>15</sup>

A League of Nations' committee commented on inter-war ICA's as follows:

"...while it would not wish to state that all regulation schemes in the past have been well conceived or beneficial to all the interests concerned [the Committee] considers that the governmental regulation schemes relating to raw materials now in operating have, generally speaking, been an important factor in the improvement in economic conditions experienced in producing countries during the depression as well as in the development of international trade."<sup>16</sup>

A decidedly less favorable viewpoint is expressed by Davis (1946, p. 220):

"Pre-war and wartime experience with ICA's brings out the great difficulties and delays incident to reaching and

rationality revising agreements and their vulnerability to break down, especially when numerous countries have important conflicting interests. It reflects tendencies to rely unduly on a favorite restrictive device, export quotas; to be timid in the face of strongly backed nationalistic commodity policies; and to avoid grappling with problems of fundamental economic readjustment."

Part of the difference is explicable in terms of the criteria being applied. The League study focusses on the benefits to producers while Davis is concerned with the repercussions of restrictive policies on consumers and on the allocative efficiency in the longer run. However, the total volume of world trade which came under the influence of ICA's was never large:

"At their widest extent in 1937-39, ICA-regulated commodities comprised tin, tea, rubber, sugar, beef, lumber, fur seals, north Pacific halibut, whaling, and narcotic drugs. Almost none of these was universal in scope; and ICA controls over sugar, lumber, and whaling were, in fact, especially far from complete. The only ICA's that have effectually operated for as long as five years were those for tin, tea, rubber, fur seals, halibut and drugs. (Davis, 1946: p. 219).

The tea, tin and rubber ICA's used export and production controls mainly for price maintenance and achieved little success in maintaining price stability. They failed to adjust capacity to world requirements and they

tended to shelter high-cost producers and producing countries. Only in wheat and sugar were numerous exporting and importing countries represented and even there the results of the agreements were very disappointing.<sup>17</sup>

The inter-war experience with ICA's was scarcely happy. The relevance of that period's difficulties to the problems of the present world may be relatively slight, but the unhappy experiences have perhaps heavily influenced the views of consuming nations about the merits and demerits of ICA's. Moreover, the inter-war experience does point up the political difficulties of obtaining agreements even when the problems of international economic instability are obvious and serious.

#### Recent Experience

Each of the main types of ICA discussed above can be illustrated from the working out of the post-war agreements on tin, sugar and wheat. Apart from these, an agreement on olive oil exists but exerts no control on either prices or quantities and is thus irrelevant to our main interest, and a new Coffee Agreement has been set up, but has scarcely come into operation. After several years of negotiation an attempt was made to form a quota agreement for cocoa, but this broke down at the last moment because of failure to obtain agreement between producing and consuming nations on prices.

## The International Tin Agreement (Buffer Stock plus Quotas)

As we have noted above a Tin Agreement did exist before the 1939-45 War. However it was not until 1953 that a new ICA for tin was signed. Further years of delay elapsed between the signing and the implementation of the agreement and it was only in the latter half of 1956 that the buffer stock came into being.

The mode of operation is the nearest approximation to a buffer stock scheme in existence, but in fact the agreement also relies on quota restrictions to meet serious declines in world tin prices. These quotas are allocated among the producing countries on a quarterly basis by decisions of a majority of the producing and consuming-nation members. The 1956-61 agreement covered over 90 per cent of non-Communist tin output. The producer members were Bolivia, Indonesia, Malaya, the Congo, Nigeria and Thailand. The United States, Western Germany and the Soviet Bloc did not join. While potentially a serious threat the absence of the US did not seriously hamper the scheme as the US government took care that the operations of its large strategic stock pile of tin were not destabilizing. The absence of the Soviet bloc did however represent something of a threat and was partly responsible for the collapse of buffer stock support of the market in 1958 and the consequent decline in price in September 1958.

How successful was the scheme in moderating fluctuations in tin markets? The direct objective of the Tin Agreement was to stabilize prices within a range of £ 640 to £ 880 on the London spot market. At prices between £ 720 and £ 800 the manager of the stockpile was not allowed to intervene. Between £ 640 and £ 720 or between £ 800 and £ 880 he had

discretionary power to respectively buy and sell tin. At the extreme limits of £ 640 and £ 880 he was obliged to buy in the former case and sell in the latter case, unconditionally. In March 1957 these limits were adjusted so that the floor was raised to £ 730 and the new band widths became £ 730 to £ 780, £ 780 to £ 830 and £ 830 to £ 880. In the last quarter of 1956 the price in fact rose above the point which obliged sales, £ 800, but the manager had no stocks of tin and therefore could not intervene in the market. From the peak price of November 1956 price fell steadily until it reached the revised floor where it was supported by purchases for the stock until the buffer fund became exhausted. Support was withdrawn in September 1958 and the price dropped below the floor to £ 642. In addition to the purchases for stock the scheme adjusted quotas in a drastically restrictive manner. During 1958 quarterly quotas were: first quarter, 71 1/2 per cent; second and third quarters, 60 per cent; and fourth quarter, 52 per cent of the average quarterly quotas for the previous year. This drastic cut in supply combined with restrictions imposed by the UK and the Netherlands on imports of Soviet tin soon restored price levels, but at a very severe cost in terms of reduced output.

The effects on average annual prices, volume and value of exports in the two main exporting countries are shown below (Table 12:1). In each case figures for another main export are shown for comparison. It is very difficult, if not impossible, to say whether these countries' exports of tin were more or less stable under the Agreement than they would have been in its absence. Probably tin export prices were made more stable, but the volume of exports was decidedly less stable because of the effect of the sharp cut in quotas on exports in 1958. Because of this it seems likely

that little if any moderation in the fluctuations in annual values of tin exports for the two major tin exporting countries can be attributed to the performance of the 1956-61 International Tin Agreement. The period is, however, too short to establish this more than tentatively. Moderation in monthly and yearly average prices for tin was almost certainly achieved. Fluctuations in tin prices on the London market from July 1956 to the end of 1959 were much smaller than for copper, lead or zinc. (Robertson, 1960: p. 312, Chart I). But that this is a significant contribution to world economic welfare is, to say the least doubtful.

The other major question concerns the effects of the Agreement on efficiency in the production and consumption of tin. The pre-war agreement came under heavy attack for holding the average price too high which preserved high cost, inefficient producers discouraged tin consumption and encouraged substitutes. The 1956 Agreement may be subject to the same charges. Tin consumption has not increased since the late 1920's, while growth in consumption of other non-ferrous metals has been fairly rapid. It is widely believed that this is not unrelated to the relative price of tin to other metals. Aluminum in particular has become relatively much cheaper than tin in the post-war era and is being substituted for tin in many uses. In one major use of tin, in solder, the ratio of lead to tin has increased. These substitutions are no doubt partly technological changes, but price probably also played a part. There seems to be a wide range of costs and of profits among companies within the tin industry (Robertson, 1960: pp. 328-29) Reduction of the price would almost certainly eliminate the less efficient and allow expansion of the efficient to take place.

Producers attempt to justify a relatively high price by arguing that

lower prices would result in closures of marginal mines which still have large deposits of ore and cause exploitation of the richer deposits first -- leading to higher cost later. Robertson's comment (1960, pp.329-30) on this appears sound: "The scope for substitution and economy in use appears to be so great that it does not look as if future generations would be penalised by some mild profligacy of the present generation"

If the object of the scheme is to maximize producers' incomes their policy may be rational. The short-run price elasticity of demand may be fairly low allowing monopoly profits for some time. In the long run technical change may be so great a risk to tin use in the industrially advanced countries that long-run profits may, quite sensibly, be heavily discounted. The industry may rationally prefer to "snatch" quick profits than to "stick" in the terminology of Hicks (1954: pp.41-54). But this would be not stabilization, but exploitation of the tin market. As far as the world is concerned such price stability as may be achieved by the scheme may in fact be bought dearly in terms of high average tin prices and misallocation through substitution of other metals where real costs of production are actually higher than tin and inefficient allocation of productive activity between the producing countries and between producers within the countries.

The scheme goes some way to meet the problem of misallocation as between countries. The basic quotas which were determined by market shares are supposed to be revised according to estimates of production costs, but modified to avoid the possibility of causing hardship in particular countries.

According to Robertson:

"There is some evidence of flexibility in the quota system, as operated by the Council. A comparison of the basic quotas, which are related to the 1953 voting power, with the export quotas for the third quarter of 1959, shows that the Bolivian and Indonesian shares were cut by about 10 per cent, the Nigerian and Thailand shares were increased by about 15 and 40 per cent, and the Malayan by a negligible amount. How far this process of changing quotas has been determined by strict economic criteria is uncertain, how far it could go without the additional pressure of lower prices on high-cost producers is equally uncertain." (1960, p. 332).

At least in theory, a combination of consuming nations' votes with low-cost producing countries' votes could lead to lower prices and larger quotas. Unfortunately even the low-cost producers may reckon to do better under the existing arrangements than if the scheme broke up or major producers left it. Since, in any case the producing member countries all fall into the category of underdeveloped countries, transfers of income to them via exploitation of monopoly powers may not be altogether undesirable. Questions on whether this is the most efficient way of giving aid however arise, but these will be discussed in a more general framework below.

In sum, the International Tin Agreement, at least in intention, fits with many of the criteria we suggested for ICA's. It has equal representation of consuming and producing countries. It is supposed to be concerned with moderation of short-term fluctuations and not with price

support. It has mechanism for frequent adjustment of the quotas, which regrettably seem to be required, and these quotas are supposed to be modified so as to improve productive efficiency. However, its buffer stock/fund, while larger than pre-war has proved inadequate to meet fluctuations in 1956 and 1958 and while it is true that prices for tin have been fairly stable during the course of its operation the part played by the Agreement here may have been small. One commentator, Boris Swerling, (1963, p. 68) claims, "The current ceiling on tin prices is governed not so much by the price range specified in the Agreement itself as by the terms on which the US disposes of tin in excess of the present needs of the strategic stockpile." In any case the contribution this has made to moderating fluctuations in underdeveloped countries' export earnings from tin seems small. While having modest achievements on the stabilization front it has almost certainly helped to continue a high price relationship vis-à-vis other metals, probably preserved high-cost producers and may have damaged the long-term interests of tin producing countries by stimulating the hunt for substitutes.

#### The International Wheat Agreement, 1949 (Multilateral Long-Term Contracts)

This is probably the most important ICA of the post-war era. It represented an innovation in technique since it neither imposed quotas nor held stocks. Exporters and importers simply entered into contracts by which they agreed to buy or sell specified quantities at specified prices. These contracts deliberately did not cover all the trade in wheat, even of the participants. Thus neither production nor exports were controlled and a

"free" market remained whose prices could indicate long-run tendencies in supply and demand for wheat.

In common with all ICA's it took some time to get started. The fifth International Wheat Conference in March 1947 introduced the scheme, but 2 1/2 years elapsed before it commenced operation in August 1949. Wheat is almost entirely exported by rich countries: USA, Canada, and Australia. Argentina is the only significant underdeveloped country exporter. The contribution to the solution of fluctuations in the exports of underdeveloped countries' exports could therefore only be negligible even if the scheme were highly successful. Thus its main interest is in illustrating the method of the multilateral contract agreement with a view to its extension to underdeveloped country exports.

The first question concerns the effect of the Agreement on the stability of wheat prices. The relevant price here has to be a weighted average for the prices at which trade took place under the Agreement and the "free market" prices over the same period. Over the period of operation of the first Agreement, 1949-53, this index shows a remarkable degree of stability when compared either with wheat prices in previous years or with prices of other commodities over the same period. (Harbury, 1954: pp. 83-88). In later years the difference is less striking. However it is still true that wheat prices remained relatively stable. A serious problem of separating the influence of the Agreement from the effects of the stock policies of the US and Canada on wheat prices remains. It is quite clear that both these countries were able to affect prices by their policies. Despite a falling market in the short period preceding the outbreak of the Korean War the ICA ceiling seems to have been regarded also as the floor by

the exporting countries. Later when "free" prices rose in 1950-52 the operation of the Agreement stimulated consumption by enabling importers to satisfy much of their requirements at the Agreement ceiling and may have discouraged production during this period of severe shortage. Although wheat harvests in 1952 and 1953 were "bumper", the Canadian Wheat Board deliberately kept its "free" export price high as a bargaining maneuver for the 1953 renegotiation of the Agreement. The belief that a new agreement would be at higher prices led importers to build up their stocks at the 1949 Agreement prices.<sup>18</sup> Given the market dominance of the major exporting countries and the nature of government control of marketing in them over this period it would not be surprising if a great deal of price stability could be ascribed to them rather than the Agreement. After 1953 joint action by the Canadian and American wheat marketing agencies prevented wheat prices from ever reaching the 1953 Agreement floor price.<sup>19</sup>

The UK, the major importing country, accounting for a third of wheat imports under the Agreement, refused to join the 1953 Agreement. The grounds for this were too high a price and probably disagreement with the methods of adjustment. In a sense the UK was proved correct for the price trend afterwards was down and led to an enormous increase in world wheat stocks held by the exporting countries despite US surplus disposal on special concessionary terms. Only non-Agreement purchases in recent years by mainland China and by Russia have done anything to reduce these stocks by significant amounts.

The International Wheat Agreement seems to have only slender claims to have reduced instability in wheat prices and has co-existed with serious

imbalance between supply and demand for a long period of time. These long run disequilibria are due to the internal policies of the national governments of exporting members. The Wheat Agreements have not helped to get rid of these policies. Whether they would actually have been better or worse in its absence is not clear. What is fairly clear is that the Wheat Agreements have done little to solve the problems of wheat surpluses and their role in the achievement of relatively stable prices may well have been minor.

It may be that the experience of operation of these Wheat Agreements provides little information relevant to the possible uses of multilateral contracts for underdeveloped country exports. The characteristics of wheat coupled with the dominance of USA and Canada in its exportation may make it unique. Any lessons learnt may be incapable of generalization to other products and other countries. For what it is worth the experiences of the IWA are not a strong recommendation for extension of the system.

#### The International Sugar Agreement, 1953 (Export-Quotas)

The International Sugar Agreement took the traditional export-quota form which has been so widely criticized in the past. It did however have equal voting power allotted to the exporting and the importing countries. But this balance of opposing interests was more apparent than real. The United States imported all her sugar requirements under preferential terms and consequently had little direct interest in a low free market price. The UK also obtained most of its imports, under the Commonwealth Sugar Agreement, at prices generally above those of the free market. Moreover, Britain had already entered into a very favourable contract for

Cuban Sugar at relatively low prices and held large stocks of sugar in 1953, preparatory to ending rationing. Reductions in the free price would have involved the UK Treasury in embarrassing book-keeping losses in the values of these inventories. For both of these major sugar-importing countries political and economic ties with exporting countries within their respective spheres of influence made relatively high free market prices at least acceptable if not actually preferable. On the other hand, one major exporting country, Cuba, might well have been willing to see lower prices if this would have enabled her to sell the larger volumes of sugar which she could easily produce. <sup>20</sup> The attitudes of the US and the UK governments illustrate an important practical feature of ICA's. This is the tendency for political considerations to overrule questions of efficiency and consumer interests.

The Agreement signed in 1953 ran for five years and a second Agreement was signed in October of 1958. This came to an end in 1961 due to failure to reach agreement on quotas for Cuban sugar exports. The Sugar Council has remained in being and certain minor features of the agreement have continued.

The 1953 Agreement is a rather strange phenomenon. Price stabilization was a declared objective and quota provisions adjustable in accordance with current prices were introduced as a means of enforcing floor and ceiling prices for "free market" sugar. A more important objective however was a rescue operation for those sugar producing countries who were so unfortunate as to be outside the two preferential systems: the Commonwealth Sugar Agreement and the US import quotas for sugar. "Shelter for Sugar's Cinderellas" was the title of an article on it in the Economist (1953;pp.583-5).

It was an attempt to solve the problems of many of the relatively efficient tropical cane sugar producers. These problems were the result of the growing production of heavily protected beet sugar in the US and Western Europe, where consumption was increasing very slowly, and of the preferential trade relationships which the US and Britain had with important sugar exporting countries, particularly Cuba and the British West Indies. The International Sugar Agreement of 1953 however did little to correct these distortions of existing production and trade in sugar. It did not even attempt to restrict increases in protected production as the 1937 Agreement had. The basic quotas when finally allotted showed little concern for efficiency. Indeed Peru which probably was one of the lowest cost producers in the world was given a relatively small quota and withdrew from the agreement insisting that, "Neither the United Nations nor the present Conference could press an efficient producer to become an inefficient one". (Quoted in Timoshenko and Swerling, 1957: p. 338).

#### Effects on Instability

FAO and UN diagnoses of the reasons for instability of sugar markets are traditional ones of low short-run supply and demand elasticities.<sup>21</sup> However, in a world wide free market these would not be sufficient explanations. Sugar production is geographically very widely dispersed so that annual average fluctuations in world production due to natural causes are unlikely to be very large. Income elasticities of demand for sugar are low hence cyclical fluctuations in consumption are likely to be very small. These conditions are consistent with some but not major instability in the

price of sugar. Moreover since the cause would normally be changes on the supply side, price changes would normally be compensating so that total proceeds in a truly free market would be much more stable than prices.

The real reasons for instability in the "free market" price of sugar lie mainly in the narrowness of the market, its residual nature, in perverse reactions in the protective tariffs of importing nations and in the double market standard which faces producers and encourages dumping on the "free market." The International Sugar Agreement made no attempt to deal with these political and institutional causes of instability and of surplus capacity in sugar production. Instead it concentrated on palliatives for the residual "free market."

The price stabilization features included variable export quotas and production limits in quota countries. Export quotas were to be adjusted in accordance with estimates of market requirements and in the event of disagreement on the necessary adjustment export quotas would be automatically reduced by at least five per cent within ten days after the "world" price had stood below the 3.25 cents floor price for 15 consecutive market days. (Timoshenko and Swerling, 1957: p. 345). This is a very feeble weapon of control and once cuts have reached 20 per cent of basic export tonnages no further reduction is permitted. The price floor and ceiling of 3.25 to 4.35 cents per pound (Cuban f.a.s. no. 4 sugar) were changed in 1956 to 3.15 to 4.0 cents. When the price went above the ceiling all quotas were to be removed and exporters could be called upon to make their stocks available. Exporters were required to hold stocks equal to 10 per cent, later raised to 12 1/2 per cent of their basic quotas.

The Executive Director of the Sugar Council claimed considerable success for the operation of the agreement.

"It can be fairly concluded from the course of free market prices since the coming into force of the 1953 Agreement that with the exception of the period from the end of 1956 to the middle of 1957, when a combination of unusually unfavourable circumstances was encountered, the International Sugar Agreement has had a moderating effect on price fluctuations." (UN, 1958 a: p. 33).

The actual course of prices before and after the 1953 Agreement is sketched in Chart 12:I along with a general index of food prices. The reader may judge for himself whether the Director's conclusion is particularly meaningful.

The floor price under the agreement was in danger in the initial period and it was largely because of Cuba's willingness to restrict its crop severely that the price did not drop below it for any length of time. When the outbreak of the Suez Crisis coincided with a poor beet sugar crop in Europe, exporters' stocks of cane sugar proved quite inadequate to meet the increased demand for "free market" sugar and prices rose higher in a shorter period than even in the Korean War boom in commodities.

Given the political difficulties of the sugar market it is unfair to criticize the inadequacies of the scheme. The major troubles of this market stem from the protectionist attitudes of the governments of the US and Western Europe. These cause both structural imbalance in sugar production and consumption and force short-term instability on to the small "free market." It is small wonder that the scheme should have little success

in this environment. Its performance emphasises the difficulties which ICA's run into when the attempt is made to transfer them from the drawing board to the real world. The contribution, if any, which the International Sugar Agreement has made to stability in developing countries' exports seems negligible.

#### The International Coffee Agreement, 1962 (Quota)

The latest ICA is the Coffee Agreement, signed, after two years of negotiations, in September 1962 and operating at the present time. This is the only ICA which covers most of the market for a commodity of real significance to the economic well-being of many underdeveloped countries. The main benefits go to Latin America, particularly the major producers, Brazil and Colombia, but several African territories are also much affected by the fortunes of coffee.

In terms of degree of short-term instability coffee ranks as a fairly stable commodity. The total value of coffee exports was relatively stable over the period 1948-57, fluctuations in coffee prices were about the average for commodities (UN, 1958: Table 13, p. 40). So that although the agreement talks of "excessive fluctuations in the prices of coffee" this is clearly not its main concern. The chief worry of the producing nations has been the enormous surpluses, amounting in 1962 to around 2 years world shipments, and the steady decline in coffee prices from the peaks achieved in 1954-56.

Growth in consumption of coffee is in general very slow and very stable. The main cause of the slump in coffee prices was the surge in tree plantings which occurred as a result of the very high prices achieved

in the early 1950's. These in turn may have been due to restrictions on coffee production in Brazil which prevented rapid adjustments of output to the rising world demand as rationing restrictions were removed and the Korean War caused increased demand for stocks in importing countries. In any case since coffee trees have a gestation period of 4 or 5 years the increased supplies did not reach the market until after the pace of demand had slowed to more normal levels with the result that prices continued to fall under the pressure of the growing supplies from both Latin America and Africa. Several producers' agreements on a yearly basis started in 1957 designed to limit exports. At first they covered only Latin American countries but they were joined by French and Portuguese African dependencies in 1959 and by UK associated territories in 1960. They were merely agreements between producing nations and as such under grave risks of desertion by members. The International Agreement of 1962 brought in importing countries which greatly improves the possibilities of enforcement of the quota restrictions.

The main stated objectives of the Agreement are: "(1) to achieve a reasonable balance between supply and demand on a basis which will assure adequate supplies of coffee to consumers and markets for coffee to producers at equitable prices, and which will bring about long-term equilibrium between production and consumption; (2) to assist in increasing the purchasing power of coffee-exporting countries by keeping prices at equitable levels and by increasing consumption." (UN, 1962 b: p. 7)

These make it clear that price support, not stabilization, as we have defined it, is the objective. If further confirmation is required Article 27 gives it:

"[The members] agree on the desirability of operating the Agreement in a manner such that the real income derived from the export of coffee could be progressively increased so as to make it consonant with their needs for foreign exchange to support their programmes for social and economic progress."

(UN, 1962 b: p. 25).

Export regulation is by annual quotas which will be altered by the same percentage for all members of their basic export quotas in accordance with estimates of world demand and non-member exports. Quotas are also fixed on a quarterly basis to reduce seasonal fluctuations (Articles 30 and 31). Exports in excess of quotas may be made to areas where consumption is at present low, mostly underdeveloped countries and Eastern Europe. Importing countries agree to regulate imports from non-members to the average of the preceding three years. Revision of the basic export quotas is possible by two-thirds majority vote (Article 28).

For its evident purposes the Coffee Agreement seems well designed. Its period of operation however is much too short for assessment of performance. At the present time (January 1964) coffee prices are very high, around 46 cents a pound compared with about 37 cents for the same grade (Brazil Santos 4) in 1960-61, and the Agreement is under attack from coffee buyers who are demanding that the quota restrictions be raised. The reasons for the present increase are bad harvests caused by weather damage to coffee trees. Coffee futures are at premia of 2-3 cents per pound indicating market expectations of insufficient supplies. The indications are that while the Coffee Agreement will probably do little to moderate fluctuations in export earnings around the trend levels it may succeed in

holding export earnings higher than they would otherwise be.

### Conclusion

This brief survey of the theory and recent history of ICA's suggests that unless there are radical changes in attitudes to such agreements the prospects that extensive adoption of ICA's will substantially reduce underdeveloped country export fluctuations are slight. The reasons lie partly in technical difficulties, but even more in human fallibility and the trials and tribulations of achieving political accord.

### International Commodity Agreements and Economic Aid

In recent years growing concern over the decline in commodity prices since the 1950's has led various individuals and organizations to suggest the setting up of ICA's to restrict exports and raise prices to "fair" levels.<sup>22</sup> The 1963 Coffee Agreement contains provisions for doing just this. (i.e. prices are to be supported at 1962 levels as a minimum). The purpose of this section is to evaluate these suggestions for using ICA's as a means for transferring financial resources from rich to poor countries. Such use makes ICA's media for long-term economic aid in addition to devices for moderating price instability.

The suggested method is to set up ICA's with both producing and consuming country members to control trade in primary commodities. Target prices would be chosen, in accordance with certain criteria, which would be above long-run equilibrium prices and would yield monopoly profits to

producing countries. In effect consumers in importing countries would pay a tax in the form of higher prices and the yield from this tax would accrue to underdeveloped countries through raised export prices.

Growth of interest in and increased popularity of such a scheme arises from several factors, some of which have been mentioned above. Probably the most important reason is the decline in commodity prices from 1950-51 to 1962. The fact that commodity prices have risen substantially in 1963 and stand fairly high at present (January 1964) is felt to be a temporary improvement only. The fears that the true secular trend in the terms of trade of underdeveloped countries is downward have not been allayed by this recent increase in their export prices. These views gain support from such studies as FAO's Agricultural Commodities -- Projections for 1970 (Rome, 1962) which indicates very slow rates of growth in demand for most agricultural exports of underdeveloped countries and from the theoretical analyses of such writers as Raul Prebisch, Hans Singer, Gunnar Myrdal, and Ragnar Nurkse.

This is reinforced by some disillusionment with the results of industrialization and of foreign economic aid. (Hirschman, 1963 a). The amount of foreign exchange saved by import replacement has probably been very small for most countries. Often the capital investment, raw material and professional skill inputs have cost as much or more than the saving, particularly where the choice of industry has been at fault and continued high tariffs have been required to preserve an inefficient operation. The small amounts of foreign exchange gained from manufactured exports, invisibles, private foreign investment and economic aid emphasize the dependence of underdeveloped countries on their commodity exports for

foreign-exchange resources for a long time to come. At present over 70 per cent is earned by primary products. (UN, 1962: Table 1-6, p. 6).

In addition to disappointment with the quantities of foreign aid and the prospects for increases in it, underdeveloped countries' leaders have often been resentful of the strings, both political and economic, which are tied to public capital. Financial resources which come via increased commodity prices, at least at first blush, seem to carry no comparable loss of sovereignty.

At the same time some well-wishers within the industrial countries feel that this is one way of increasing the flow of resources to underdeveloped countries at a time when opposition to aid programs is mounting in the US and Western Europe, particularly in the US Congress. Experience in the past seems to show that it is easier to help producers through distorting prices than by financial transfers. It is easier to conceal the financial and real costs involved by using controls and price support policies in most countries. For other groups in the industrial countries such policies have the merit of distracting attention from their own high cost operations carried on behind a protective wall of tariffs and quotas, e.g., beet sugar producers and many textile producers.

For all these reasons pressure has been building up for demands for the setting up of ICA's which will support the prices of primary products. Three major questions arise: are such schemes technically and politically feasible? what contribution could they make to underdeveloped countries' foreign-exchange receipts? what would be the net benefits and costs involved?

## Technical Feasibility

In order to transfer significant sums to underdeveloped countries the ICA's have to be able to raise commodity prices substantially without causing such a sharp fall in the volume of sales that total earnings are reduced. This requires that commodities be chosen for which there are few substitutes, even in the relatively long run, and which form a very small part of the total expenditure of consumers in the rich countries. Conditions which make for a low long-run price elasticity of demand should prevail.

The commodities controlled require to be major components of the exports of underdeveloped countries and should be of minor importance in underdeveloped country import expenditure. Further, they should preferably not be exported or even produced by the industrial nations. If large amounts of a commodity happen to be exported by some industrial nations as is the case for grains, wool, cotton and various minerals among others, price support would lead to transfers among the industrial countries which would probably be unacceptable to consuming countries. If the goods are produced within industrial nations, but not exported, the price elasticity of demand for underdeveloped country exports of these commodities would be raised, perhaps to such an extent that no increase in price could be made without reducing export proceeds.

Another condition which is essential to any ICA is relatively homogeneous commodities. If there are many grades and qualities of the products and if differentials tend to vary, the problems of controlling prices become immensely complicated.

These might be described as necessary conditions. Certain others are at least desirable for the setting up and continued operation of such ICA's. The commodities selected probably should be ones for which prices have been tending downward. This establishes a better claim for sympathetic treatment and the memory of higher prices in the recent past may modify consumer resentment of increased prices. A relatively static distribution of production probably gives better prospects for continued success than would exist with an industry where rates of increase and relative efficiencies differed widely between producing countries -- particularly where high cost and stagnation exist in the largest producing nation. Smaller countries take less heed of the effect of increase in their own output upon world prices and are therefore difficult to bring under the discipline and restraints of an ICA. Finally, producing countries have to be willing and able to control production. Otherwise stocks will pile up and form a constant threat to the scheme.

#### The Choice of Commodities

These conditions, outlined above, place rather severe limits on the choice of commodities for ICA's for this purpose. The vast majority of commodities have to be excluded for one or more of these reasons. Products such as cotton, sisal, jute and rubber face relatively close competition from synthetics and from technical changes, e.g., use of bulk-handling instead of jute bags or changes in agricultural techniques which reduce demand for twine made from sisal. Other commodities compete with domestic production in the advanced countries: vegetable oils and

oil seeds, non-ferrous metals, citrus fruits, tobacco and even sugar. The market for vegetable oils is in any case so complex that price and quantity regulation would be frightfully difficult. The same is largely true of non-ferrous metals where competition is not only close between each, but also with reclaimed scrap metal. Tobacco, citrus fruits, cotton, wheat, and feed-grains, meats and wool are produced and exported by rich industrial countries as much as by underdeveloped countries. Some of them, e.g., wheat and grains are substantial imports of some underdeveloped countries. This is even more true of rice where the largest part of world trade is among underdeveloped countries themselves and income transfers here would be pointless. Petroleum is exported by both rich and poor, but mainly by poor countries. It competes with domestically produced fuels in most industrial countries, e.g., domestic petroleum, natural gas, coal, hydro-electric power, and, in a small way, nuclear power. But the price elasticity of demand is quite low and consumption is probably correlated highly with income. Transfers through increased petroleum prices should thus be technically possible and fairly equitable in the incidence of the extra cost on consumers. On the other hand petroleum has not suffered in the general decline in commodity prices and the oil countries have been very fortunate compared with other underdeveloped countries. However, if a UN agency were allowed to tax oil revenues and distribute the income among underdeveloped countries as economic aid the incidence of the tax would be borne mainly by the rich. Oil producing underdeveloped countries could be compensated for any losses they incurred. Petroleum is so enormously important in world trade that a small increase in price should yield a large sum of money.

Apart from the discussion of petroleum all of these points have been made by Pincus. He selects five crops as possessing the attributes required for this type of ICA. These are coffee, tea, cocoa, sugar and bananas (pp. 232-35). Between them they provided about 4.6 billion dollars of underdeveloped country exports in 1960. Pincus suggests that properly designed schemes for these products could increase the flow of financial resources to underdeveloped countries by some \$ 700 millions rising to \$ 900 millions per annum over the next six years allowing for projected increases in world demand. These estimates, from Pincus (1964, p. 236) are based on target prices as compared with average prices during 1961 shown below:

	<u>Average 1961 Price</u>	<u>Target Price</u>	<u>Earnings Distribution of Increase</u>
Coffee	30.7	48.0	55
Cocoa	21.8	29.0	10
Tea	48.5	64.0	13
Sugar	3.9	5.0	17
Bananas	3.8	4.7	5

The expected increase in earnings results from assumed demand and projected growth in demand over the period. The distribution of the increase between commodities reflects their relative weights in international trade and the degree to which their prices can be raised without stimulating too much substitution [based on FAO (1962) calculations of price elasticities of demand]

## Distribution of Gains and Burdens

As can be seen from the third column of the table the main benefits would accrue to coffee producers. Because of this the distribution of the increased export income if allowed to go directly to producing countries would be about 67 per cent to Latin America, 23 per cent to African countries and 10 per cent to Asia. Brazil alone would gain 40 per cent of the increase. About 26 underdeveloped countries altogether would gain something but for most the gains would be very small.

The burden of the transfers would be shared between the US, Western Europe, and the rest of the developed world in the proportions 40 per cent, 40 per cent, and ten per cent. (Pincus, 1964: p. 238). Within Europe the UK would carry a heavier burden because of relatively high imports of tea, sugar and cocoa compared with the rest of Western Europe.<sup>23</sup> Soviet bloc countries import very little of these commodities at present and consequently would contribute little to the costs of the scheme unless they alter internal policies toward consumption.

## Are Such Schemes a Practical Possibility?

In principle there is little doubt that schemes confined to commodities such as the five discussed above could be made to transfer resources to underdeveloped countries. Private international cartels have been able to do this in the past, in petroleum for example, without any disastrous consequences, Pincus points out (1964, p. 233) that, "Producers of some commodities have benefited from high fixed prices for

many years, and in certain cases, have also been able to enjoy a steady growth of markets." Clearly there is no necessary contradiction between monopolistic prices and growth in demand because demand depends not only on price but also on income, population expansion, changes in taste or technology and the prices of substitutes among other less important determinants. However, it so happens that the products which seem suitable, on other counts, for control do not face relatively auspicious prospects for growth even at constant prices. (FAO, 1962). Raising their prices will mean a fall in sales volume and perhaps in the long run in the total value of exports.

A legitimate question arises as to the time period over which underdeveloped countries would wish to maximize their export earnings. It may be that increased earnings over the next five years would mean lower earnings over a 20 year period because of the increased stimulation to substitution. In this case the optimum policy for say coffee exporters would depend on the degree to which long-term returns were discounted. Since knowledge of each one of the determinants of demand is uncertain the question of which policy will maximize export proceeds over the longer run, say 20 years is an extremely difficult one to answer. Even the price elasticities of demand are highly uncertain. Elasticity estimates simply measure changes in quantities demanded which appear historically related to changes in prices. Even assuming them to be accurate for the past there is doubt as to their applicability in the future, particularly when the situation has been radically changed by the introduction of an ICA. The companies which import and process products like coffee and cocoa are now faced by a situation where, if the ICA is

successful, prices will be consistently higher than long-run equilibrium prices. This is quite different from a Korean or Suez peak in prices. It may mean a greatly increased stimulus to research for synthetic substitutes. If this should be so the long-run price elasticities of demand appropriate to ICA policy could be much higher than those calculated by regression analysis on historical data.

On the other hand it may be that the break-through to a "synthetic coffee essence" will come anyway, whatever the price. In that case coffee producing countries could very rationally aim for maximum profits in the short run, for this would probably maximize profits in the long run as well. As was remarked in the preceding section this is analogous to the situation discussed by Hicks (1954: pp. 41-54) in relation to the behaviour of firms under conditions of monopolistic competition. Given the high risk of technological changes adversely affecting demand in the future, underdeveloped countries may be perfectly justified in weighting present earnings much more heavily than future. If they do this, they would wish in their own interest to restrict export quotas severely so as to raise prices to very high levels and use the proceeds to finance diversification. But, as the cooperation of importing countries is required for enforcement of ICA's, in reality some compromise price will be worked out, not the price which maximizes underdeveloped country export earnings.

There are many practical difficulties which confront the operation of such ICA's. The producing countries have to be prepared to accept a considerable amount of discipline and self-restraint. They must agree, not only to limit these exports to amounts fixed by majority votes of the members, but also to limit stocks and production. This is likely to be

very difficult for countries where production is scattered, administration weak and ill-informed and facilities for holding stocks inadequate. Many of the Central American coffee producing countries conform to this description. It is likely also to be true of several of the newly independent African coffee producing areas. Moreover, because they are small and often low-cost producers the motivation for restriction is less clear. For one of these countries a doubling of exports would not lower prices one iota. There is thus a persistent tendency for such small nations to break the agreement.<sup>24</sup>

Such break aways are particularly likely to occur when a country has an exceptionally good harvest and has inadequate storage for the surplus. As was noted above this happened with Argentina in the 1933 Wheat Agreement. Faced with a bumper harvest the temptations proved too great. If we agree that a heavy discounting of the future and heavy weighting of the short run are likely to make underdeveloped countries act restrictively in concert we should note that it may also make them succumb to the temptation of a high return from a bumper harvest. The farmers may be so powerful that the government could not risk restrictive measures, particularly crop destruction, in these circumstances. In Pakistan acreage restrictions on jute cultivation proved unenforceable. (MacBean, 1962: p. 254).

Apart from these difficulties of enforcement upon producing countries there is the question of obtaining the cooperation of the importing countries. The Coffee Agreement of 1963 was made possible by a change of heart by the US. This was largely due to political considerations. The complaints of the Latin American nations about low coffee prices were very bitter and may have been felt to be a threat to the Alliance for Progress and relations with

Latin America in general. Moreover, prices were low, by recent historical standards. Subsequently, however, opposition grew -- "A sharp rise in coffee prices is threatening a break down in the year-old international coffee agreement... The Administration is reluctant to push legislation for implementing the coffee agreement... In its absence, the agreement may lapse after next April. (New York Times, January 22nd, 1964). In fact, quotas were subsequently eased and prices held at or below 48 cents a lb for Brazil Santos 4. The Agreement has since been implemented.

However, it is not legitimate to infer from the Coffee Agreement or the past acceptance of domestic policies of agricultural price support that similar policies can be easily instituted to effect income transfers to underdeveloped countries. The agricultural sectors have generally been well organized and for historical reasons usually over represented in the legislatures of most western democracies. This has enabled them to obtain concessions which foreigners could scarcely expect.

On the other hand, some industrial countries may approve of this type of arrangement. M. Couve de Murville, Foreign Minister of France is reported in the Times (January 23rd, 1964) as having said, "The solution of an increase in world price levels would remove the reason for subsidies, establish a balance between producer and consumer costs and help the underdeveloped countries." Actually, these remarks were made in a defence of the system of levies on agricultural imports adopted by the European Economic Community (EEC). If world prices were raised the levies would disappear or become very small. But these levies are likely to be imposed mainly upon temperate zone exports which compete with EEC agriculture and ICA's on these would give little help to underdeveloped

countries. The extension of similar policies to underdeveloped countries' exports might be expected to reduce some of France's present burdens due to her support price policy for several Franc Area exports (coffee, groundnuts, cotton and bananas) to France.

For the US, Britain and Western European countries other than France enthusiasm for ICA's is likely to be very cool. Since it is they who would pay the price it is their cooperation which is vital. They have had a long and fairly disillusioning experience of the working of ICA's both between the Wars and recently. On the other hand, they may reckon that the cost is not really very great and under pressure from the Afro-Asian countries may give way to the demand for some form of ICA's. The question then arises of what effect this would have upon their normal forms of economic aid. Would not this lend another weapon to the opponents of financial aid to underdeveloped countries? Would it perhaps also draw attention away from the system of tariffs, internal taxes and quota restrictions which at present reduce underdeveloped country exports to the industrial nations? Only the most speculative answers can be given to these questions.

Pincus points out (p. 233) that "If we accept the thesis that it will be difficult to achieve further increases in foreign aid, then the alternative [to ICA's] is not genuine." But, need this be accepted as ruling out increases in foreign aid or preventing improvements which will increase the benefits from roughly the same amounts of money? If the climate of opinion were set against straight economic aid is it really likely to be any more favourable to ICA's with their many unattractive features?

ICA's are both inefficient and an inequitable means of raising and allocating economic aid. Allocation of the increased revenues would be simply on the basis of which commodities underdeveloped countries happened to export and what degree of price support had been negotiated between producing and consuming countries. They would thus discriminate, on the basis of the Pincus suggestions, in favour of relatively rich Latin American countries and would give little or no aid to extremely poor countries such as Pakistan and India. Since allocation would be arbitrary there is no reason to suppose that aid would accrue either to those with the greatest need or those best prepared to make use of it. While it may well be true that foreign aid in the past has not conformed closely to either of these criteria it is also true that there has been a considerable increase in awareness of the flaws. Improvements in planning and supervising techniques which should lead to higher productivity in aid have taken place as a result of experience gained in running this entirely novel program.

ICA's are also inequitable in the means used to raise the funds. They tax countries on the basis of their imports of ICA controlled commodities. These may not be closely related to national or per-capita incomes among industrial countries. Within each country the method corresponds to a regressive tax since it raises prices equally to rich and poor, nor are these commodities ones which are consumed proportionally more by the well-to-do. Admittedly fiscal adjustments can be made to correct this, but whether they would is another question.

A further question arises on the receipt of the increased revenues. These may accrue either to private citizens, exporting firms, traders or

producers, or the government may tax away the increase probably through export taxes and use it for its own purposes. If it is allowed to pass back to producers it may encourage further production which will be difficult to control and threatens the continuance of the scheme. If it accrues to the government it may be used for current expenditures or for developmental purposes. The donor countries would have much less, if any control over the use of the funds. They would suspect, possibly with justification, that they would disapprove of some uses of this aid.

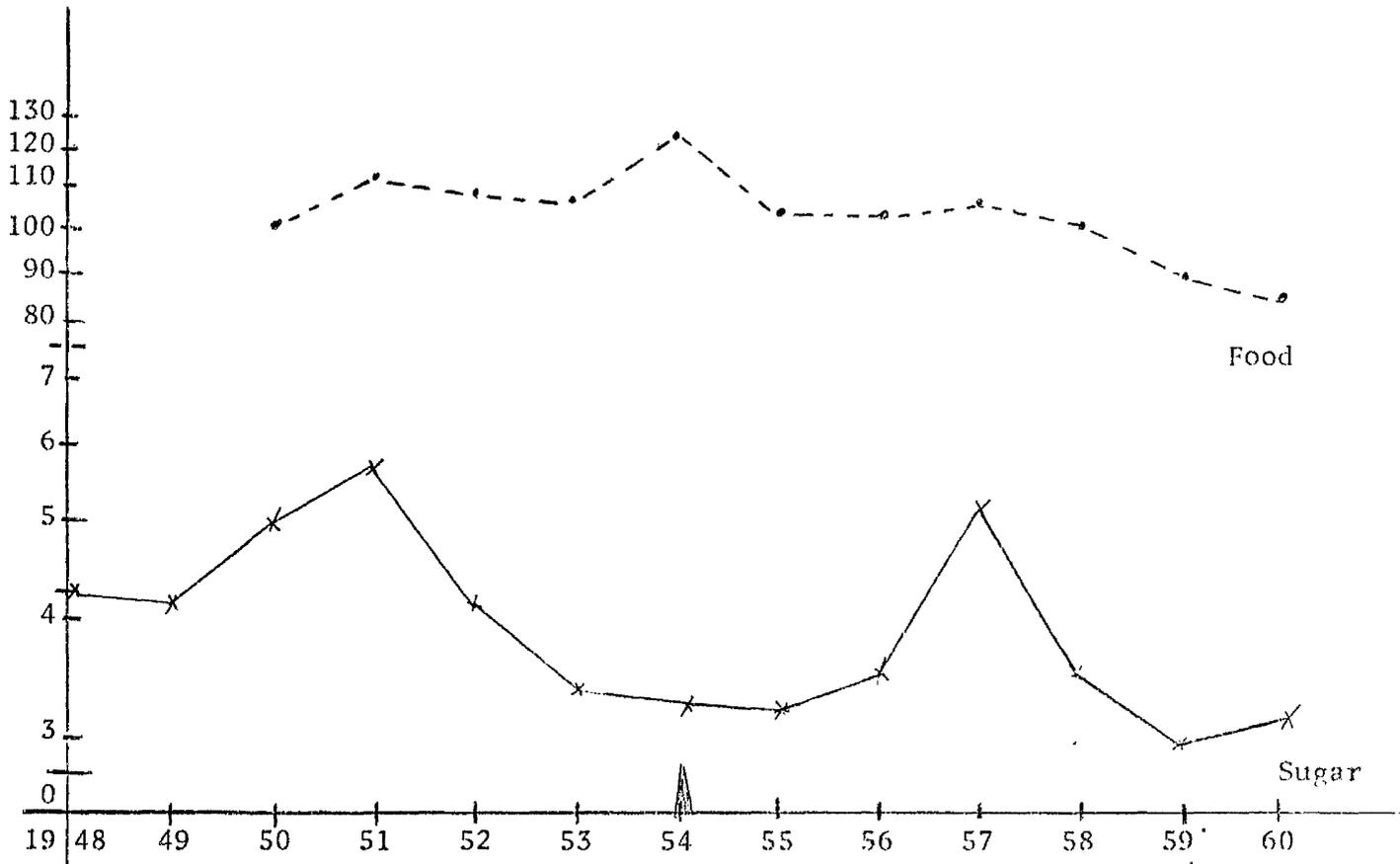
The suggestion that ICA's would be more easily obtained than equivalent increases in financial aid seems very dubious. It seems very unlikely that the US Congress would wish to see aid transfers made by a system which would reduce their control over allocation between countries and the purposes to which it is put. The riders added by both House and Senate to recent Foreign Aid Bills restricting the discretion of the Administration in both of these aspects point clearly to Congressional desire to retain fairly tight control over aid funds. There is little reason to suppose that administrations or legislatures in the other industrial countries apart from France, would differ significantly over this issue.

The prospects for obtaining ICA's which could significantly increase the flow of resources to underdeveloped countries are very poor. Even if they could be achieved there are grave risks that the costs would outweigh the benefits. These costs may be summed up as: allocative inefficiency,<sup>25</sup> inequitable distribution and collection of funds, increased risks of synthetic substitution and inefficient use of development funds. They

are admittedly speculative conclusions and we have noted arguments tending the other way, but in our view the balance of probabilities lies against their acceptance.

Chart 12:I

World Sugar Prices (Free Market) 1948-60 and  
Index of Prices of Food Exports from Underdeveloped Countries



Logarithmic scale on vertical axis. Sugar Agreement started January 1954.

Sources: Sugar prices: annual average based on New York Coffee and Sugar Exchange daily spot quotations; FAO, Commodity Review 1962 (Rome, 1962), Table 18.

Food Price Index: UN, World Economic Survey, 1962 (New York, 1962) Table 2-6.

A chart of monthly sugar prices 1948-58 in UN, Sugar Conference, 1958 (Geneva, 1958) p. 36, shows a very similar picture.

Table 12 : 1

Index Numbers for Price, Volume and Output,  
Tin and Rubber 1953 to 1960 in Malaya,  
Tin and Lead 1952 to 1960 in Bolivia

	<u>Pre-Tin Agreement</u>				<u>Post-Tin Agreement</u>				
	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
<u>Malaya</u>									
Index Tin Price	. .	100	97	101	106	102	101	109	108
Index Rubber Price	. .	100	100	169	143	132	119	150	160
Index Tin Volume	. .	100	108	109	110	100	66	64	99
Index Rubber Volume	. .	100	100	109	106	108	111	127	121
Index Tin Value	. .	100	103	107	116	101	64	70	107
Index Rubber Value	. .	100	99	175	150	143	129	187	194
<u>Bolivia</u>									
Index Tin Price	127	100	100	98	106	99	98	106	106
Index Lead Price	123	100	104	111	118	109	88	76	76
Index Tin Volume	92	100	87	89	86	87	58	67	58
Index Lead Volume	126	100	77	80	91	110	96	93	90
Index Tin Value	116	100	83	79	82	79	50	73	59
Index Lead Value	155	100	79	89	107	118	83	70	68

Source. IMF, International Financial Statistics (March 1962) country pages  
for Malaya and Bolivia.

Footnotes to Chapter 12

1. OECD, 1963; Pincus, 1964.

2. With a completely inelastic supply a price elasticity of demand above a critical level of  $-0.5$  will ensure that total proceeds will remain more stable if price is allowed to fluctuate freely in response to changes in the quantity supplied rather than if price is held fixed. If the reader bears in mind that with a unit price elasticity of demand a small change in quantity supplied will be completely offset by an equal percentage change in price in the opposite direction, this point will be intuitively evident and is susceptible to a simple algebraic proof. If price is held constant a small increase in quantity will result in an increase in proceeds =  $P \cdot dq$ . If price is allowed to move freely the same change in quantity will cause a fall in price and, if elasticity of demand is less than unity, a decline in proceeds =  $-Q \cdot dp + (dqP + dq \cdot dp)$ , but  $dq \cdot dp \rightarrow 0$  for very small changes

∴ If  $P \cdot dq = -Q \cdot dp + dqP$

then  $2dqP = -Q \cdot dp$

$$\therefore \frac{dq}{dp} \cdot \frac{P}{Q} = -\frac{1}{2}$$

3. ICA's are defined in this study as CA's which have both producer and consumer membership. ICA's in fact roughly conform to the principles of the Havana Charter. CA's which had only producer members have been given only passive membership in the proposed ICA's.

conform to optimal criteria than ICA's. Tea and coffee are the only important post-war agreements which involved only producers.

4. By almost all the international agencies concerned with this field and an impressive list of professional economists, among them: Colin Clark, J.B. Condliffe, J. K. Galbraith, E. S. Mason, Hla Myint, W. W. Riefler, J. M. Keynes and Sir Roy Harrod. See Swerling, 1963: p.778.

5. We recognize that where there are other serious distortions of the market, due perhaps to national policies in either producing or consuming countries, Certain types of distorting effects produced by an ICA might lead to a "second best optimum" and thus a net increase in economic welfare, but it is very difficult to think of examples where a corrective distortion would be politically feasible and reconcilable with our declared objective of price stabilization without interference with trend. We shall take this point up again in considering ICA's as instruments for long-term aid.

6. A good brief summary of this debate can be found in Scammell, 1954, and MacDougall, 1954.

7. Swerling, 1953: pp. 780-81. (The recent shift in consumer demands to instant coffee may have had some effect in this direction on Brazil's stocks of coffee).

8. See above Chapters 4 and 10 which give some discussion of the relative effects on capacity of fixed versus stable prices in the context of jute and cotton.

9. The sums involved would be enormous in comparison with say the resources of the World Bank or the annual flow of international aid. Hart, Kaldor and Tinbergen (1964) have revived the idea of creating international currency units, "bancor", to pay for commodities to be held in stocks under IMF control. Their ambitious and stimulating proposals aim at the solution of three problems at one blow: shortage of international liquidity, prevention of declining terms of trade for commodities and moderation of short-term fluctuations in commodity exports. For reasons given below in the section "Stabilization of a Commodity Index", my view is that their scheme would do little towards the moderation of export fluctuations of underdeveloped countries.

10. UN, 1951: para. 71; UN, 1953: paras.142-47; and Mason, 1946: pp. 225-27.

11. Bilateral contract agreements can be regarded as a special case of the more general type of scheme.

12. If demand and supply reach equilibrium above the ceiling price of the agreement consumers satisfy a large part of their demand at the ceiling price. As opposed to buying at the equilibrium price this represents a saving of real income equal to the quota times the difference

between the equilibrium price and the ceiling price. Depending on consumers' income elasticity of demand for the commodity their residual demand may be increased thus pushing the residual free market price above the overall market equilibrium price. If the commodity were by any chance an "inferior good" this income effect would actually be stabilizing. Since the proportion of income spent on one commodity in the main consuming countries is generally very small and the income elasticity of demand very low the total effect on demand is likely to be negligible. An analogous argument exists for sales at the floor price and also for effects on supply elasticities.

13. Advocates include Goudriaan(1932) and other books and articles; Graham (1937), and elsewhere; Bennet (1949) discussed it at some length and a more recent enthusiastic advocate is Harmon (1959); finally a memorandum on the subject, Hart, Kaldor and Tinbergen (1964) was presented to the UN, Conference on Trade and Development.

14. See Chapter 2 above.

15. Accounts of agreements in this period can be found in ILO, 1943; Davis 1946; Yates, 1943.

16. League of Nations, 1937: quoted in UN, 1953: pp. 29-30

17. Davis, 1946: p. 220; Knorr, 1945, and Bauer, 1948,

concur with Davis on rubber regulation. Similar views on tin are expressed by Knorr, 1945 a.

18. See Swerling, 1963: pp. 66-67, and Farnsworth, 1956: pp.227-28,

19. UN, 1958: p. 121. "The testing of the Agreement floor price has thus far been avoided, since Canada and the United States have preferred to accumulate large stocks rather than unload them in the free market."

20. Cuba actually voted for a relatively high volume and low price during the discussions on the Sugar Agreement. Timoshenko and Swerling, 1957: p. 336.

21. FAO, 1953: p. 70; UN, 1953 a; UN, 1958 a: Annex 1, p. 31.

22. The idea has been put forward in the name of the European Economic Community (rather than accept the obligation to eliminate barriers to underdeveloped country exports to community members) and a well reasoned exposition of its possibilities has been made by Pincus, 1964: pp. 227-41. I am grateful to Mr. Pincus for stimulating discussions with him on this subject. OECD, 1953: pp. 31-34, also suggests them as a supplement to financial aid.

23. FAO, 1962 a: Part I, p. 23, gives data for this statement.

24. The 1963 Coffee Agreement permits dumping in special areas of low consumption, i.e., Soviet bloc and underdeveloped countries. But likely sales would be small and the price reduction severe. It is hardly likely to be a very efficient safety valve.

25. In the case of sugar there might actually be some improvement if an overall international scheme superceded the present preferential bloc arrangements. In the other cases existing discriminatory treatment is minor.

## Chapter 13

### International Compensatory Finance

Disatisfaction with the risks and frustrations of commodity agreements and increasing realization of the difficulties of negotiating them in sufficient numbers to make a significant impact upon underdeveloped countries' export instability has led to a search for other ways of tackling the problem. This has given rise to a series of widely discussed proposals which can be embraced under the name of international compensatory finance schemes.

Probably the first systematic proposal of this type was F.G. Olano's "Mutual Insurance Scheme" outlined in an appendix of UN, 1953: pp. 97-102. In recent years several varieties have been discussed widely in meetings and official documents of the UN, the IMF and the Organization of American States (OAS) and several academic publications.<sup>1</sup>

All of these schemes have certain features in common. They make no attempt to influence either the prices or quantities of commodities exported. All seek to compensate underdeveloped countries at least for some part of a decline in their export prices or proceeds below a previously defined "normal" trend. All involve the provision of a fund out of which compensation is to be paid. The permutations and combinations of other features of the schemes, however, present an awe-inspiring variety and complexity. These stem from their different answers to the following questions on how such schemes should operate. Should they be bilateral, regional or global? Should the scheme be based on insurance principles with premia payments and outright grants of compensation or on a revolving fund basis with loans and repayment?

Should rich countries participate as recipients of compensation as well as contributors of finance? Should the schemes be related to a single commodity, selected commodity exports, all merchandise exports, total export earnings or the net balance of payments position? Should the schemes lead to long-term transfers of economic aid from industrial to underdeveloped countries? Should this become their major feature?

In this study we can only attempt to outline and discuss those features which seem to have gained the widest support in the official documents or which have some special interest. It would take too long and involve too much repetition to cover all of the many detailed proposals. In the exposition below we shall follow mainly the outline scheme suggested by the group of experts appointed in 1961 by the UN to consider compensatory financing and a variant suggested by OAS experts.<sup>2</sup>

#### Proposals of UN and OAS Experts

Both sets of proposals are for general, not single commodity schemes and aim at regional or worldwide membership rather than bilateral schemes. Both suggest the prescription of an automatic formula for the determination of the norm for merchandise exports for each member country. Both choose a moving average of the values of exports for the preceding three years for this practical norm. A shortfall in export proceeds is thus measured by the difference between the current year's export proceeds and the unweighted average for the preceding three years' exports. Compensation for a shortfall is only partial. In the OAS version compensation takes the form of stabilization credits which are granted to a country for two thirds of the amount by which its official export receipts for any year fall short of its average export receipts for the preceding three years, with a limitation that the total credits received by the country may not

exceed twenty per cent of its average export receipts for the preceding three years. These credits have to be fully repaid. In the years following the credit the country must apply two thirds of any surplus of export receipts over the average for the preceding three years to repayment. If at the end of three years it has not been fully repaid the outstanding debt must be converted into a "deferred credit" which must be repaid in two years, one half in each year. Interest is also charged on all credits so the OAS scheme involves no long-term aid and confines its aims to moderation of short-term fluctuations in foreign exchange availabilities for individual underdeveloped countries. The initial fund is to be of the order of \$1.8 billion, \$1.2 billion from the rich countries and \$.6 billion from the underdeveloped countries. Only underdeveloped countries are eligible for credits.

The schemes suggested by the UN, on the other hand, partake of the nature of social insurance and aim at income redistribution from industrial countries to low-income underdeveloped countries as well as moderating fluctuations in foreign-exchange availabilities. The UN group of experts suggest two general types of scheme. The first involves payment of premia and outright grants for shortfalls in exports. Premia would be based on export proceeds for underdeveloped countries and on national income for rich countries. This would ensure that benefits to underdeveloped countries would exceed costs while for richer countries the opposite would hold. In addition they suggest that shortfalls of less than, for example, 10 per cent, 5 per cent, or 2.5 per cent should not qualify for grants from the insurance fund. Since the tendency is for the richer nations to have more stable export earnings (though as Chapter 2 above shows the difference is less than the UN experts imply) they should

have fewer claims on the fund than most underdeveloped countries. Between them these features should ensure secular transfers from rich countries to poor countries in the normal course of operations of the scheme.

The second general type proposed would give countries drawing rights on a credit fund. These would have to be repaid only if the fortunes of the country permitted. If its exports in subsequent years exceeded the average for the preceding three years the country would make repayments from some fixed proportion of these surpluses. At the end of a stated period (three to five years) any outstanding debt would be turned into a grant. This type lies somewhere between the first UN plan and the OAS scheme.

More recently Raúl Prebisch has suggested a form of compensatory scheme designed to compensate declining trends in underdeveloped countries' terms of trade (UN, 1964). This would represent the extreme opposite to the OAS type of scheme and becomes a proposal for long-term economic aid. Conforming to our usual schema we shall defer discussion of the use of compensatory finance as economic aid and concentrate first on evaluation of the potential usefulness of the technique for dealing with fluctuations. In the following section we assume the operation of a scheme with a revolving fund and no net long-term transfers.

## A Critique of Proposals for Automatic Compensatory Finance (CF) Schemes

Of the international schemes which we have so far outlined compensatory financing has probably the most appeal to the general economist. It involves the least interference with the allocation functions of the price mechanism, but is compatible with more specific measures to deal with special problems. A CF scheme can form a framework within which ICA's can operate and national governments can make their own internal arrangements to combat national or sectoral effects of export fluctuations without risk of balance of payments crises.

If it is true that the main fear of underdeveloped countries concerning fluctuations in their export proceeds is the general internal instability created and the effects on ability to maintain steady investment and rapid growth the target of moderating fluctuations in the foreign exchange available from sales of commodity exports seems the correct one. In any case if a national government should feel greater concern for the impact on a region or a particular section of the population moderation of fluctuations in total foreign-exchange receipts would be of assistance. It would make it easier to provide specific help to such regions or groups. For example, deficit financing for subsidies to such people would be easier when the effect of this on the balance of payments is partially compensated by a credit from the fund. The international obligation to repay in subsequent years should assist underdeveloped countries' governments in carrying out the necessary but unpopular fiscal adjustments to absorb surplus foreign exchange proceeds in years of high export proceeds. This ordering of events is probably more feasible for most underdeveloped countries' governments than the more puritan policy of saving first to accumulate reserves to be used later to support income and imports in the lean years.

Another advantage possessed by CF schemes over ICA's is that they promise greater continuity of operation. As we have argued above, ICA's are under almost constant threat of breakdown. This uneasy state stems from the frequent temptation to some producer nations and some consumer nations to desert the scheme for the possibility of selling or buying unrestricted quantities of the commodity at favourable prices. A single unusually large harvest in a country with poor storage facilities may be sufficient to end an ICA. No similar danger exists in a revolving fund type of CF scheme. It is true that there may be some risk of individual nations defaulting on the repayment of a credit. This could occur either where a country's exports suffer a serious decline over several years or where the government acts irresponsibly. In either case under the OAS proposals the sum involved could not exceed 20 per cent of the average of the three preceding years' exports. If the trouble were a disastrous decline in the value of exports for which the country itself could not be held responsible the probability is that other aid from the IMF or national governments would be made available to assist recovery, provided the nation was doing its best to solve its economic problems, by cutting down imports and checking consumption. There would then be no need for the country to leave the scheme. Indeed willingness to remain in it and co-operate in paying off its debts would undoubtedly assist a debtor country to obtain other help. Equally a country which has acted irresponsibly or has defaulted deliberately might well find it extremely difficult to obtain credit elsewhere in the future. It is doubtful whether the short-term gain of a maximum credit of 20 per cent of the average value of the previous three years' exports would be worth the risks involved in defaulting. In any case defaulting by individual nations need

not do permanent damage to a scheme which should include large numbers of countries. It would merely increase the costs by a relatively minor amount.

The main attraction of CF schemes to underdeveloped countries' governments probably lies in the automatic nature of the credits. There are no "strings" of a political or economic policy nature attached to CF loans. The only obligation is repayment. There is a history of friction and resentment in the dealings between several Latin American governments and the IMF. Generally the Fund has insisted on evidence of the government's willingness to undertake measures to restore balance of payments equilibrium before agreeing to provide foreign exchange to help finance balance of payments' deficits. Evidences required by the Fund have often involved politically sensitive issues such as control of domestic inflation through attempts to balance the government's budget, to raise the cost of borrowing and to refuse wage increases to powerful groups of organized labor. Many underdeveloped governments have felt that their political and economic problems were not fully appreciated by the outside experts of such institutions as the Fund and the US Export-Import Bank. Consequently any measure which brings financial assistance automatically when exports decline while leaving the national government free to follow its own policies is very welcome to them. Other members of the scheme may, of course, view such countries' satisfaction with some alarm. Their participation may substantially increase the risks of default on repayment of credits and so raise the costs of the scheme.

But there may be political gains for the rich countries in automaticity. At present they alone bear the odium for demanding fiscal and monetary responsibility from borrowers. In a CF scheme all members have the motive of keeping costs to a minimum and preserving the continued operation of the scheme (i.e., if it does help to reduce the damage which it is claimed export instability inflicts on underdeveloped countries). Consequently potential defaulters risk the censure of other underdeveloped countries as well as of the chief creditor nations. Any warnings or advice would come from the administrators of the institution rather than from the US or Western European countries. This could help in a small way to reduce tensions between rich and poor nations which may well become an increasing threat to world peace in the immediate future.

It is at least arguable that new governments may learn more from their own mistakes than from resentfully following the advice of outside experts. Hence as long as the discipline of the need to repay credits is maintained there may be a strong case for complete freedom of action for the recipient government to do as it wishes with the sums of money credited to it by the CF scheme.

Most of the arguments for international compensatory finance are premised upon the view that underdeveloped countries' balance of payments problems are mainly due to export instability and that this in turn is due to circumstances beyond the control of their governments (UN, 1961: pp. 3-15). Neither of these assumptions is entirely valid. According to an IMF Report (1963, p. 17) "fluctuations in other items are, indeed, more important than export shortfalls in the causation of payments deficits." Fluctuations in imports are, according to the Fund Report, the most

notable cause of deficits. In 29 underdeveloped countries out of 56, imports proved to be more unstable than exports in the period 1946-58<sup>3</sup> which at least confirms the possibility that they could be a more important generator of deficits than exports.

The other assumption, implying that countries which have experienced high export instability have done so because of natural disasters or because of fluctuations in rich countries' demands, is clearly false for several of the countries which have experienced the greatest degree of export instability. In Iran, Iraq, Argentina, Bolivia and Indonesia, government policies of nationalization or particular commercial policies have been major causes of fluctuations in export proceeds (Chapter 2 above). Boris Swerling (1963: p 69) comments, "Primary producing countries have also by their own actions set in motion serious commodity disturbances. One need recall only Castro's actions in expropriating sugar properties, the Iranian oil episode, nationalization of Bolivia's tin mines, or the bearing of political crises in the Congo and the Rhodesias on copper supplies."

Even if it were true that many export shortfalls were the result of their own governments' policies would this constitute a strong argument against automatic compensatory credits for two thirds of the export shortfall? This ceases to be an economic question and becomes one of morals and politics in which this writer claims no particular competence to judge. However, there are some economic aspects of the problem. The shortfall may be the deliberate result of the government's policies, e.g., they may have placed an embargo on certain exports or imposed high taxes on production or export or have subsidized consumption of the commodities at home. Alternatively the shortfall may be the unintentional and unforeseen result of other policies of the government, e.g., they might not anticipate difficulties in nationalizing and operating industries formerly

run by expatriate concerns. The first is a chosen position and it may be legitimately argued that no government can justifiably claim compensation for a deliberate self-inflicted injury. The second is not a chosen position, but the result of a miscalculation. Given the high degree of uncertainty surrounding most economic decisions there may be a good case for providing compensation here.

In practice it could often be extremely difficult to distinguish between such cases. Probably, as long as the CF scheme is of the revolving fund type, with only partial compensation and near commercial rates of interest on borrowed money, the question becomes relatively unimportant. The incentives to manipulate exports in a deliberate attempt to obtain a credit would be too small to tempt any rational government. Consequently, the fact that export instability is often the fault of the sufferers themselves may not constitute a particularly serious attack on the principle of automatic compensation. There are other more powerful objections.

#### Prospects for Moderating Fluctuations by CF Schemes

The assumption that changes in export earnings form the major determinant of changes in the foreign exchange available to the economy and in domestic stability is more crucial. If it should be wrong the possibility arises that a policy of tying compensatory payments to fluctuations in merchandise export proceeds may actually destabilize the total foreign-exchange receipts of the economy and perhaps increase the danger of domestic instability. In economies where expatriate concerns dominate the export sector there may be a considerable difference in

magnitude and even direction of change between export proceeds and the foreign exchange which actually becomes available to residents of the country. (See Chapters 3 and 8 above). Changes in capital flows and invisibles are not always in the same direction as changes in merchandise exports. Clearly between these effects there is a distinct possibility for some countries that fluctuations in the net foreign exchange available to residents (including the government) may be made greater rather than less by the operation of an automatic formula geared to merchandise export proceeds alone.

On top of this there is the probability that, even without these complicating features, the mere operation of a scheme of automatic credits and repayments geared to a formula such as the unweighted average of the preceding three years exports may do little to stabilize the gross foreign exchange receipts and in some variants may even destabilize them. The evidence for these statements lies in a lengthy series of statistical exercises carried out by IMF officials. (Fleming, Rhomberg and Boissonneault, 1963) These consisted of comparisons between the relative approximations to a norm, representing an "ideal" degree of smoothing out of export fluctuations, of actual exports 1951-59 and of the "foreign exchange availabilities" (merchandise exports plus credits and/or minus repayments) under variants of the OAS proposals. The chosen "ideal" norm was a five-year-moving-average centred on the middle year. But since some automatic adjustments of imports to export change is normal and since most CF schemes aim only at partial compensation the norm or target level for comparison of CF schemes was set at a level which, "lies between the actual exports and the ideal norm in such a way as to diverge from actual exports by two thirds and from the ideal norm by one third." (1963, p. 127)

The criteria of performance were: (1) "the ratio of the standard percentage deviation of availabilities from the target level for all years and all countries to the standard percentage deviation of actual exports from the same target," (p. 126) and (2) a subordinate auxiliary criteria of a "smoothness ratio" which compares the available exchange receipts under the scheme relative to a five-year-moving-average of these same receipts (corrected for the deviation of target availabilities from the ideal norm) to the actual exports relative to their five-year-moving-average, the ideal norm (similarly corrected) (p. 128). For both ratios closeness to zero is the aim, over unity means a worsening of instability.

Their conclusion was that straightforward versions of the OAS scheme and the several variants with which they experimented would achieve only very partial success in approximating to these targets.

"The extent to which any of the schemes bring export availabilities closer to the target is limited. . . . Some of the variants examined have deviation ratios in excess of unity, showing that availabilities under these schemes deviate from the target more than do actual exports, i.e. more than availabilities in the absence of any scheme whatsoever. The deviation ratio of the O.A.S. scheme as drafted is as high as 0.92, and the lowest deviation ratio for any scheme is no lower than 0.77." (1963, pp. 132-3)

On the second criterion they fared a little better. All of the schemes improved the smoothness of available receipts somewhat (between 0.66 and 0.87).

It comes as something of a surprise to discover the very slight improvement in stability of even gross receipts which automatic schemes of the OAS type make. Nor does this slender benefit come entirely without costs for the credits do bear interest and countries do have to meet interest obligations at close to market rates on their outstanding debts to the scheme.

It may be supposed that the system of repayment which involves obligatory repayment of "deferred credits" over the 4th and 5th years may be responsible for the trouble, e.g. these obligations might fall on years of relatively poor export proceeds. However this explanation accounts for little of the discrepancy. Even when the terms of the scheme are varied so as to make all repayments contingent upon surplus exports the degree of stabilization is scarcely improved in the historical examples. (1963, Table 5, Scheme No. 111)

The greatest degree of stabilization of gross receipts is achieved when several features of the OAS scheme are varied. Instead of using the unweighted average of the three preceding years' receipts as the practical norm the current and two preceding years are used and given weights of 0.5 for the current year and .25 for the other two. Instead of the 20 percent of average receipts limit on debt, no limit is applied. Instead of the repayment system prescribed by the OAS scheme, repayments are all made contingent upon exports exceeding the norm in subsequent years. With these features a deviation ratio of .772 and a smoothness ratio of .706 are achieved, compared with results of .921 and .830 for the OAS proposals. However, these benefits are achieved at a higher cost in terms of indebtedness: 1.46 billion dollars at the end of 1958 compared with 1.29 billion under the OAS scheme. (1963, Table 5, Schemes nos. 132 and 3) This does not seem a very great cost if the improvement in stability is regarded as significant.

These results suggest that the faults in the OAS proposals lie in: The chosen practical norm which fails to approximate sufficiently the "ideal" norms: the fairly low limit on total indebtedness, 20 percent of average export receipts over the last three years; and the system of repayment

which together with the debt limit is likely to force some repayments in years of export shortfalls. These results, of course assume that all countries take all the credits they are entitled to and make all the repayments required by the rules of the scheme. But perhaps few governments could resist the temptation to borrow sums to which they are given an automatic entitlement. They would almost always be subject to some internal political pressure to accept. Accordingly the assumption may be fairly realistic.

Assuming an interest cost of 4 percent per annum for outstanding credits these schemes, once under operation, would impose an interest burden of from around 25 to 108 million dollars per annum on the recipient underdeveloped countries depending on the rules of the scheme.<sup>4</sup> (Fleming, Rhomberg and Boissonneault, 1963: Table 5) Would the very modest improvement in the stability of gross export receipts be worth this cost? When the fact that it is net export receipts which really matter and that their path need not follow closely that of exports is also weighed, it becomes yet more dubious. When we add that the case for believing that severe damage is inflicted in underdeveloped countries by export instability is not proven the case for automatic CF schemes falls to the ground. Should underdeveloped countries pay these relatively high and certain costs for what are at best very dubious benefits? The whole basis of the argument for CF is that it should assist the maintenance of domestic stability and economic growth. But the ability of all the variants of automatic schemes, analyzed by the Fund experts, to moderate fluctuations in even their proximate target of gross export receipts was extremely poor. Given that this proximate target is by no means uniquely correlated with the more important target of net foreign exchange available from merchandise exports and all other sources to government and residents, and that relationships between this and domestic

income stability and growth are also complex, varied and incompletely understood, it is clearly possible and even likely that automatic CF schemes may do more harm than good.

Another possible objection to CF schemes is that they do little for the particular groups hit by export instability. This is true. An effective ICA would deal directly with the cause of the problem and help the producers and all connected with the damaged industry. However, as previously explained CF schemes do not rule out ICA's and they enable the national government to take internal remedial action should it wish to do so. The OAS scheme actually contains a provision for making assistance available to a country where a fluctuation hits one major export industry severely while because of offsetting changes in other exports the total export receipts may not qualify for aid. (1962 p. 9) This particular objection is not an important criticism of the CF idea.

Easily the most damaging criticism of CF schemes is the likelihood of poor performance of attainment of their main objective, moderation of fluctuations in the foreign exchange available to individual underdeveloped countries. This together with the interest cost must greatly reduce their attractions to underdeveloped countries' governments. Nevertheless, the fact that they interfere so little with market incentives makes them on the whole much less undesirable than ICA's. The question remains as to whether automatic CF schemes have any contribution to make which could not be achieved by use of their own reserves and of the arrangements of the IMF as described in their recent publication on Compensatory Financing of Export Fluctuations. (1963)

## The IMF Alternative

This report takes issue with the Crawford Report's calculations which purport to show the inadequacy of the Fund's arrangements for meeting the problem of export fluctuations. The Crawford Committee accepted the Fund's view that its financial resources were ample to meet any reasonable demands for assistance from primary producing countries. (UN, 1961 p. 27) However, the Committee's calculations appeared to show that on a basis of full use of 125 percent of their IMF quotas either seven (1948-59) or eleven (1948-58) countries out of 31 underdeveloped countries would have been unable to meet cumulative shortfalls in exports without dipping into their own reserves to an intolerable extent.<sup>5</sup> (Ibid., Table 4 and pp. 24-25 of text. A reduction of 30 percent of reserves was taken as the critical amount.) Assuming only 50 percent of quota available the numbers would have increased to 16 countries out of 46 for shortfalls from average export proceeds of the previous three years in the period 1953-59.<sup>6</sup> (UN, 1961: Table 6 and p. 25 of text. Similar opinions are expressed in UN, 1963: pp. 55-56, Table 10 and p. 49.) The Committee also felt that access to Fund quotas was too uncertain and could not give underdeveloped countries sufficient assurance of the continued availability of foreign exchange to enable planning for steady economic development. They concluded. (1961, p. 21)

"The fact remains that the decision rests with the Fund; in preparing a long-term development programme a country cannot count with certainty on its ability to draw on the Fund's resources in the event of need."

Because of their dissatisfaction with the quantitative adequacy and certainty of Fund arrangements for dealing with underdeveloped countries' export problems the Crawford Report urged the case for CF schemes. One of the UN experts,

M.L. Qureshi set out in Appendix II of the Report suggestions for improving the Fund arrangements in this respect. He suggested (1961, p. 81) that,

"to offset fluctuations in the export proceeds of primary producing countries, compensatory drawings and repayments should be determined automatically by a formula. The fluctuations should be measured as a deviation from a trend which can be estimated on the basis of a moving average of three preceding years. A shortfall in export proceeds in any year should entitle the country concerned to draw from the Fund automatically up to, say, . . . 125 percent of its quota. . . Subsequently, when export proceeds are above the trend, the excess earnings should be used automatically to repay the earlier drawings.

The Fund has discussed these two problems of automaticity and adequacy in three studies which have been referred to several times in this book. The most recent sums up their present position.<sup>7</sup> (Fleming and Lovasy, 1960; Fleming, Rhomberg and Boissonneault, 1963 and IMF, 1963) This Report emphasizes the arbitrary nature of the assumptions which necessarily underly any statistical analyses of such a complex concept as the quantitative adequacy of international liquidity. Fund facilities are intended to supplement rather than replace national reserves and other sources of finance. International liquidity is required to deal with deficits arising from all causes not merely export fluctuations. Indeed other items in the balance of payments are more important causes of deficits. However, it is unlikely that the separate causes should coincide on any one occasion. The Report recalls that the three year moving average norm chosen by the UN experts is a very fallible

predictor of trend (and hence likely to exaggerate shortfalls and the compensation required). In the view of the Fund no automatic formula can give us good a prediction of export trend for any country as can expert analysis of the historical data and the underlying causal relationships. If a formula must be used then it should be based on the values of current exports and the two preceding years with weights of 50 percent to the current and 25 percent to the other years. Using this formula and several different measures of available international liquidity the Report gives its own analyses of reserve adequacy and reaches more optimistic conclusions than those of the UN. (IMF, 1963: pp. 15-22 and Table I)

The Fund concludes:

"The quotas of many primary producing countries, taken in conjunction with a reasonable use of their own reserves, are at present adequate for dealing with export fluctuations such as have occurred during the past decade. In those instances, however, where adjustment of the quotas of certain primary exporting countries, and in particular of countries with relatively small quotas, would be appropriate to make them more adequate in the light of fluctuations in export proceeds and other relevant criteria, the Fund is willing to give sympathetic consideration to requests for such adjustment."<sup>8</sup> (IMF, 1963: pp. 23-24. Ethiopia, Jordan, Libya, Malaya, Peru, Tunisia and VietNam have or will soon have increased quotas (p. 19).

The Report also points out (pp. 24-25) that:

"Under the present policies and practices on the use of the Fund resources, any member is given the overwhelming benefit

of the doubt in relation to requests for transactions within the gold tranche, and the Fund's attitude to requests for transactions within the first credit tranche is a liberal one provided the member itself is making reasonable efforts to solve its problems."

The Report adds that the Fund has often given much greater assistance than this in the higher credit tranches and through stand-by credit arrangements. Moreover, assisted members often find that Fund help leads to aid for both short and long-term purposes from other public and private sources. In future the Fund has decided that members with export shortfalls "can expect that their requests for drawings will be met where the Fund is satisfied that

(a) the shortfall is of a short-term character and is largely attributable to circumstances beyond the control of the member; and

(b) the member will co-operate with the Fund in an effort to find, where required, appropriate solutions for its balance of payments difficulties." Such assistance would normally be limited to 25 percent of quota. To carry this out the Fund is prepared to waive the limit on 200 percent holdings of the member's currency. (IMF, 1963: pp. 24-25)

The Fund continues to reject both aspects of automaticity: both the formula for judgment of shortfalls and the granting of credits without any consideration of the overall balance of payments position, current indebtedness, economic policies of the country or causes of the shortfall. (1963: pp. 9-14)

At the eleventh session of the UN, Commission on International Commodity Trade in May 1963 this IMF Report and a Report by a UN Technical Working group on CF schemes (UN, 1963) were considered. The conclusions of this Commission were that, by and large, the new action by the Fund would meet most of the

requirements of primary-producing underdeveloped countries for a greater measure of certainty on the availability of compensatory finance for short term export fluctuations. "While not excluding the possibility that other steps might have to be considered, the Commission decided to keep under review the implementation of new IMF policies leaving their effectiveness to be tested by experience."<sup>9</sup> (This is a quotation from the World Economic Survey, 1962, Vol. I. p. 57, which was actually published near the end of 1963 and so included a report of the CICT Conference.)

Given our view that the importance of the difficulties created by short-term instability has not been established and that the proposed CF schemes might well do more damage than good, this compromise position and "wait and see" attitude, seems quite the most appropriate in the current state of knowledge.

#### Compensatory Finance and Economic Aid

As was noted above, CF schemes may be designed which have the further objective of effecting transfers of resources from the richer countries to the less developed primary-exporting countries. If devised in the form of an insurance system the annual premia required from the members can be adjusted so that most of the costs are borne by the richer nations and most of the direct benefits received by the underdeveloped country members. Similarly if the scheme is in the form of a fund from which countries may borrow to finance export shortfalls repayable only if adequate surpluses are generated within the next three years the fund will require annual contributions to keep it solvent. These may be drawn mainly from the industrial nations. Under either method if there is a minimum shortfall to be exceeded, e.g. 5 percent of average exports before any compensation will

be paid, underdeveloped countries should tend to be favoured because of their greater tendencies to export instability. These were the suggestions of the Crawford Report (UN, 1961) and repeated in all the subsequent UN publications dealing with CF schemes.

The Crawford Report noted (para. 126) that because of this net transference of resources from industrial to underdeveloped countries it was particularly important, "or even essential, that the countries receiving assistance from compensatory schemes should make the best use of such assistance. But, the experts go on to give their opinion that they do not "consider that it is either practicable or desirable to trace whether compensation has been specifically used for particular objects of expenditure, or that it is desirable otherwise to impose detailed conditions on the use to be made of compensatory payments. It must be primarily the responsibility of the receiving country to make effective use of the assistance made available to it." (UN, 1961: para. 131)

Such longer-term aid as results from these arrangements is thus transferred automatically in accordance with the value of a country's exports, their degree of fluctuation and the particular time pattern of shortfalls and surpluses over average export receipts. Its expenditure is under no formal external control. Within the overall group of underdeveloped countries this type of aid would not necessarily flow either to those most in need of it or those best able to make use of it. Such a method of distributing resources is therefore open to much the same objections as were raised against ICA's for long-term aid. However, CF systems of the types described would probably have little or no distorting effect on the normal production and distribution of commodities and would tend to distribute aid over a wider group of countries than ICA's. Table 13.1 sets out the net amounts which would have been received

by members of a hypothetical scheme if it had operated from 1953-1961 and had had no effect on the flow of trade. On an area basis South and South East Asia would have received most, 47 percent of the total, Latin American countries, 31 percent, Africa and the Middle East would each have received around 9 percent. Greece and Spain would have shared the remainder. The individual countries which would have received the major benefits are: Pakistan, 16 percent; Indonesia, 14 percent; the Federation of Malaya, 10 percent; Colombia, 9 percent; and Brazil, 7 percent. Many underdeveloped countries would receive nothing.

This scheme was in fact the one most approved by the UN Technical Working Group. "Among the schemes providing compensation fully in the form of loans examined by the Group it was felt that Scheme No. 5 in Table I was the most worthy of further consideration by governments." (UN, 1963: p. 25) The rules governing it were: (1) the norm was the arithmetic average of the three preceding years; (2) a minimum deduction of 2.5 percent of average exports before any fluctuation becomes eligible for compensation; (3) compensation and repayment on a basis of 75 percent of any shortfalls or surpluses over the norm; (4) repayments required within the three subsequent years if exports exceed the norm. Amounts then outstanding became grants. (UN, 1963: Table I p. 23) The overall cost of the transfers would have been about \$2 billion over the period or an average of \$220 millions per annum. (Table 13.1 total)

As shown in Table 13.1, the distribution of aid under this scheme would be wider and more equitable than under the ICA schemes described in the previous chapter. Since it is geared to all merchandise exports while ICA's are only feasible for a small group of commodities this is always likely to be true. However, relatively small changes in the rules or in the time period

covered can result in sharp changes in the pattern of aid.<sup>10</sup> (UN, 1963: Annex 3, Table I, schemes 3 and 15 illustrate this point.) It remains true that aid of this kind is unrelated to the more rational criteria of need and ability to make use of it. Moreover it is completely free of supervision, hence the donor countries have no guarantee against its misuse.

These attributes of arbitrariness and lack of control over use are features which are likely to prove objectionable to the industrial nations.<sup>11</sup> Attempts at the 1964 UN Conference on Aid, Trade and Development to obtain some longer-term compensatory finance were opposed by industrial countries, but a compromise proposal to pass the idea to the International Development Association for further consideration was passed. "The measure calls for the IBRD to study the 'feasibility' of an arrangement to provide longer-term aid to help the poorer countries avoid disruption of their development programs." (New York Times, May 28th, 1964)

While economically superior to ICA's the transfers are more explicit and perhaps because of that less easily approved by governments of industrial countries.

A further objection is that a scheme of the type described could present some temptation to debtor countries to arrange their exports so as to minimize their repayments. Table 13:2 illustrates this possibility. In year 4 the country's exports fall to \$130 million which enables it, after a 2 1/2 percent deduction, to borrow 75 percent of the shortfall from the norm. This makes a compensatory receipt of approximately \$18 million. In year 5 its exports equal the norm so no repayment is made. In year 6 exports exceed the norm by \$13 million which enables a repayment of \$7 million. In year 7 exports continue their rising trend reaching \$170 million which would enable the

country to repay the whole debt. But by merely delaying some of its exports for a month or two so that they fall within calendar year 8 the country could reduce its export proceeds in year 7 and avoid repayment of all or part of the outstanding debt. As shown in the alternate 7, all that is required is to stock pile or delay payment on exports worth \$16 million to avoid repayment of the outstanding \$11 million entirely.

With risks of manipulation, arbitrariness in methods of distribution of aid and no controls against waste or abuse of the funds such schemes offer only a very inefficient method of giving aid to underdeveloped countries. That they offer a better method than ICA's is their sole recommendation. It is also true that from the burden sharing point of view they can be made more equitable, e.g. if contributions to the fund from industrially developed nations are based on national incomes adjusted for differences in per capita incomes. But on almost all counts it seems undesirable that longer-term aid should be geared to such arbitrary criteria.

#### Compensation for Declining Terms of Trade or Import Capacity

One UN study (1963: pp. 44-49) considers briefly some suggestions for aiding countries which have been hit by a secular decline in their real export proceeds relative to other nations. Such schemes would be concerned with trends, not short-term fluctuations. The choice of a base period and of the correct variable to insure are not easy questions to answer. Possible variables are: export prices, export proceeds or the terms of exchange between underdeveloped countries' exports and their imports, among others. Export proceeds and in some cases prices are easily manipulated through government policy so care would have to be taken to keep compensation low enough to avoid

attracting countries' governments to such actions. If export or import prices are to be used serious difficulties arise regarding the base year for indices and the methods of weighting the various prices over time when the proportions of different commodities in total exports and imports keep changing. "The pricing of a basket of goods over time, when the composition of the basket and the quality of the goods are both subject to material change, is a notoriously difficult matter." (UN, 1963: p. 47) Any particular year chosen as a base would always favour some countries over others and it would be extremely difficult to obtain agreement on this question.

The UN Group found that its members could not agree on whether there was any point in pursuing long-term compensatory finance ideas any further. Some felt that enough had already been said to demonstrate the "impracticability and inappropriateness of" adapting CF schemes to this purpose. Others felt it should be kept open for further discussion. (pp. 48-49)

Any scheme which geared the raising and distributing of funds to long-term changes in the terms of trade would be subject to the same objections of arbitrariness and risks of inequity and inefficiency. Given the scarcity of long-term aid to underdeveloped countries any waste would be deplorable. Nevertheless a CF scheme to compensate developing countries for declining terms of trade is warmly recommended by Raúl Prebisch in his Report to the UN Conference on Aid, Trade and Development. He says, "developing countries experiencing a deterioration in their terms of trade should have easy access to additional international resources in order to achieve the objective of maintaining their purchasing power." (Prebisch, 1964: p. 99) It can readily be appreciated that there is some moral justification for compensating a country for a misfortune which lies beyond its control for much the same

reasons as lead most rich countries to provide unemployment benefits and public assistance to their citizens in times of misfortune. If it could be shown that a country's development program was in danger as a result of an unforeseen and unavoidable decline in proceeds from exports long-term 'soft' loans might be made available. Indeed such a scheme seems to be what the UNCTAD had in mind when it passed a resolution instructing the IBRD to consider the 'feasibility' of longer-term aid in such situations. If the details can be worked out such a scheme would seem much more satisfactory than ICA's as media for long-term aid. In principle it comes closer to gearing aid to the over-all situation of a country and its economic plans than to the sole criterion of export performance. This seems to be a much more sensible approach than automatic CF schemes or ICA's.

Table 13:1

## Beneficiaries under UN Scheme 5. (1953-61)

Area	Net Benefits \$m.*	Area	Net Benefits \$m.*
Latin America	615	Middle East	185
Argentina	34	Cyprus	5
Bolivia	69	Syria	58
Brazil	138	Turkey	43
Chile	2	U.A.R.	79
Colombia	178		
Dominican Republic	2		
Ecuador	7	South & South East Asia	936
Haiti	21	Burma	38
Mexico	21	Cambodia	3
Nicaragua	5	Ceylon	8
Paraguay	4	Federation of Malaya	194
Uruguay	134	India	78
		Indonesia	269
Africa	175	Korea	15
Algeria	120	Pakistan	320
Central African Republic	2	Philippines	11
Congo (Leopoldville)	25	Greece	8
Ivory Coast	2	Spain	81
Niger	8		
Uganda	16		
Upper Volta	2		

Total Aid \$2,000 million

\*Compensatory Payments less contingent repayments adjusted for assumed repayment to same extent of loans still outstanding.

Source: UN, 1963: Annex 3: Table 1

Table 13:2 Scheme 5.

								Alternate
Year	1	2	3	4	5	6	7	(7)
Exports	150	160	160	130	150	160	170	(154)
Norm, 3 year moving average				157	150	147	150	150
Payments of Compensation				18				
Contingent Repayments					0	7	11	(0)

Footnotes to Chapter 13

1. See UN, 1953; UN, 1961; UN, 1962: Vol. 1; UN, 1962 c; 1962 d; UN, 1963; UN, 1963 a; IMF, 1963; OAS, 1962; Fleming and Lovasy, 1960; Fleming, Rhomberg and Boissoneault, 1963; Hazlewood, 1959; Morgan, 1962; Posthuma, 1961; Stern, 1963.

2. UN, 1961 and OAS, 1962.

3. Coppock, 1962: Appendix, Table A-2 gives the data for this statement.

4. Calculated from Fleming, Rhomberg and Boissoneault, 1963: Table 5. The suggested interest cost for the OAS scheme is 1/2 percent above a U.S. three month Treasury Bill. (OAS, p. 15.)

5. Ibid., Table 4 and pp. 24-25 of text. A reduction of 30 percent of reserves was taken as the critical amount.

6. UN, 1961: Table 6 and p. 25 of text. Similar opinions are expressed in UN, 1963: pp. 55-56, Table 10 and p. 49.

7. Fleming and Lovasy, 1960; Fleming, Rhomberg and Boissoneault, 1963 and IMF, 1963.

8. IMF, 1963: pp. 23-24. Ethiopia, Jordan, Libya, Malaya, Peru, Tunisia and VietNam have or will soon have increased quotas (p. 19).

9. This is a quotation from the World Economic Survey, 1962, Vol. 1, p. 57, which was actually published near the end of 1963 and so included a report of the CICT Conference.

10. UN, 1963: Annex 3, Table I, schemes 3 and 15 illustrate this point.

11. Attempts at the 1964 UN Conference on Aid, Trade and Development to obtain some longer-term compensatory finance were opposed by industrial countries, but a compromise proposal to pass the idea to the International Development Association for further consideration was passed. "The measure calls for the IBRD to study the 'feasibility; of an arrangement to provide longer-term aid to help the poorer countries avoid disruption of their development programs.'" (New York Times, May 28th, 1964)

## Chapter 14

### The Role of the Industrial Countries

The role of the industrial countries as the main generator of the export instability which afflicts underdeveloped countries has often been emphasized in the literature. Because of this it is frequently recommended that they assist in smoothing out such instability by maintaining stable growth at home and providing assistance to underdeveloped countries. Since it is clear that all the advanced industrial countries wish to maintain stable growth for their own sakes the first part of this seems a rather superfluous recommendation. However, it may not even be particularly relevant. It is by no means clear that fluctuations in the production of the industrial countries have been the main, or even a major, cause of fluctuations in the export earnings of underdeveloped countries. But there are other aspects of their economies which may exacerbate fluctuations in the export of underdeveloped countries. The object of this chapter is to evaluate various ways in which existing policies of industrial countries may make it more difficult for underdeveloped countries to achieve stable export earnings and to consider what improvements could be made.

#### Fluctuations in Industrial Countries and Commodity Imports

Several studies argue that fluctuations in the national product of the industrial countries are responsible for instability in underdeveloped countries' export earnings. Ragnar Nurkse claimed that evidence from a U.N. study (UN, 1952: Tables 1 & 2) of "The parallel movement of export

prices and export quantities reflects unmistakably the dominant role of demand conditions. It furnishes conclusive proof--if proof were needed--that the export fluctuations of primary producing countries originate in the world's industrial centers." (Nurkse, 1958: p. 14) The most recent UN World Economic Survey contains this passage:

"A major source of such instability lies in the cyclical variations that continue to characterize income and output in the industrially advanced countries."<sup>1</sup>

Again the role of the industrial economies is emphasized.

In the major recessions of the inter-war period it is quite probable that fluctuations in the industrial countries were the main factor in commodity instability. However, the available evidence does not support such a conclusion for the contemporary world.

The United States and the United Kingdom are the two industrial countries with the greatest influence on world trade. Countries whose exports are geographically concentrated are usually partnered to one or other of these countries.<sup>2</sup> If fluctuations in the export proceeds of underdeveloped countries are heavily influenced by changes in the income or industrial production of the richer countries it seems likely that these two countries are mainly responsible. But when countries are ranked by the degree of instability of their imports both the US and the UK emerge as relatively stable importers. Indeed out of 83 countries listed the US ranks 80th and the UK 59th. (Coppock: 1962, Figure 4-7, p. 63)

This is partly because both countries have maintained relatively stable levels of economic activity since the war. There may also have been some change in the relationship between changes in economic activity and imports in these countries. Before the war it appears that a fall of

4 per cent in American consumption was accompanied by a 25 per cent decline in the volume of imports. During the 1948-9, 1953-4 and 1957-8 recessions in the US imports fell off by only 5, 2.5 and 1.5 per cent respectively (Benham, 1961: p. 45). Our brief examination in Chapter 7 of the Puerto Rican economy revealed very little impact of the US recessions on Puerto Rican exports, almost all of which go to the US. Indeed for most countries it appears that the higher the proportion of their exports directed to the US the more stable their export proceeds tend to be.<sup>3</sup>

A recent careful analysis of UK imports gives estimates of production elasticities of demand of between 0.6 and 1.3, with a "best guess" of 1.0 for imported raw materials (Scott, 1963: pp 137 and 145). This indicates that a one per cent change in UK industrial production will cause an approximately one per cent change in UK demand for raw materials. Within the overall group estimates are given for metals (1.05), textiles (0.82) and other raw materials (1.13).<sup>4</sup> Since industrial production has been remarkably steady in the post-war economy of the UK it is hardly likely that severe swings in UK demand for raw materials could arise given these moderate production elasticities of demand.

Scott also finds a very low income elasticity of demand for imported food in the UK, indeed, close to zero (1963, pp 18-33).

The various causal factors, national income, industrial production and import prices apparently account for only very minor variations in UK commodity imports. Food and raw materials make up respectively 37 per cent and 30 per cent of UK imports. The only other significant amount of primary commodity imports is fuel at 12 per cent. As far as underdeveloped country exports are concerned this means petroleum. But petroleum has been a remarkably stable commodity in world trade and variations in

underdeveloped country export earnings from it can be largely attributed to political events (See above, Chapter 3).

It would seem that the cyclical fluctuations in the economies of the two industrial countries which weigh most heavily in the exports of underdeveloped countries can explain only a minor part of the short-term instability of export earnings from underdeveloped countries.

These findings, based on the two principal importing countries, are largely borne out by other more general studies. The UN World Economic Survey for 1958 (p. 48) comments:

"In only a minority of primary commodities, particularly the mineral raw materials, have cyclical variations in demand within the industrial countries dominated the pattern of short-period fluctuations in both volume and price. The behaviour of prices and volume of trade of most foodstuffs, and of prices--though not of volume of trade--of textile fibres, has been heavily influenced by the instability of supply conditions and has not conformed to any systematic cyclical pattern."

A.J. Brown has analyzed the relationship of manufacturing production to short-term changes in prices for cereals, tea, coffee and cocoa, vegetable oils, textile fibres, non-ferrous metals, petroleum, coal, wood pulp and natural rubber. For only cereals, surprisingly, was there a statistically significant correlation. For vegetable oils, textile fibres and rubber, correlation coefficients were apparently positive and, although not significant, sufficiently high to be regarded by Brown as suggesting a systematic connection.<sup>5</sup> He concludes that "changes in

industrial activity do not provide more than a part of the explanation of short-term changes in the real prices of primary commodities." (1960: p. 33) When changes in volume are included in the analyses Brown says that imports of foodstuffs are not closely linked to short-term variations in demand, but that industrial raw materials show some correlations. For the US, he claims that a change in industrial production tends to produce an equal percentage or less than equal percentage change in imports of raw materials. For Japan and Western Europe the response seems greater. He also points out that they import about three times the quantity imported by the US.<sup>6</sup>

The general tenor of the evidence which has been presented here is that for most primary commodities it is very difficult to establish any close connection between fluctuations in industrial activity and fluctuations in their values. Only for mineral raw materials and for the prices of textile raw materials do any of the studies claim an established connection. These conclusions are for world trade or industrial country imports of these commodities, not for individual underdeveloped countries' exports. As we argued in Chapter 2, variations in supply become even more important when attention is focused on the individual country's exports, as random variations in weather, pests, politics and war all affect the supply from the individual country much more drastically than the world supply. Clearly, the evidence does not support the view that fluctuations in the industrial countries' economies are the main or even a major cause of instability in the exports of most underdeveloped countries. Only those countries which specialize in exporting particular products such as some of the metals or natural rubber could claim that most of their export instability stems from fluctuations in the industrial centers.

## Stocks of Imported Goods

Changes in the size of stocks of imported commodities could have a seriously destabilizing effect on underdeveloped countries' exports, particularly if changes in stocks were synchronized with changes in industrial countries' consumption of these goods. But in fact,

"No simple conclusion can be drawn about the influence of changes in commercial stocks on the volume of trade. While the behaviour of stocks has certainly magnified the fluctuations in volume of trade in some years, in other years changes in stocks may have served to moderate the impact of changes in consumption on trade." (UN, 1958: p. 52)

Scott's study of UK imports (1963: pp 52-3) finds no systematic relationship between stocks of mainly imported goods and either all stocks or the level of industrial activity or the prices of imports. Scott also says (1963: p. 53) that "fluctuations in manufacturing production in the United States and in the rest of the world appear to have been greater than fluctuations in their apparent consumption of materials, which suggests that stocks of these materials are built up in a recession and run down in a boom." This seems fairly plausible. When demand within the importing country rises above current production the immediate response is probably to use up existing stocks and place orders for purchases to replenish stocks. But normal delays and time lags, given the distances separating export producers and importers, will generally hold up deliveries in the importing country until the boom has passed its peak so that stocks are in

fact replenished in the recession part of the fluctuation. If this happens more often than not, changes in stocks of imported goods would tend to stabilize the demand for raw materials.

#### Instability in Import Competing Domestic Production

Another likely cause of fluctuations in the demand for commodity imports is unstable domestic output of competing commodities within the industrial countries. Where domestic output provides a substantial part of the domestic market a relatively small change in domestic supply can produce a proportionately much larger fluctuation in the demand for imports. For example, Western Europe meets some 75 per cent of domestic sugar requirements from European beet sugar production. The output of beet sugar, however, tends to be relatively unstable because of the usual hazards of agricultural production; more so on the average, than cane sugar. The result is that while domestic consumption remains very stable the demand for imports of sugar can vary quite widely. Supposing domestic production equalled 100 and normal imports 20 then a 10 per cent fall in domestic output would cause a 50 per cent change in demand for imports. However, the main cane-sugar-producing areas have in the past had special links with importing countries which have led to special arrangements guaranteeing relatively stable prices to producers. Only the unfortunate smaller producing countries were fully exposed to the vagaries of the 'free' market until the establishment of the International Sugar Agreement (See Chapter 12). In any case proceeds from sugar exports have been relatively stable, particularly since the Second World War (UN, 1958: Table 13).

This particular cause of import fluctuations is only possible where a substantial share of the home market is met by domestic supplies and where these domestic supplies tend to be fairly unstable. Both of these conditions are likely to occur only in agricultural products normally produced in the industrial countries. Grains, meats, citrus fruits, sugar and tobacco are the only exports from underdeveloped countries which are likely to be affected by unstable outputs in industrial countries. Between them they amount to about 18 per cent of total underdeveloped-country exports.<sup>7</sup> But some of this is exported to other underdeveloped countries. Rice, for example, forms 2.2 per cent and most of it is exported to Asian countries. Sugar forms a substantial part of several underdeveloped countries' exports, but we have already noted that all the important sugar-exporting countries are taken care of under quota arrangements with the main importers, Britain, the US and the Soviet bloc. Argentina is the only underdeveloped country where grain and meat form a significant share of exports. Citrus fruits amount to a mere 0.8 per cent of the total exports of underdeveloped countries. Cyprus, Morocco, Algeria, Israel and South Africa are the only relatively poor countries where their export is important. Moreover, most of their citrus exports flow to non-citrus producing countries such as Britain and Northern Europe (UN, 1962: Table 2-10). The US produces about 90 per cent of its own tobacco consumption, but the residual tobacco imports have been very stable (UN, 1958: Table 16). European imports have fluctuated rather more, but this probably affected US tobacco exports more than underdeveloped country exports.

The upshot of this review of the effects of variations in domestic outputs of products which compete with exports of underdeveloped countries is

that it is unlikely that any important impact upon the stability of exports from all save a very few underdeveloped countries would arise from this cause. Improvements in agricultural techniques including pest control have in any case already helped to moderate year-to-year instability in most temperate zone agricultural production.

#### Changes in Technology

Mineral and textile exports from underdeveloped countries are liable to face unpredictable changes in demand because of changes in technology which alter the proportions of different materials required in the production process. However, this is an area where lack of empirical studies precludes any generalizations on the relative importance this may have in causing short-term instability in underdeveloped countries' exports. In any case, short of the policing of technical progress which Albert Hirschman (1959) suggests, there seems little that could be done to prevent it. But such misfortune could establish a good case for special compensatory long-term aid.

#### Trade Restrictions in Industrial Countries

All industrial countries are guilty of the imposition of tariffs, quota restrictions, levies or other measures which reduce the size of the markets available to exports from underdeveloped countries. These are objectionable mainly because they place obstacles in the way of international specialization and attempts by underdeveloped countries to increase their earnings of foreign exchange by selling goods to the industrial countries. But they also tend to increase the instability of exports from underdeveloped countries. Anything which restricts the size of a market and reduces the number of potential consumers will tend to reduce the price elasticity of

demand for commodities sold in it. Any change in supply will then lead to a larger fall or increase in price. Also protection keeps domestic producers in business behind the barriers. The larger the share of the market supplied by them the more likely that any changes in their output will produce magnified repercussions in demand for the residual supplies from abroad.

The UN, 1962: Table 2-10 lists the major primary commodities and gives the production, imports and trade barriers in North America, Western Europe and Japan. Tin ore and bauxite are the only primary products which gain entry to all of these industrial countries free of all restrictions. Every other product meets some form of trade barrier in at least several countries. The hardest hit, however, are clearly the temperate zone agricultural products and sugar. For these and the processed metals aluminum, copper, lead and zinc the objective of protecting domestic producers is quite obvious. For other products such as coffee, tea, cocoa and bananas a combination of revenue tariffs and internal revenue duties substantially raises prices and restricts demand.

The effect of these policies on underdeveloped countries' export instability is impossible to quantify, but it seems unlikely to be large unless there are frequent changes in the incidence of these various restrictions. The total increase in sales of exports from underdeveloped countries to industrial countries which would result from removal of these restrictions is probably not large. Underdeveloped countries are by no means the sole suppliers of these imports into industrial countries; indeed they are minor exporters of most of the major commodities entering international trade. Reduction of barriers to trade in commodities would probably lead to substantial increases in North American exports of cereals,

dairy products, oil seeds, tobacco, aluminum and coal; and in eastern European and USSR exports of meat, sugar, coal, cereals, lumber, aluminum, lead, zinc and petroleum. Underdeveloped countries would benefit to some extent, "but the resultant increase in earnings might be quite small." (UN, 1962: Vol 1, p. 38). Their largest gains would be in tropical products, particularly the beverages and bananas. But even here estimates of the likely increases in imports for 12 Western European countries from abolition of all duties and fiscal charges are low: 11 per cent for coffee, 8 per cent for cocoa, tea negligible, and bananas 5 per cent (UN, 1962: Vol 1, p. 21). There might also be some increase in sugar, cotton and petroleum. Abolition of restrictions on other products would bring few benefits to underdeveloped countries. (p. 39).

If these estimates of the net long-term effects of removal of all restrictions are approximately correct the implication is that the restrictions have relatively little effect on short-term instability. If only small increases in the size of their markets occurred as a result of removal of restrictions demand elasticities would hardly increase significantly. The products in which their gains would be significant are not produced in the industrial countries so the domestic competition effect on the stability of demand for their exports would be minor. Altogether, abolition of existing restrictions would probably improve the stability of underdeveloped countries' exports, but only to a minor degree.

## Policies of the European Economic Community

As far as EEC agricultural policy is concerned the system of protection which is being adopted seems liable to worsen the instability of primary-product markets through the introduction of variable levies. This system involves setting the tariff on an imported primary product at a height which is adjusted according to the difference between the average level of domestic production prices and the import price. This means that if the supply of exports increases and their international price falls EEC levies will be increased with the net result of checking any increase in export sales to EEC members. The levy system applies to temperate zone products and would affect approximately \$200 million worth of meat and cereals from underdeveloped countries, most of which, \$180 million are exported by Latin America, principally Argentina. Total underdeveloped country exports to the rest of the world amount to approximately \$20 billion so the sum affected by the EEC levy system is a very tiny proportion of the total. Moreover the adoption of the levy system is a less drastic change of protective system than it seems at first glance. Actually many industrial countries used quotas for the same purposes previously. Most agricultural imports have been treated as residual supplies, only allowed entry after domestic production has been sold off. However, such policies are deliberately chosen policies and clearly there are alternative ways of compensating domestic producers for the effects of foreign competition. Either variable quotas or levies will tend to increase instability in primary-product markets and as chosen policies of rich countries can be a clear object of attack as damaging the interests of poor countries. Once again the quantitative significance is probably minor, but at least the issue of principle is more explicit.

## Competition from Industrial Countries

Since most of the world's primary product exports in fact come from the rich industrial countries their policies as exporters may also be subject to criticism if they have led to increased instability in commodity markets. The US actually exports almost 38 per cent of world tobacco exports, 44 per cent of cotton, 15 per cent of rice and 82 per cent of soya beans. However, the probability is that the policies of the US, particularly in the case of cotton, have tended to stabilize rather than destabilize world markets. In their own interest managers of the US stocks have sold when prices were high and stockpiled when prices were low.

It has also been claimed that sales of tin and aluminum by the Soviet Union have had destabilizing effects on these markets and that control over Manchurian soybeans by China disturbs that market (Swerling, 1963: p. 69). But there is no evidence that these were not isolated and possibly miscalculated sales rather than the politically motivated actions which Swerling suggests.

## Conclusions and Suggestions

After considering these various ways in which industrially developed countries' sins of commission or omission may add to the instability problems of underdeveloped countries the question of degree of responsibility remains unsettled. Clearly if the industrial countries could maintain perfectly stable growing demands for underdeveloped countries' exports the instability of the latter would be decreased, but equally clearly this is an impossibility. It is in the nature of economic policy that the strength and sometimes even the direction of its effects are uncertain. Governments,

even in the rich industrial countries, are usually forced to base their policy decisions on partial and inaccurate information. The very process of growth is itself liable to produce fluctuations. There are no natural forces making it likely that the stream of technical progress should be stable. Consequently it is very difficult to prevent the relatively minor swings in demand which have occurred outside the crisis years. The only really serious fluctuations in industrial countries' demands for imports took place at the time of Korea. Such emergency purchases could only be avoided by the carrying of large strategic stockpiles, which America at present does but which few other countries feel they can afford.

In so far as fluctuations in industrial activity or national income are to blame for the instability of export earnings of poor countries, and we have found only a little support for this, it forms another argument for encouraging stable growth in the industrial nations. But it is very doubtful that their governments need any urging in this matter. There are strong internal pressures upon them to maintain high levels of employment and to avoid inflation, and the current 'league-table' attitude to economic growth keeps pressure on governments in this area too.

Perhaps other features of the problem are more amenable to policy action. Variable import quotas or levies which act to restrict demand in the face of increased supplies obviously increase the instability of the commodity markets which are affected and can be condemned for this reason, as well as for all the more traditional welfare economics (essentially free trade) arguments. The objective of such policies is usually to maintain relatively high and stable incomes for certain, normally agricultural, producers. But this can be achieved more efficiently by

deficiency payments to producers while leaving markets free. Unfortunately the variable levy is the chosen instrument of the EEC agricultural policy, chosen after years of intensive argument and negotiation and it is most unlikely that it will be abandoned in the foreseeable future. Fortunately the commodities most affected are important to only a few Latin American underdeveloped countries.

It has been noted above that all forms of protection and of heavy internal taxation on underdeveloped-country exports must tend to increase their short-term instability. But this effect also seems likely to be small and there are other more cogent reasons for attacking these particular policies of the rich nations.

It was also noticed that the evidence on the effect of changes in stocks of imported goods on the stability of demand for commodity imports was ambiguous and inconclusive. However, rich countries might ensure that any stock changes were consciously stabilizing by the deliberate operation of government financed stocks of imports. A government agency or statutory corporation could be provided with finance and permitted to purchase commodities at floor prices which would be adjusted according to its holdings of the commodities. When commodity prices rose above a prearranged ceiling price the authority would be permitted to sell from its stocks. Fairly elaborate proposals have been worked out on these lines by L. St. Clare Grondona. (1939 and 1958) His advocacy is based on a combination of strategic arguments and benefits of stability to producers and consumers alike with reflected benefits to the industrial nations through increased stability in the incomes of primary exporting regions. Most of his argument assumes the carrying out of such a program by the UK with

with possible imitation by other rich industrial countries.

For our purposes the relevant consideration is the effect on underdeveloped countries' export proceeds. Would they be made appreciably more stable? This depends on the degree of success industrial countries could achieve, through stock operations, in reducing fluctuations in their expenditure on imports of primary products and the importance of these in underdeveloped-country exports in general and to particular underdeveloped countries.

We have already listed and discussed the major determinants of changes in industrial countries' imports. In so far as they are all merely fluctuations and not the start of new trends a buffer stock can, at least in principle and probably in practice, moderate their net effect on any country's demand for imports of a commodity which is storeable at reasonable cost. Where variation in supply causes the fluctuation in prices, official stocks of imports could help reduce price instability, but as has been pointed out repeatedly in preceding chapters this may destabilize total export earnings for such commodities.

In Chapter 12 the main arguments for and against international buffer stocks were discussed. Most of them apply equally to national stocks. High costs and risks of failure to anticipate trends are probably the most important of the objections. Fear of balance of payments effects and the potential threat to exporting countries' bargaining power are other relevant questions in relation to national schemes.

Buffer stocks are expensive. However it may be rather easier to persuade governments to finance national stocks held on their own soil than to provide finance for international stocks which are outside their control.

The intelligent operation of such stocks of imported goods by the US, the UK, and the EEC would cover a very large volume of underdeveloped-country exports and considerably reduce fluctuations in demand for them. For illustrative purposes, some characteristics of such a scheme in the UK are discussed below. Table 14:1 sets out the main UK commodity imports from underdeveloped countries. Meat, fruit and vegetables probably present too many problems of refrigeration and storage for use in any stock policy. For the other products listed storage problems would not be too serious or expensive. This leaves 5.3 billion dollars worth of commodities which include approximately 3.2 billion dollars of underdeveloped country exports. The quantity of any product which would be required in stabilization stocks would vary according to its normal pattern of fluctuations, the target prices or quantities of imports held to be desirable, and the range of variation permitted before purchases or sales take place under the stock policy. Assume the stock aims at moderating fluctuations in the prices of selected UK commodity imports once they vary more than ten per cent up or down from a preset target price. The target price can be set by a combination of a formula and the discretion of the officials and probably should be different for each commodity to take account of different characteristics and determinants of trend for each. Variations on a formula which includes realised average prices of previous years or quarters and an estimate of the average for the current year (e.g.  $10\% EP_t + 40\% P_{t-1} + 25\% P_{t-2} + 25\% P_{t-3}$  where E stands for expected, P for price and the t suffixes indicate the period for which each price is relevant.) should help to prevent the target price from departing too far from the real trend price. An additional safeguard against over-commitment of funds to purchase of a commodity where the trend in prices is strongly

downward is to make automatic reductions in the stock's buying price whenever the stock reaches predetermined quantities. (Cf. Grondona, 1958: pp. 32 and 44.)

Since the stock would be attempting to prevent day-to-day prices from departing widely from the norm probably a fairly wide margin around the target should be free from stock intervention, say  $\pm$  10 per cent of target. It is very difficult to say just what would be the appropriate stock pile for each commodity, but probably an average holding equal to two months' imports would be sufficient. This would cost a little over \$ 500 million; possibly less, since purchases would always be made at low prices. There would however be some economies in reductions of privately owned stocks. These official stocks of important food and raw material commodities could also be regarded as replacing reserves of foreign exchange to some extent. The actual extent depends upon the reasons for any particular balance of payments deficit. If the cause were partly unusually high prices for the UK's commodity imports the automatic release of commodities from stock to counter this would relieve domestic firms of the need to buy imports. However, if the trouble lay in domestic inflation or poor export performance only a government take-over of the stocks, and sale of the commodities at the going prices whatever their height would save foreign exchange.

The annual financial cost, once the stocks had been built up, would be of the order of \$ 30 million, assuming they could be financed by the sale of bonds with an effective interest cost of 6 per cent. Additional costs would be handling charges, storage facilities and administration. The latter would be minor -- salaries to professional staff including commodity experts and consultants on specific problems of maintaining quality during storage etc. and clerical staff. Grondona has obtained

expert estimates of the capital costs of constructing suitable storage for the various types of commodities. Taken together with the costs of the maximum stock it seems unlikely that total annual costs would exceed \$ 50 million. (Grondona, 1958: pp. 49-50 and Appendix III) Against this cost the scheme would offset profits from the operation of the stock. Since purchases would normally take place at 10% below the trend price and sales at 10% above, the scheme should make profits on its normal transactions. The more short-term instability the larger the turnover of stock and the bigger the profits. Readjustments of the buying and selling points could be made as experience is gained so as to increase the effectiveness of the stabilizing operations without incurring too heavy a stock burden. However, even ignoring any profits on operations the total cost would probably be of the order of 0.1 to 0.2 per cent of the national income of the UK. This would be a fairly small cost even if the benefits to underdeveloped countries and to UK buyers were also relatively small. The UK as a whole would benefit as the operations of the scheme would obtain the same annual-average imports at lower prices unless there were serious errors of management.

Malaya and Pakistan are two countries which could expect a substantial improvement in the stability of exports' proceeds from rubber, jute and cotton from such action. Most ex-British African territories could expect some benefits to stability of their exports of copper, cocoa, groundnuts, cotton, sisal and coffee because so much of their trade is still directed to Britain.

If the US and the EEC operated similar schemes the stabilization effects should be very widespread and powerful. However, probably the principal merit of this suggestion is that it does not require any

international cooperation.<sup>8</sup> These policies can be set on foot unilaterally by any government which can set aside some resources for stock piling commodities.

One possible fear for primary exporters could be that the existence of these stocks would increase the bargaining power of the rich countries. It should be noted that the operations of the stocks do not lead to the opposition of a large government monopoly to the commodity exporters. The stock authorities merely stand ready to buy or sell at announced prices. They do not initiate transactions. They do not bargain. Naturally importers would not buy on the world market at a price higher than the selling price of the stock as long as it holds stocks, but equally no seller need sell below the floor price as long as it has funds to buy. There is no obvious reason why this should work adversely for exporting countries. Indeed, in the initial period while the stocks are being built up only the floor price would be operative.<sup>9</sup>

#### Bilateral Contracts

Apart from stock policies there are several other schemes which industrial countries could negotiate with their normal underdeveloped country trading partners. Bilateral trading agreements which fix prices and quantities in advance give a measure of certainty to the export earnings of the partner. Provided they are entered freely by both sides and revised or renegotiated fairly frequently the benefits of certainty and stability may outway the less desirable characteristics of such schemes. These are: 1) they tend to be fairly short-term. The prices

and quantities in the contracts are usually subject to annual renegotiation, so that they merely reduce day-to-day and seasonal fluctuations. The changes when they come are liable to be more drastic. Few countries are willing to risk having to buy at prices well above those of the free market if free prices should decline and few sellers are willing to continue a contract where free prices are on a rising trend. 2) Such contracts tend to destabilize the free market.<sup>10</sup> 3) The arrangements have to be run by governments or through trade associations and either of these may run into ideological difficulties in many countries. 4) They may encourage movements away from free international trade and so lead to inefficiencies. 5) They may give too much bargaining power to the importing countries which could enable exploitation of a weak seller, particularly where contracts are renegotiated and the alternative to acceptance of the buyer's terms is to seek new outlets in unfamiliar markets. Given goodwill on both sides such schemes could undoubtedly decrease the short-term instability of some exports from underdeveloped countries. If this element of goodwill is lacking then a very careful examination of the contracts and prospects is called for from underdeveloped countries before entering such an agreement. (Caveat vendor rather than the usual legal 'caveat emptor'). With a less rigid form of agreement, utilizing a target price determined by formulae which allow for trend and agreement on quantities to be purchased or sold at lower and upper limit prices which differ by fixed percentages from the target price might make such schemes longer lasting and remove any element of deliberate exploitation. A UN committee's report (1953, para. 134) was unimpressed by bilateral contracts. They said, "We do not feel . . . that a greater resort to this method would be likely to reduce market

instability appreciably." Probably the most important such contracts between rich countries and underdeveloped countries in recent experience have been the British bulk purchase agreements during and after the second World War,<sup>11</sup> the US sugar quotas, and the arrangements in the French Franc Area between metropolitan France and its ex-dependencies.

#### Bilateral Compensatory Finance Schemes

A hybrid scheme, a cross of bilateral contracts with compensatory financing, presents a very flexible approach to the problem of underdeveloped country export fluctuations. At its simplest two countries agree on a target price for a traded commodity and compensate each other through financial transfers for departures of actual prices above or below the target price. At its most complex many commodities and many countries could be involved, when it approaches the more general CF proposals of UN, 1961. Versions of bilateral compensation have been put forward recently by Arthur Hazlewood (1959) and James Meade (1963). A UN study (1962 d) discusses many of the problems which might arise in CIF schemes related to single commodities.

The main advantages and disadvantages of general CF schemes of the OAS type have already been outlined. In our view relatively minor modifications of the attitudes of the International Monetary Fund, and of the facilities available to these underdeveloped countries whose exports tend to be highly unstable are probably a superior solution to the balance of payments difficulties of underdeveloped countries. This does not prejudice the issue as far as this more direct and simple approach to CF is concerned. Many of the criticisms remain relevant, but additional arguments come into play.

1. Simplicity. Such a scheme requires only that agreement be reached between two countries on the method of determining the target price (and quantity) for one commodity. If this works it can readily be extended to other commodities and other nations may be attracted by the example.

2. Such schemes can be directed to the countries where the problem seems more serious. Thus a relatively small effort may yield considerable benefits. For example, Malaya, Pakistan and Ghana are three countries which have experienced very unstable export earnings mainly for reasons beyond their control and largely due to concentration on particularly unstable commodities: rubber, jute and cocoa. A large proportion of their exports of these commodities is exported to Britain. Bilateral CF agreements with each of these countries for the respective principal export would undoubtedly effect some moderation of fluctuations in the amounts of foreign exchange available to them from exporting these goods. If the USA were to make similar agreements with Malaya and Pakistan the stabilizing effect would be doubled. Extension to tin in the case of Malaya and cotton in the case of Pakistan would have a smaller, but still probably significant effect.

3. Since there are no controls imposed on prices or quantities traded many such schemes could be developed between various industrial countries and their normal suppliers without creating rigidities in trading patterns. This allows world trade to develop in the most efficient way with consequent benefits to both producing and consuming nations.

4. Compensation would never be for the full amount of the departure from the target price so that manipulation of prices would be unlikely to bring gains.

5. Instead of two-way automatic transfers it might have some advantages to make compensation from rich to poor countries via short term loans. A dip in export prices below trend would give the underdeveloped country suppliers an automatic credit line in the rich country partner. It could use this or not depending on its needs. For example a surge in other exports' earnings might offset the drop in the main export and make it unnecessary for the country to use all or even part of the available credit. Repayment of outstanding loans would be obligatory when prices rose above the norm and discretionary at other times. This automatically available credit could have substantial indirect benefits through increasing general confidence in the underdeveloped countries' balance of payments position. Motives for short-term capital flight would be reduced, investors' confidence increased, even when the credit is untouched.

Doubts were raised in earlier chapters as to the usefulness of gross export earnings, particularly of one commodity, as a guide to net export earnings let alone the overall balance of payments position. For this reason, an automatic overdraft system seems to me to be superior to one which requires automatic transfers.

For commodities where price and quantity fluctuations are frequently in opposite directions normal export proceeds may be a better target base than prices. But then rather more stringent precautions against manipulation by the exporting country may be required. <sup>12</sup>

## Conclusions

It is rather difficult to establish from the statistics that fluctuations in the industrial countries have been a major cause of underdeveloped country export instability. Even if it were true the recommendation which follows is one the rich countries are following on their own account. Other aspects of their economic policies, particularly with regard to agriculture are probably destabilizing, but quantitatively their effects may be very small. However, there are certain positive policies which industrial nations acting independently could adopt and which might yield significant benefits because their effects can be directed towards those primary products and exporters which experience most instability. Combinations of specific policies such as holding buffer stocks of certain imports and operating bilateral compensatory credit schemes seem to this writer to offer some hopes of assisting moderation of fluctuations in the exports of some of the countries which have experienced particularly severe instability in the past.

Table 14 : 1

UK Commodity Imports from Underdeveloped Countries, 1962 (\$ millions)

SITC Division	Total Imports \$ million	Imported from Underdeveloped Countries \$ million	Percent from Underdeveloped Countries
01 Meat and meat preparations	876	187	21
04 Cereals and preparations	682	150	22
05 Fruits and Vegetables	825	288	35
06 Sugar and honey	180	115	64
07 Coffee, tea, cocoa, spices	475	430	91
08 Feed stuff for animals	190	136	72
12 Tobacco	226	97	43
22 Oil seeds, etc.	150	95	63
23 Crude rubber (including synthetic)	172	141	82
26 Textile fibres (crude)	671	282	42
28 Metal ores and scrap	390	167	43
33 Petroleum, etc.	1490	1270	85
68 Non-ferrous metals	675	280	41
<b>Total</b>	<b>7002</b>	<b>3640</b>	<b>52</b>

Source: Extracted from OECD, Foreign Trade, Analytical Abstracts, Series B,

Jan-Dec 1962, UK.

Footnotes to Chapter 14

1. UN, 1962: Vol. 1, p. 48. A subsequent passage points out that supply is also relevant. "In addition to variations in demand, forces affecting supply have also contributed to the instability of primary commodity markets." It is fairly clear that demand is emphasized and supply downgraded as the causal factor in commodity trade instability.

2. The US and the UK between them account for almost a quarter of world imports. Coppock, 1962: Table 4-6, p. 61. Geographically concentrated exporters and their main customers are shown in Michaely, 1962: Table 5, p. 25.

3. Coppock, 1962: p. 96. His analysis of export instability and proportion of exports going to the US yielded a correlation coefficient of  $-.27$  which is rather low, but ranking in thirds confirms the association, weak though it is (p. 115).

4. Scott, 1963: p. 137. "Other raw materials" include mainly: softwood, hardwood, pitwood, reclaimed rubber, molasses, straw for paper, rags, etc. and waste paper. (p. 228).

5. Brown, 1960: p. 33 (The actual correlation coefficients are not published).

6. Brown, 1960: pp. 65-66. Unfortunately none of the statistical evidence for these claims is given in the publication.

7. Calculated from UN, 1962 e: Table A. Figures for 1961 save for a few products where 1960 data were used. The data are for primary exporting regions and include Australia and New Zealand so the percentages should be slightly less.

8. There is no reason why the stock authorities however should not use the data put out by international organizations such as FAO and the CICT and seek their advice on commodity questions.

9. Grondona, in both of the studies cited above sets out much more elaborate pros and cons which time and space forbid in this brief discussion.

10. See section on multilateral long-term contracts in Chapter 12.

11. These are described and criticized in Lebuscher, 1956, and Betts, 1956.

12. Cf. "Possible ways of inducing fluctuations . . . domestic price supports, exchange rates, direct and indirect subsidies on exports, quantitative controls, inventory adjustment, barter and other trade agreements . . . shunt deals with non-participating countries and so on. Over a wide range of actions by which deviations in earnings might be induced and claims for compensation generated." UN op.cit., p. 70.

## Chapter 15

### Summary of Principal Findings

This study set out with the object of exploring the causes and consequences of short-term fluctuations in the export earnings of underdeveloped countries and considering what policies might be helpful.

Despite the severe limitations imposed by inadequate and unreliable data some interesting, though mainly negative, conclusions can be drawn from the various analyses presented above.

The main conclusion of the first section of the book is that probably the importance of short-term export instability to underdeveloped countries has been exaggerated. There is little evidence to show that in general their economies have been damaged. In most cases fluctuations in income do not appear to be at all closely related to fluctuations in export earnings. Many countries with highly unstable exports have relatively stable incomes. Many with stable exports have serious domestic instability. In few countries is there evidence of strong current or lagged association between domestic variables and export fluctuations. This lack of relationship cannot be explained simply by the relative quantitative importance of exports in their economies, for even with countries chosen for high ratios of exports to gross national product the lack of correlation holds. Probably the main reason for the lack of a strong relationship between domestic variables and export fluctuations lies in relatively low values of the foreign-trade multiplier in most underdeveloped countries and distributed lags in reactions to an initial change in exporters' incomes. This gains some support

from the fairly high correlation between import instability and export fluctuations, which emphasizes the high marginal propensity to import normal in such economies. Instability of investment seems, at most, very weakly related to fluctuations in the importing power of exports. Both simple and multiple-least-squares-regression analyses yield no support for the thesis that export instability tends to reduce capital formation. The results actually appear to support the opposite conclusion. Such analyses of the effects on the "efficiency" of investment, as were possible, do not demonstrate any tendency for export fluctuations to affect this adversely. Most of the indicators used, however, were very unreliable.

These conclusions are derived from both cross-country and time-series analyses and are supported by the more detailed case studies carried out in Section II.

Comparison of instability in exports of underdeveloped countries and of industrial nations, of primary products and of manufactures reveals a much greater overlap and much smaller differences than most discussions have assumed. Commonly held explanations of the extra instability experienced by exports of underdeveloped countries such as: 1) specialization on primary products, 2) commodity concentration, 3) geographical concentration of destination of exports are found to explain very little if any of the extra instability experienced by underdeveloped countries. Examination of twelve underdeveloped countries which have clearly experienced great export instability in the period 1946-58 reveals that the reasons are very specific for each. National economic policies, wars and civil strife have been major causes in several. Specialization, not merely on primary products, but on

a particular product such as natural rubber or jute which has been peculiarly subject to instability explained the fluctuations in the rest. For most underdeveloped countries variations in the supply of exports seem to have been more important than fluctuations in demand in causing instability in their export proceeds. Again evidence from the five case studies seems to confirm these conclusions on causes of export instability.

These sets of conclusions on both the importance of export instability and its causes have an important bearing on policy proposals. Clearly if short-term export fluctuations do not inflict serious damage on most underdeveloped countries' economies the possible benefits to underdeveloped countries of even the best possible schemes for stabilization may be very small. Consequently schemes which would cost a great deal to establish and run efficiently become unattractive. The resources would be better employed elsewhere, perhaps in providing increased investment or more education and training in underdeveloped countries. For this and many other reasons, such as the effects on allocative efficiency, possibly only the simplest and cheapest forms of national policies should be considered by most underdeveloped countries. Of course individual countries which for particular reasons suffer high instability in exports which does affect their domestic economies may consider more elaborate schemes worthwhile.

Similarly, in the field of international policy, comparatively minor changes in the policies of the IMF, changes which it has made or is now making, should give underdeveloped countries most of the facilities they require to meet balance of payments difficulties stemming

from export fluctuations.

While the role of industrial fluctuations as a cause of export instability in underdeveloped countries has been overstressed in the post-war era it is undoubtedly one cause. However the industrial economies are already committed to full employment and stable growth and need little urging on this count. Some other aspects of their policies, particularly protection of agriculture and some industries probably exacerbate short-term fluctuations in underdeveloped country exports as well as frustrating their expansion. Reduction of these barriers to trade and the adoption of certain positive policies such as buffer stocks of imported commodities and bilateral credit arrangements may be capable of alleviating directly and relatively cheaply some of the worst cases of export instability.

As this study has evolved it has developed an implicit and rather obvious plea. This is that before attempting to prescribe a cure one should in general be sure: a) that the patient really is sick, b) that one has an accurate diagnosis of the causes, c) that the prescribed cures are not liable to be worse than the disease.

The study has not established that fluctuations in export earnings do no damage to underdeveloped countries, but it has shown that the contrary view that the internal consequences of export instability are serious is not upheld by examination of the only readily obtainable evidence. Probably what is required now is much more detailed, preferably 'in the field' investigation of the domestic consequences of fluctuations.

Equally the study does not show that stabilization policies are all irrelevant or ineffective in dealing with export fluctuations. Rather it suggests the need to weigh very carefully the national or international

benefits and costs from any scheme before endorsing it. An increase in the availability of credit for countries with temporary balance of payments difficulties seems to the author to be the policy likely to do most good and least harm by enabling deficit countries to decide for themselves what domestic policies they wish to adopt.

One major gap in this study is the slight attention given to seasonal and intra-seasonal variations in prices of exportable commodities. The principal reasons for neglecting this aspect are the relative absence of data and the belief that the average yearly incomes from exports were what most affected governments' policies due to the uncertainties attached to shorter-term estimates and the normal accounting conventions. However, this neglect may have biased our findings a little against schemes which aim at moderating price fluctuations, for they may have succeeded in smoothing out intra-year price instability even when unsuccessful with yearly average prices.

## Appendix I

### Methods and Data

Throughout this study short-term export instability has been defined as fluctuations in the value of export proceeds about calculated trend values. In most of our analyses these are measured as average-annual-percentage deviations in the dollar value of exports from a five-year-moving-average of export values, centered on the middle year. This is felt to be the best indicator of what most economists mean by short-term instability. The use of annual data is probably justified on the basis of the widely accepted conventions of annual budgeting and balance of payments' accounting. Moreover, quarterly and monthly data are frequently unavailable and may require correction for seasonal variations. The elimination of trend is required lest a constant increase or decrease be interpreted as an indicator of instability e.g. by one widely used measure of fluctuations a country whose exports had increased by a steady ten percent per annum would appear less stable than one whose exports had risen and fallen by nine percent on alternate years over the same period. (UN, 1952: pp. 77-79).

Statistics using other methods of eliminating trend and calculating fluctuations have been used in some of the analyses. In particular, indices of instability drawn from Coppock (1962: Chapter 2 and Table A-2) are calculated in a rather different manner. His measure, a "log variance" measure, assumes a constant percentage increase or decrease in export proceeds and corrects annual changes for this. His index seeks to show "typical year to year relative changes corrected for trend influence." It

is the square root of the logarithmic variance of the series. Broadly speaking, it measures fluctuations as deviations from a trend line which curves gradually upwards or downwards (as sketched on normal graph paper) indicating a constant percentage increase or decrease. The Coppock index correlates very well with a measure which corrects for trend by least-squares regression and even with the simpler United Nations measure discussed above. Correlation coefficients were approximately 0.9 in both cases. Both it and any measure which assumes a single constant trend is liable to exaggerate instability if more than one trend is present. In the case of exports, in many primary producing countries a sharply rising trend from 1946 to the early 1950's was followed by a level or gently rising trend in the later 1950's.

The question of trend is very important in any discussion of export fluctuations. Fluctuations in export earnings are a problem which most countries should solve without making costly changes in their allocation of resources. Balance of payments' deficits arising from a temporary dip in export proceeds should be met by financial measures, use of reserves and international credit, rather than devaluations or controls intended to lead to import substitution which would make fundamental changes in the economy. Changes in export earnings which are due to underlying trend factors such as changes in production conditions at home or abroad or the development of substitutes form a quite separate problem. They require fundamental adaptations of the exporting country to the new situation. They are not reversible changes and consequently use of reserves or borrowing only postpones the day of reckoning and cannot solve the problem. This study is mainly concerned with fluctuations in exports which are likely to be reversed in the fairly immediate future, say in one or two years. This is

the sort of instability for which marketing board schemes, national and international buffer stocks and compensatory financing schemes etc. are, at least in principle, feasible solutions. Consequently for our purposes it is only that part of changes in exports which can be attributed to temporary, reversible fluctuations which is relevant. Changes due to trend factors have to be eliminated.

In general, exports can be understood as merchandise exports. This is similar to all the UN and International Monetary Fund discussions cited at various points in the text. However, the Coppock indices include "invisible exports" as well as commodities. For most underdeveloped countries this is seldom a large item (although for some tourism is of growing importance) and will seldom affect a country's ranking by degree of export instability.

It should also be noted that it is with export proceeds, not prices that we are normally concerned. It is necessary to emphasize this as statements about prices may well not hold for proceeds. Export prices for a particular country's exports may be very unstable while the total proceeds received remain relatively stable. Quantity changes may have compensated changes in prices more often than not. Another distinction worth bearing in mind is that between the total value of world exports of a commodity and an individual country's exports of that commodity. The factors which determine the degree of instability of these two items can be quite different. The total value of exports of petroleum have been very stable in the post-war era, but at least two countries whose exports consist mainly of petroleum have experienced very high instability of export proceeds.

Fluctuations in the total value of each country's exports form the main subject of this study. This stems from our interest in the domestic consequences of instability in exports. In general it can be expected that it is export proceeds rather than prices which influence producers' incomes, national or regional incomes and ability to purchase imports, particularly imports of capital goods. The separate influence of price and quantity fluctuations have, however, not been entirely neglected.

In the main statistical sections two broad approaches to the problem of testing relationships between export instability and various domestic variables such as national income or investment have been followed. The first of these is cross-sectional or cross-country least-squares regression analysis, both simple and multiple. The hypothesis tested by this is of the form: those countries which have relatively unstable exports tend to have relatively unstable national incomes, investment, or other domestic variables. In the multiple regressions the influence of other variables upon the dependent variable is estimated and allowed for in estimating the influence of exports. Secondly, time-series analyses are shown which examine and compare the movements over time between the various dependent variables and export proceeds. This method has the merit of revealing the time lags which may be involved. The cross-country analyses largely avoid the problem of lagged relationships because each index of instability sums up the average experience of each country over a large number of years, 1946 to 1958 or 1948-1958 in most cases, for each variable measured. Thus if exports and gross national product were compared, any influence which fluctuations in exports had upon fluctuations in gross national product would be revealed unless the time lags were very long indeed.

Where data do not permit a quantitative approach more general qualitative discussion is used as seems appropriate.

In the sections on policy the general criteria used differ between national and international policies. National policies are evaluated mainly in the context of general national economic welfare, not merely on the criterion of their effectiveness in moderating instability. This involves discussion of longer-term side effects of policies, particularly effects on allocation of domestic resources and on long-term export earnings. Any likely effects on economic growth are stressed since this is taken to be the main policy objective for underdeveloped countries. Overall world economic welfare is regarded as the appropriate criterion for assessing international commodity agreements and compensatory finance schemes. However, effects on underdeveloped countries are generally weighted more heavily than effects on the economies of industrial countries. For example, some inefficiency in the international allocation of resources is regarded as tolerable if it would significantly improve the current living standards or prospects of growth for underdeveloped countries.

The statistical data used are described throughout the text in footnotes and appendices. However, some general description and warning is appropriate. Statistical series on exports are probably fairly accurate for most countries. Data on national income are, however, often very unreliable. But the normal sources of error often affect the absolute totals more than the changes in the totals. The subsistence sector, or some other activity, may be consistently undervalued, but changes in it may be much more easily estimated. There is, therefore, some reason for regarding measures of fluctuations and of rates of growth as having greater reliability

than the absolute magnitudes. Moreover, the indices which are frequently used in the analyses are averages of trend-corrected changes over a fairly large number of years, usually 10 to 13 years. Most of the analyses involve a relatively large sample of countries, usually between 20 and 56 and the probability that random errors in individual estimates will cancel out becomes fairly high.

All of the statistical results are subject to some checks upon their reliability. The usual formal statistical tests of significance, t tests, chi square ( $\chi^2$ ) tests and 'F' ratio tests are applied to the results as appropriate. General economic reasoning is used to establish whether the results are reasonably credible. In the tests of statistical significance the relatively easy criterion of 5 per cent significance level is used. The result is generally accepted as statistically significant if it reaches this level of significance or better. If the statistical measure fails to reach this level the statistical relationship is regarded as "not proven". The apparent relationship could have arisen by chance.

The relatively easy criterion is deliberately chosen because it is our position that the domestic economies of most underdeveloped countries are apparently not very seriously affected by short-term export instability. Choice of the easy criterion "loads the dice" a little in favour of the opposite viewpoint. Because of the probable inaccuracies in the basic data and the complexity of the relationships it might be argued that even less exacting standards for proving association should be used. On the other hand, proponents of the view that short-term export instability does severe damage to the economies of underdeveloped countries generally wish to propose expensive national or international schemes which may themselves

inhibit efficiency and growth. It would seem reasonable that the burden of proof should be upon them. Imprecision in the basic data normally leads statisticians to demand higher rather than lower standards for accepting statistical analyses as evidence of association.

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