

**NEW ZEALAND'S
LONG TERM FOREIGN TRADE PROBLEMS
AND STRUCTURAL ADJUSTMENT POLICIES**

A stylized graphic of a globe, rendered in a dark brown color. The globe is composed of several curved lines that form a grid of segments, representing latitude and longitude. The lines are thick and white, contrasting with the dark brown background of the globe.

by P.J.Lloyd and Others

NEW ZEALAND PLANNING COUNCIL

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AND STRUCTURAL ADJUSTMENT POLICIES

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CHAPTER
PREFACE

OVERVIEW

This study is a statement of economic problems and of policy choices. It does not attempt to forecast the future of the economy or even likely scenarios which will affect that future. Nor does it recommend a set of specific policy changes. Rather it lays out a menu of choices from which a selection must be made in the light of future events and knowledge of societal preferences and the relationships within the economy. It is written in the spirit of the economist's credo: "The exact specification of a problem is one half of its solution".

Higher levels of consumption will require a substantial increase in the volume of exports (for example, New Zealand Planning Council, 1978 and 1979, and OECD, 1977). Development of

The conception and principal authorship of this study is my own. Those parts of it which were written by others have been attributed to them. In addition, I am eager to acknowledge the indispensable help which my assistants gave me on all aspects of this study. Clement Fisk, Roger Procter and I were sequestered from the daily preoccupations of the Department of Trade and Industry, The Treasury, and the Planning Council respectively for many weeks and our internal debates greatly assisted the evolution of my own conclusions. The sections contributed by Ian Dickson and Ken Piddington filled in two glaring gaps which I could not have filled.

I wish to acknowledge my deep gratitude to the officials of the Departments of Trade and Industry and the Treasury who made extensive comments on the draft of this study, and to Ewen McCann, Ron Guthrie, Eric Haywood, Sir Frank Holmes, Peter Ledingham, Paul von Moeseke and Des O'Dea for their comments and suggestions. The Reserve Bank, Gareth Morgan and the New Zealand Dairy Board unstintingly made available to me various data series which they had collected. Without all of this assistance the report would have been much weaker, and (hoping the reader will excuse this) shorter.

The sense that for most of our exportable and importable commodities we are too small as suppliers or purchasers to have an influence on the world prices and hence we must respond to the prices which other countries determine in these commodity markets. A second conception is that New Zealand has a high level of the ratio of the value of total exports and imports to national output and expenditure. The significance of the first characteristic is considered later in this study. The second characteristic is no longer true. According to the OECD statistics, the combined sum of exports and imports of commodities as a percentage of GDP in New Zealand for 1977 was lower than that of a majority of the OECD countries and much lower than that of other small developed countries within the OECD such as Belgium, Ireland, Netherlands and Switzerland (OECD, 1979, Appendix Table). Yet, the course of the New Zealand economy is still heavily affected by events in the world economy.

The true significance of dependence from the point of view of analysing the problems of the New Zealand economy is twofold. The first economic meaning of dependence is that fluctuations in the path of output, consumption, prices and other economic variables may originate in the Rest of the World. The second is that we are dependent on markets in the Rest of the World for growth opportunities. In both respects dependence is a matter of degree. This study concentrates on the growth aspects of dependence, though the relevance of the instability aspects of changes in trade and trade policies is noted briefly in Section 5 (iv).

CHAPTER 1

OVERVIEW

In recent years there has been a growing concern in New Zealand over the slow rate of growth of national output and of average levels of consumption. Real household disposable income was lower in 1978/79 than it was in 1973/74. These trends have been linked to the drastic fall in the terms of trade which occurred in 1973 and 1974 and it has been forcefully argued that a sustainable improvement in the average levels of consumption will require a substantial increase in the volume of exports (for example, New Zealand Planning Council, 1978 and 1979; and OECD, 1977). Development of a more export-oriented economy would call for new policies concerning the importing and exporting of commodities. It would also induce changes in the structure of the New Zealand economy more rapid than the changes which have occurred for decades. This paper examines the recent behaviour of the internationally-trading sector of the New Zealand economy and considers the multilateral policies relating to change in this sector.

The Dependent Economy Reinterpreted

The events of the last five years or so have led to a spate of writings which have analysed the problems of New Zealand as those of a "dependent economy" (for example, Report of Task Force on Economic and Social Planning, 1976, pp. 157-203; Campbell and Haywood, 1978; and Ross, 1976). This revives a major theme of earlier generations of New Zealand economists (notably, Wilson, 1930; Copland, 1939; Belshaw, 1939; Simkin, 1951). Dependence has been conceived in terms of a number of characteristics of the economy. One common conception is that New Zealand is a price-taker in the sense that for most of our exportable and importable commodities we are too small as suppliers or purchasers to have an influence on the world prices and hence we must respond to the prices which other countries determine in these commodity markets. A second conception is that New Zealand has a high level of the ratio of the value of total exports and imports to national output and expenditure. The significance of the first characteristic is considered later in this study. The second characteristic is no longer true. According to the OECD statistics, the combined sum of exports and imports of commodities as a percentage of GDP in New Zealand for 1977 was lower than that of a majority of the OECD countries and much lower than that of other small developed countries within the OECD such as Belgium, Ireland, Netherlands and Switzerland (OECD, 1979, Appendix Table). Yet, the course of the New Zealand economy is still heavily affected by events in the world economy.

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A connection between the rate of growth of national output and the rate of growth of the export component of this output is clear statistically. Several comparisons of inter-country growth rates have demonstrated that these two growth rates are strongly and positively correlated (in Economic Commission for Europe, 1977, Balassa, 1978; Australian Industries Assistance Commission, 1978a, pp. 20-21). It is generally true that those countries which have had a relatively slow rate of growth of the volume of exports have also experienced a relatively slow rate of growth of national output. New Zealand is an example of the combination of slow export growth and slow output growth.

However, the economic relationship which brings this statistical association about is unclear. There are numerous theories of "export-led" growth (see Carpinter, 1979). In particular, there has been much discussion in New Zealand, as in other small-primary-product-specialising countries, of the "foreign exchange constraint" on economic growth. This term alludes to the supposedly critical dependence of New Zealand on supplies from other countries of essential inputs of fixed capital equipment to increase the productive capacity of domestic producers and on supplies of essential raw materials and components as current inputs, especially petroleum fuels. We do not have estimates of the technical possibilities of substitution between domestic and imported capital goods which occur both directly in each activity or indirectly through changes in the commodity composition of outputs which have different imported input requirements. Belief in this constraint leads to a policy of export development, but only so far as is needed to overcome the foreign exchange constraint on input purchases. In any event foreign trade plays a more general role in the determination of real incomes. Growth in a small economy such as that of New Zealand is to a large degree export-led in the precise sense that it is growth in large foreign markets and the development of new technologies and products overseas which create new opportunities for converting all domestic inputs, labour as well as capital and other primary inputs, into final consumption.

To take maximum advantage of these growth opportunities the country must supply to the world markets those commodities which give it the most favourable exchange. Since the terms of exchanging individual commodities are continually changing, this requires continual changes in the structure of the economy. Thus, the degree of domestic price and supply flexibility, the attitudes towards structural change in the economy and to risk are important determinants of the realisation of growth opportunities.

New Zealand Growth and Trade Problems

A serious gap has emerged in recent years between the aspirations for goods and services of New Zealanders collectively and the ability of the economy to supply these goods and services. The seriousness of this gap is obscured by the substantial fluctuations in the economy, and especially in the terms of trade. The complex way in which the terms of trade together with the volume of national output and overseas borrowing determine the consumption possibilities is detailed in Appendix 1. This Appendix develops the concept of the sustainable aggregate national expenditure. This is the annual series of real expenditures which can be sustained, given the trends in the national product and the commodity terms of trade and overseas borrowing.

Figure 1 reproduces the calculations of the sustainable national expenditure since 1960-61. From 1960-61 to 1972-73 the trend rate of growth of actual

national expenditure was approximately equal to the sustainable rate of growth. It actually lies between the upper and lower estimates of the sustainable rate. 1972-73 is a break point in the world economy because the OPEC cartel and other factors caused world prices to increase sharply. After 1972-73 there was a sharp increase in the rate of growth of aggregate expenditure in New Zealand so that for the years 1973-74, 1974-75, and 1975-76 these expenditures considerably exceeded the levels which could be sustained on the basis of trends in national product and the terms of trade. In fact after 1973-74 the actual terms of trade fell sharply, thus reducing further the expenditures which could be obtained from the national output. This spurt in the rate of expenditure, and a similar one over the period from 1962-63 to 1966-67, represent a collective demand for goods and services which was beyond the ability of the economy to supply them.

The elimination of this gap requires either a reduction in the rate of growth of real expenditures, which would certainly be resisted by some income groups, or an increase in the rate of growth of the supply of goods and services. If New Zealanders desire a rate of growth of real expenditures above the rate actually experienced, then an increase in the rate of growth of output of the economy above that achieved in the recent past is necessary to satisfy these aspirations. This study proceeds on the premise that these aspirations should be satisfied.

The objective of a higher rate of growth of real incomes can only be pursued by the adoption of growth-inducing policies. A faster rate of growth of real incomes does not imply the maximum rate of growth. The choice of how much faster the economy should grow will depend on the trade-offs between more rapid growth on the one hand and the adverse effects it may have on personal incomes of some groups, the distribution of national incomes and income security. Moreover, the desideratum of higher growth is not based on an individualistic ethic which approves all higher personal consumption. The fundamental consequence of higher growth of real incomes is that it enhances the economic choices which society can make. In recent years various sections of the community have clamoured for continual increases in the supply of government-provided health, education and welfare services. While increases in these services benefit the recipients they require the diversion of resources from other possible productive activities. All sections of the community are reluctant to accept a reduction in their own real incomes and levels of consumption, and seek in effect (though perhaps not consciously) to pass the burden to others.

The analysis of these problems of the New Zealand economy begins with some recent economic history of the world economy in Chapters 2 and 3. Many of the observations relating to the recent past in the New Zealand economy are not new but we need to see them in the perspective of the world economy in which New Zealand trades. The rates of growth of trade, output and consumption for New Zealand in the aggregate and for some major commodities are computed. These rates are compared with those of the whole world economy. The rate of growth of the volume of all New Zealand exports from 1961-77 was only 4.1 percent per annum, compared to that of all world commodity trade over this period of 7.2 percent. This is primarily because New Zealand has specialised, to a much greater degree than any other developed country in primary products and, in particular in the products of grassland farming for which the rate of growth has been much slower than that of total world trade. Both the slow growth and the variability of the prices of these commodities in world markets are in large part due to the same factor, severely restricted access to the major world markets.

Estimates of the trends in the prices and quantities of nine major individual export commodities are made for the period 1961 to 1978. These allow one to distinguish between year-to-year variability which is due to the trends and that which is due to deviations from the trend. This avoids the common mistake of mis-interpreting the latest turn of events as a long-term trend. (The method of analysis of trends is relegated to Appendix 2.) Unfortunately, when allowance is made for the increase in the index of the price of all importable commodities, for six of the nine groups a unit of exports has bought progressively fewer imports over this period. Together with the slow rate of growth of the volumes of exports of these commodities, these trends have allowed an increase in the volume of imports of only 4.1 percent per annum which compares poorly with the world average.

Past Government assistance to industries in the form of restrictions on export and import trade are considered. The evolution of export subsidies is detailed (in Appendix 4) because there seems less awareness of the economic features of the regulations of exports than there is of import trade. The role of state trading in agricultural export trade is noted. Import licensing is considered. In both the areas of export subsidies and import restrictions, there is a complex system of overlapping interventions which discriminates among individual export and import-competing producers. From the national point of view, the proliferation of forms of industry assistance is such that we do not know how severe are the distortions they have created. Regrettably and surprisingly there is in New Zealand no set of measures of the rates of assistance to all activities from all forms of assistance. Qualitatively, these interventions have distorted the allocation of resources both between and within the export and import-competing and non-trading sectors. It is almost certain that the very high rates of protection to the import-competing manufacturers continues to bias the overall pattern of industry assistance away from production of traditional exports and has discouraged the development of non-traditional manufactured exports despite the range of output-related subsidies to rural producers and export subsidies to manufacturers. This means that they have reduced the level of international trade and the size of the internationally-trading sector of the economy.

The forms of government assistance to industries have had a second important effect. There has been in New Zealand a preference for quantity-based rather than price-based instruments of intervention. These have slowed down the rate of growth of input productivity within individual production activities by restricting competition from overseas and from other New Zealand producers and discouraged the adoption of new technologies and products. Thus they have hindered the adaptation of the economy to structural change. In our view they have contributed to the slow rate of growth of output and real expenditure in the New Zealand economy. This is not of course the sole factor. In particular Chapter 3 noted the specialisation in grassland farming for export to U.K. markets, the historic engine of export-led growth of the New Zealand economy for almost 100 years, failed to provide opportunities for growth during the period of rapid growth of world trade in the Sixties and Seventies. A third factor noted in Section 4 (iii) is that government has pursued anti-structural change policies that have deliberately protected the wages and profits of some existing activities elsewhere in the economy. And other non-trade factors which are not considered here may have been important.

The Need for Structural Change

Structural change is taken to mean changes in the long-term allocation of resources in production activities. Structural change is not an objective of economic policy itself but it is important because it is related to the objectives of higher real output and consumption and to the distribution of national income. Chapter 4 includes a section which measures the rate of change of some dimensions of the structure of the economy in the recent past. These are the first systematic measurements of structural change in the New Zealand economy. They are computed for the period 1963 to 1973 and, as far as possible, are compared with measures for other OECD countries. (Technical problems of measuring structural change for different variables are discussed in Appendix 3 and much of the data is in Appendix 5.) This empirical work suggests that New Zealand may have experienced a slower rate of structural change than other developed countries but the evidence is contradictory. Another important aspect is that the proportion of national output which was exported was less in 1975-76 than thirteen years previously in 1962-63.

Looking to the future the New Zealand aspirations for growth in private and public expenditures can only be satisfied in the long-term if there is an acceleration in the rate of growth of real aggregate output of the economy or a substantial and continual improvement in the terms of trade. The latter event cannot be relied upon.

An examination of the recently-completed Tokyo Round of GATT negotiations shows that these negotiations will not markedly improve access to markets for New Zealand agricultural products in the near future.

In the longer-term New Zealand may develop exports of natural gas or other energy materials or manufactures which use large inputs of electricity or other energy forms, or it may reduce imports of petroleum products. Bilateral trade agreements or other developments may improve the consumption possibilities of the New Zealand economy. Such fortunate developments would not obviate the need for major change in the structure of the national economy. Indeed they would themselves create strong and pervasive pressures for structural change through changes in the exchange rate and relative prices. An export boom would induce an appreciation of the New Zealand dollar and this in turn would increase international competition for the traditional export and the import-competing activities.

Hence, major structural change is a necessary (but not sufficient) condition for an acceleration in the rate of growth of real output.

Appropriate Government Policies

This study culminates in Chapter 5 with a discussion of alternative policies for the international sector. There are three closely related areas of policy-making where new policies are called for. There are changes in existing policies for protection and industry assistance by means of changes in the levels of tariffs, import licensing, subsidies, etc. which are no longer appropriate. There are policies to promote the growth of input productivity within activities and to shift resources to activities which are growing. There are policies to mitigate the harmful effects of structural

change on particular groups of income-earners. These three areas will be considered in turn.

Concerning the first area of commodity trade policies, the acceleration in the growth of output will require, among other measures, changes in export and import trade. The discussion of these problems in New Zealand has been in terms of making the economy more "export-oriented". It is essential to realise that there are two distinct aspects of the trading problems of New Zealand. The first, and most commonly debated, is the balance of payments problem. This may be solved by either increasing the value of exports or reducing that of imports. (More foreign borrowing may also be important but it requires repayment and in the long-term debt servicing requires an increase in current exports or a reduction in imports.) The second problem is one of making the economy more trade-oriented.

There are two aspects to the advocacy of a more trade-oriented economy. First and more fundamentally, it means that the allocation of resources and especially the resources in new projects be made on the basis of competitiveness with goods available on international markets. This will have the twin benefits of increasing the gains from national specialisation and international trade and of making production in each activity within the New Zealand economy more competitive and responsive to structural changes. Second, it may mean an increase in the proportion of national output which is exported and the proportion of national expenditure which is supplied from overseas. Unless the level of overseas borrowing falls as exports increase, a more export-oriented economy must also become a more import-oriented economy. For both reasons we shall refer to a trade-oriented strategy of structural change rather than an export-oriented strategy.

This strategy will also require changes in the commodity composition of trade. There may be some prospects for an increase in the volume of traditional rural exports but, unless market access is greatly improved, this growth will not be rapid and may be achieved at the cost of receiving lower average prices. Much of the growth must come from exports of non-traditional manufactures and energy-based commodities.

Changes in the policy instruments which restrict imports and encourage exports selectively are necessary if New Zealand is to accelerate its economic growth. In particular, it is argued in Chapter 5 that import licensing (apart from specific quotas for special purposes other than industry assistance) must be abolished. In our view there cannot be an efficient tradeable sector if import licensing is retained as the main instrument of protection against import competition. It is also recommended that the discriminatory system of tariffs and export subsidies be reformed.

The best general strategy in our view is to change all import restrictions and export subsidies together according to a pre-determined and pre-announced timetable and over a short period of, say, three to five years. A timetable has two great advantages. It makes the changes less subject to pressures to reduce the programme. There is a propensity in New Zealand to fiddle with all forms of government intervention. The second advantage is that a timetable reduces economic uncertainty which is a harmful by-product of the present system of trade controls. The devising of the timetable of change to policies at industry assistance is an important task. It may be desirable to introduce new provisions for temporary protection.

Changes in trade policies are by no means the only existing policies which should be changed in order to bring about a higher rate of economic growth. In the last few years there has been considerable discussion of the need to "free up" the economy, to change government policies relating to regulation of industrial activities, transport policies, take-overs, price controls, energy development and other policies. We concentrate on changes to existing government policies in the trade area because this study is limited to questions that relate directly to the international trade sector and structural change.

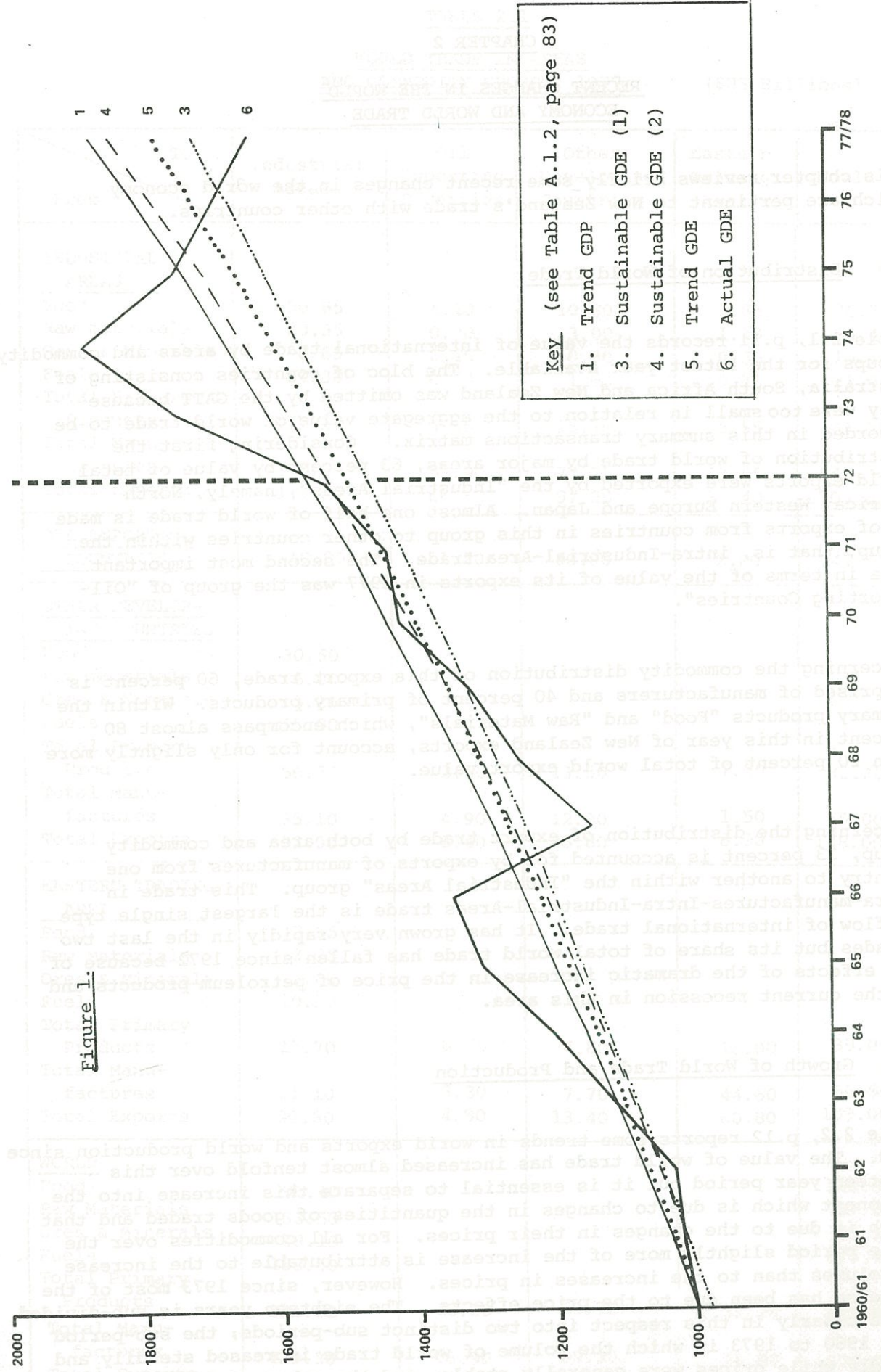
The second and third area of policy-making for the international trade sector (and other sectors) is that of structural change policies. To date there has been little discussion in New Zealand, in contrast to other developed countries, of structural adjustment and no comprehensive examination of the options. Section 4 (iii) examined the very limited policies with a structural change component that have operated in New Zealand. Like government interventions in the area of export subsidies and import restrictions they have been ad hoc and unco-ordinated, each having its own eligibility criteria. They have also tended to be directed toward producers rather than employers, and have been dominated by anti-structural change policies.

Two kinds of structural change policies are desirable in our view. First, there are policies designed to facilitate the reallocation of resources and thereby to accelerate the rate of economic growth; that is, to encourage risk capital, to relocate and retrain labour, and to develop more productive technologies. Second, there are policies which are required to mitigate the costs of structural change. Section 5 (iii) considers alternative policies to increase the productivity of resources and to mitigate the harmful effects which structural change has on some groups of income-earners. Policies for those income groups should concentrate on resolving welfare problems, rather than compensating equity-owners or specialised skills whose protected market positions are no longer maintained.

The recommendation to abolish import licensing and reduce government interventions in international trade coupled with the recommendations to introduce new forms of government structural adjustment assistance mean that the emphasis of government industry policy should be shifted away from industry "assistance" or "protection" to policies designed to promote and facilitate structural change which is beneficial to the country. Government interventions should be co-ordinated. It is the structure of government interventions in the areas of trade and industrial development policy, even more than the fact that the government intervened extensively in economic activities, which in our view needs basic changes.

These changes will be feared by many. The extent of the reallocation of resources necessary to effect these changes is easily exaggerated. If the individual policies are carefully designed and carried out in a co-ordinated way the gains should substantially outweigh the costs. It is the primary purpose of the kind of structural adjustment policies which is proposed here to improve the trade-off between the gains in average real incomes on the one hand and real income losses for some individuals on the other so that the community may derive the maximum benefit from structural change.

We emphasise that there are always options facing an economy with respect both to structural changes which it seeks to promote or not to promote and with respect to the policy instruments which it chooses. The final choice should be made with the fullest possible knowledge of the effects of each choice and a clear appreciation of ultimate concerns of the community for higher real incomes or other objectives of security, leisure and income distribution. One option is to avoid major structural change but this option imposes the greatest costs in terms of opportunities for higher real consumption foregone.



CHAPTER 2

RECENT CHANGES IN THE WORLD
ECONOMY AND WORLD TRADE

This chapter reviews briefly some recent changes in the world economy which are pertinent to New Zealand's trade with other countries.

(i) Distribution of World Trade

Table 2.1, p.11 records the value of international trade by areas and commodity groups for the latest year available. The bloc of countries consisting of Australia, South Africa and New Zealand was omitted by the GATT because they were too small in relation to the aggregate value of world trade to be recorded in this summary transactions matrix. Considering first the distribution of world trade by major areas, 63 percent by value of total world exports were exported by the "Industrial Areas", namely, North America, Western Europe and Japan. Almost one half of world trade is made up of exports from countries in this group to other countries within the group, that is, intra-Industrial-Area trade. The second most important area in terms of the value of its exports in 1977 was the group of "Oil-Exporting Countries".

Concerning the commodity distribution of this export trade, 60 percent is comprised of manufacturers and 40 percent of primary products. Within the primary products "Food" and "Raw Materials", which encompass almost 80 percent in this year of New Zealand exports, account for only slightly more than 20 percent of total world export value.

Concerning the distribution of export trade by both area and commodity group, 33 percent is accounted for by exports of manufactures from one country to another within the "Industrial Areas" group. This trade in intra-manufactures-Intra-Industrial-Areas trade is the largest single type of flow of international trade. It has grown very rapidly in the last two decades but its share of total world trade has fallen since 1972 because of the effects of the dramatic increase in the price of petroleum products and of the current recession in this area.

(ii) Growth of World Trade and Production

Table 2.2, p.12 reports some trends in world exports and world production since 1960. The value of world trade has increased almost tenfold over this eighteen year period but it is essential to separate this increase into the component which is due to changes in the quantities of goods traded and that which is due to the changes in their prices. For all commodities over the whole period slightly more of the increase is attributable to the increase in volumes than to the increases in prices. However, since 1973 most of the increase has been due to the price effects. The eighteen years is sub-divided quite clearly in this respect into two distinct sub-periods; the sub-period from 1960 to 1973 in which the volume of world trade increased steadily and rapidly while prices were generally stable, and the sub-period 1973 to 1977 in which the volume of trade increased slowly while the prices rose rapidly.

TABLE 2.1
WORLD TRADE IN AREAS
AND COMMODITY GROUPS, 1977 (\$US Billions)

| To From | Industrial Areas | Oil Exporting Countries | Other Developing Countries | Eastern Trading Area | World |
|---|---------------------|-------------------------------|----------------------------------|----------------------------|---------|
| INDUSTRIAL AREAS | | | | | |
| Food | 56.85 | 5.10 | 10.30 | 3.85 | 76.70 |
| Raw materials | 20.35 | 0.70 | 3.00 | 1.10 | 25.40 |
| Ores & Minerals | 8.65 | 0.15 | 0.80 | 0.35 | 10.15 |
| Fuels | 31.30 | 0.60 | 1.60 | 0.25 | 33.95 |
| Total Primary Products | 117.15 | 6.55 | 15.70 | 5.55 | 146.20 |
| Total Manu- factures | 367.65 | 57.90 | 77.75 | 27.55 | 545.30 |
| Total Exports | 492.00 | 66.50 | 97.20 | 33.40 | 705.00 |
| OIL EXPORTING COUNTRIES | 110.00 | 1.20 | 30.00 | 2.80 | 147.00 |
| OTHER DEVELOP- ING COUNTRIES | | | | | |
| Food | 30.50 | | | | |
| Raw materials | 6.00 | | | | |
| Ores & Minerals | 5.20 | | | | |
| Fuels | 15.00 | | | | |
| Total Primary Products | 56.70 | 3.50 | 13.50 | 7.20 | 82.20 |
| Total Manu- factures | 35.10 | 4.90 | 12.00 | 1.50 | 55.00 |
| Total Exports | 92.00 | 8.40 | 25.80 | 8.90 | 138.00 |
| EASTERN TRADING AREA | | | | | |
| Food | 2.95 | | | | |
| Raw Materials | 3.25 | | | | |
| Ores & Minerals | 1.00 | | | | |
| Fuels | 10.50 | | | | |
| Total Primary Products | 17.70 | 0.70 | 4.60 | 16.00 | 39.00 |
| Total Manu- factures | 11.10 | 3.30 | 7.70 | 44.60 | 66.90 |
| Total Exports | 29.80 | 4.80 | 13.40 | 60.80 | 109.00 |
| WORLD | | | | | |
| Food | 96.40 | | | | 141.60 |
| Raw Materials | 33.50 | | | | 47.20 |
| Ores & Minerals | 18.10 | | | | 23.20 |
| Fuels | 163.60 | | | | 215.40 |
| Total Primary Products | 311.60 | 12.20 | 65.70 | 32.70 | 427.40 |
| Total Manu- factures | 419.30 | 66.90 | 99.30 | 73.80 | 676.20 |
| Total Exports | 740.00 | 82.00 | 170.00 | 107.00 | 1122.00 |

SOURCE: Derived from GATT, International Trade, 1977/78, Appendix Table K.

TABLE 2.2
TRENDS IN WORLD EXPORTS AND
PRODUCTION, 1960-77

| | 1960 | 1963 | 1970 | 1973 | 1977 | Average Compound Rate of Growth 1960-1977 |
|--|------|------|------|------|-------|---|
| WORLD EXPORTS Value (\$US billion f.o.b.) | | | | | | |
| Agricultural products | 40 | 45 | 64 | 121 | 189 | 9.6 |
| Minerals* | 22 | 26 | 51 | 96 | 263 | 15.7 |
| Manufactures | 65 | 82 | 190 | 347 | 651 | 14.5 |
| Total - All Commodities | 129 | 154 | 312 | 576 | 1,122 | 13.6 |
| Unit Value Indices (1960 = 100) | | | | | | |
| Agricultural products | 100 | 100 | 107 | 190 | 255 | 5.7 |
| Minerals* | 100 | 99 | 123 | 187 | 545 | 10.5 |
| Manufactures | 100 | 100 | 114 | 152 | 232 | 5.1 |
| Total - All Commodities | 100 | 100 | 113 | 161 | 270 | 6.0 |
| Volume Indices (1960 = 100) | | | | | | |
| Agricultural products | 100 | 111 | 150 | 158 | 183 | 3.6 |
| Minerals* | 100 | 120 | 195 | 242 | 228 | 5.0 |
| Manufactures | 100 | 126 | 260 | 352 | 435 | 9.0 |
| Total - All Commodities | 100 | 120 | 215 | 279 | 324 | 7.2 |
| WORLD COMMODITY OUTPUT VOLUME (1960 = 100) | | | | | | |
| Agricultural products | 100 | 107 | 129 | 139 | 150 | 2.4 |
| Minerals* | 100 | 115 | 167 | 192 | 204 | 4.3 |
| Manufactures | 100 | 119 | 188 | 230 | 270 | 6.0 |
| Total - All Commodities | 100 | 115 | 170 | 201 | 228 | 5.0 |

Source: Derived from GATT, International Trade 1975/76, 1977/78, Table 1.

*Includes Fuels and non-ferrous metals

Looking at the trends in the prices and quantity behaviour of the three basic commodity groups, the rate of growth of prices on average of Agricultural Products (5.7 percent per annum) has not been much less than that of other traded commodities but the rate of growth of the volumes traded has been much slower; Agricultural products, Minerals and Manufactures grew at compound average annual rates of 3.6, 5.0 and 9.0 percent respectively.

The last rows of Table 2.2, p.12 reveal that for all commodities in total, and for each of the three commodity groups and for both sub-periods, the volume of goods traded has increased more rapidly than the volume of production of these same commodities. This implies that the ratio of exports to production for all commodities has increased by approximately 63 percent over this period and, since world exports equals world imports and world production equals world use (neglecting changes in stocks held) of these commodities, the ratio of imports to usage must have increased correspondingly. World production and world usage of commodities have become considerably more dependent on markets and sources of supply respectively in other countries.

Just as the rates of growth of production and trade vary among the three commodity groups so they may vary among the commodities within each of these groups. It is of interest to know these rates for the particular commodities which have been the principal exports from New Zealand. Unfortunately, statistics of volume and prices are not available from the source of the statistics for the commodity groups reported above. Table 2.3, p.14 reports FAO statistics of the volume of world exports and world production since 1970 for several agricultural exports which approximate some of New Zealand's major agricultural exports. The New Zealand exports and production from the same source are recorded for comparison.

The average rates of growth of world consumption (=world production) were calculated for all five commodities and varied from -0.1 percent per year for "Mutton and Goatmeat" to +5.2 percent per year for "Dry Milk", compared to the average for all Agricultural Products of 2.2 percent for the sub-period. The rates of growth of world consumption/production of this selection of commodities is broadly representative of the rates of growth for all agricultural products over the period. The rates of growth of world trade volumes for these commodities could only be calculated for the two commodities, "Butter and Ghee" and "Cheese and Curds". These were 3.5 and 4.7 percent respectively, both of which were below the rate of growth of trade volume for all Agricultural Products which was +5.1 percent for this sub-period.

(iii) Market Access

It was observed that there has been an upward long-term trend for all commodity groups in the proportion of total world consumption or usage which is supplied internationally. This trend is determined by underlying economic factors. For traded consumable commodities, consumer preferences between domestically-produced and foreign substitutes together with the income elasticities of demand for both of these as a commodity group determine the income elasticities of demand. Technological developments may also introduce new competing substitute commodities. For primary commodities used as inputs, technological changes may change the unit inputs of materials or the demand for the final product in which the materials are incorporated. Changes in relative prices and transport costs may also be important. But for all

TABLE 2.3

TRENDS IN WORLD EXPORTS AND PRODUCTION
OF SOME AGRICULTURAL COMMODITIES, 1970-77

| | WORLD | | | NEW ZEALAND | | |
|----------------------|--------|--------|--|-------------|------|--|
| | 1970 | 1977 | Annual Average Rate of Growth | 1970 | 1977 | Annual Average Rate of Growth |
| EXPORT VOLUME | | | | | | |
| Butter | 786 | 999 | +3.5 | 181 | 213 | +2.4 |
| Cheese & Curds | 712 | 982 | +4.7 | 90 | 79 | -1.9 |
| Dry Milk | n/a | 2,275 | n/a | n/a | 239 | n/a |
| Beef | n/a | 2,948 | n/a | n/a | 261 | n/a |
| Mutton & Goatmeat | n/a | 745 | n/a | n/a | 403 | n/a |
| PRODUCTION | | | | | | |
| Butter | 5,957 | 6,913 | +2.1 | 247 | 277 | +1.7 |
| Cheese & Curds | 7,731 | 10,288 | +4.2 | 102 | 81 | -3.2 |
| Dry Milk | 4,482 | 6,401 | +5.2 | 154 | 267 | +8.2 |
| Beef | 39,993 | 47,918 | +2.6 | 387 | 557 | +5.3 |
| Mutton & Goatmeat | 7,297 | 7,264 | -0.1 | 565 | 500 | -1.7 |

Source: FAO, MONTHLY BULLETIN OF STATISTICS, October 1978, December 1972

Notes: Units of measurement are thousand metric tons for butter and ghee, cheese and curds.

The commodity groups used for export and for production statistics differ slightly in coverage. The production statistics relate to "Dry Milk (all kinds)" whereas the trade statistics relate to "Milk and Cream (dry)"; the production statistics for "Butter" include ghee which is excluded from the trade statistics; the production statistics for "Beef" include buffalo meat and the trade statistics relate to "Meat of bovine animals".

tradeable commodities perhaps the most important single determinant of recent trends, and potentially of future trends, is the degree of access to markets in other countries.

It is possible to construct the ratio of world trade/world production for the commodities listed in Table 2.3, p.14. With the exception of dry milk for which the proportion of output traded is 35 percent, the proportions are all below 20 percent. The figure for beef is 6 percent, that for mutton is 10 percent. These figures are only approximate since the commodity coverage of the denominators is not exactly consistent with those of the numerators. No comparable statistics are available for other primary products or for manufactures but it is certain that these proportions of output traded are much below those for many manufactures such as transport machinery and machine tools and they are almost certainly below the average proportion for all world manufacturing output. Any liberalisation of restrictions on access for the major low-cost suppliers into the major world markets would increase these ratios.

One very useful indicator of the extent of these restrictions is the dispersion of prices for a homogeneous commodity in the markets of different countries which separately limit market access. Unrestricted competition among markets for one tradeable commodity implies that, putting all prices on a comparable supply basis by allowing for international transport costs and all border taxes, there would be only one price, the "world price". This is known as the Law of One Price. (For a recent examination of the Law of One Price, see Isard, 1977.) The dispersion of prices may therefore provide a measure of the restrictions on market access. Evidently the prices of many of the almost-homogeneous commodities which New Zealand exports vary greatly across countries. This reflects the fact that the world market is segmented into distinct national markets between which trade is restricted, thus preventing the equalisation of prices. Even the prices which New Zealand as one among many suppliers receives for its exports of an almost-homogeneous commodity vary greatly from market to market. Again there are no systematic world series for the commodities of interest to New Zealand.

Restrictions on international trade reduce the quantity of exports from low-cost suppliers, and, in most cases, the average price these suppliers receive below the free trade levels. This joint movement occurs because a larger quantity will be offered by local producers for trade only if the price increases and thereby reduces domestic consumption and/or increases domestic production. The price effect will be especially great if the market access is more severely limited in the markets of countries where the price would be relatively high without international trade. Such restrictions force the selling countries to make some of their international sales in the lower-price countries. This is the case for New Zealand exports of beef to the US and Japan and butter to the UK and other countries in the EEC in which the large potential markets are severely protected for domestic producers by quotas.

As an example of this process of average price formation we consider exports of butter and cheddar cheese from New Zealand. These two products are almost homogeneous and the variations in the prices received for sales of one of these products across different country markets over the period of a season is chiefly due to differences in market access. In the case of butter, a negotiated tonnage is sold to the UK market. The remainder is sold on world markets where the price is determined mainly by the price at which the EEC

sells its butter, which in turn depends on the level at which the EEC sets its export restitutions for butter sales. The UK price is above the price in the world market and above the price which would prevail in a completely free world market. In the 1977/78 trading year the general indicative price level for butter sold in the UK was \$NZ1530 f.a.s. per tonne compared to \$1050 per tonne for sales to other countries. In the case of cheddar cheese general indicative price levels were for Australia and the US \$NZ1400 per tonne and for other countries \$1000 per tonne. The US and Australian sales are limited by quotas.

This pattern of restrictions has an important implication for analysing the problems of the New Zealand economy. It is usual to assume for a country which supplies only a small portion of the total world trade in a commodity, that its supply alone will not (significantly) affect the world price. This is the so-called small country assumption. Statistics of some of the major agricultural exports of New Zealand in Table 2.3, p.14 indicate that New Zealand supplied in 1977 7.8 percent of the world trade in "Cheese and Curds", 8.9 percent of the total for "Beef", 10.5 percent for dried milk products, 21.3 percent for "Butter and Ghee" and 54.0 percent of the "Mutton and Goatmeat". With the exception of sheepmeats, the New Zealand shares of the markets are small, even when one takes account of the fact that these products are not homogeneous. Therefore, the usual assumption is that New Zealand is a small price-taker in these markets. However, with segmented markets, it may be more accurate to assume that New Zealand is what we shall call a quasi-small supplier for some commodities. This term may describe the situation in which the prices in the foreign markets in which a New Zealand export commodity is sold are not affected by the quantity this country exports but the average price received by New Zealand exporters nevertheless decreases with the total quantity exported.

This pattern of segmented markets has another important implication for analysing the New Zealand problems. When countries or groups of countries segment their markets from the rest of the world and stabilise the price of a commodity within the national or regional segment of the world market, it has the effect of increasing fluctuations in the prices paid and received by exporters in the rest of the world markets. This occurs because with no change in the stabilised price there is no response of supply or demand in the stabilised market segment and all of the price variations which are required to absorb seasonal and other random fluctuations in World demand and supply are forced onto the rest of the world. This occurs for the commodities, for example, which are subject to common market organisations under the Common Agricultural Policy of the EEC. With stable prices within the EEC they fluctuate from being a net importer to a net exporter of some commodities from year to year. This market segmentation accentuates the product price instability and some empirical calculations estimate that it may accentuate price instability substantially (for example Shei and Thompson, 1977).

The extent of restriction on world trade varies greatly from commodity to commodity. Statistics of tariff rates on industrial products which were prepared by GATT as part of its preparation for the recent Tokyo Round show that in 1970 none of the developed countries in Europe, North America or Japan had an average tariff in excess of 11 percent (GATT, 1972). It is difficult to compare the average levels of restrictions on trade in agricultural products with those on trade in manufactures. Most commonly the intervention in the trade in agricultural commodities is by means of subsidies, quotas, import levies and complex arrangements designed to

stabilise domestic commodity prices (Hillman, 1978) whereas tariffs are still the principal instrument of protection for manufactures in the OECD countries as a group. Given the reliance on non-tariff instruments to restrict agricultural trade, it seems safe to conclude that agricultural trade is more restricted than trade in manufactures. The estimates of Sampson and Yeats (1977), which are the most recent and detailed available, show that EEC protection for agricultural goods from tariffs alone far exceeded in 1974 that available to manufactures under the Common Customs Tariff. The unweighted average rate of protection due to tariffs and variable levies alone is over 50 percent whereas the average common external tariff on all manufactures is less than 8.6 percent. Bale and Greenshields (1978, Table 2) estimate that the producer prices in Japan for major agricultural products are much higher than world prices, in the case of grains more than double world prices. For many commodities, as exporters from New Zealand are only too aware, only token imports into the major developed countries are allowed by a system of variable levies, quantitative restrictions and other non-tariff barriers which are equivalent to prohibitive tariffs.

The trend in the levels of restrictions on manufactures has been downwards for more than two decades as a result of successive rounds of GATT negotiations of tariff rates, though this trend may have been reversed since about 1974 because of the growth of subsidies, quantitative restrictions and other non-tariff barriers during the current world recession. In contrast, there has been no overall downward trend in agricultural protection in the major Northern Hemisphere markets. (For some evidence on this point, see Wipf (1971) for the US and UNCTAD (1967) and Sampson and Yeats (1977) for the EEC).

The maintenance of these high levels of restrictions may explain in part the slow rate of growth of the volume of world trade in agricultural products observed in Table 2.2, p.12, relative to the growth of trade in manufactures and minerals. Some part may also be due to a lower income elasticity of demand for agricultural products in general during a period in which the world income grew steadily.* This possibility is supported by the higher rates of growth of world consumption/production of the non-agricultural products reported in the same table. Thus, exporters of agricultural products as a group were handicapped compared to exporters of manufactures and minerals both by the high and non-decreasing levels of restrictions on market access and by the relatively slow growth in total world demand for these products. For some commodities, such as wool and butter, the development of new synthetic substitutes reduced their share of market demand for commodity groups.

Conversely, increased access to the major potential markets for agricultural products would increase both the quantity sold and the average price received. It would also permit low-cost suppliers to increase the quantity sold as market demand grows. It might be argued that a market such as the UK market for butter under the EEC is preferable to free trade in that we are able to sell agreed amounts at prices well in excess of completely free

* FAO estimates put the income elasticities of demand in the developed countries for all foods at 0.08 and for animal products at 0.22 (quoted in OECD, 1976). Estimates relating to the income elasticities of demand for wool and sheepmeat are much less than unity. (These are reviewed by Freebairn, 1978.)

market prices and the average price may be higher than the free market price if the level of protection in this market is sufficiently high. However, the effects of severely limited market access, even in this event, is to limit the quantity sold, to induce greater fluctuations in world market prices and to restrict the opportunities for growth of sales.

(iv) Implications of GATT Tokyo Round

This Section reviews both the specific concessions obtained by New Zealand in the Tokyo Round and the value for this country of the type of negotiating framework which is provided by the GATT. This assessment, and the judgment on future directions for trade policy, can be linked in turn to the foregoing analysis of market characteristics for items of interest to New Zealand.

When the Tokyo Round began the outlook was not promising for New Zealand. The preceding Kennedy Round (completed in 1967) had failed to produce any lasting concessions in the whole field of agricultural trade. Traditionally the GATT Rounds have focused on tariff-cutting. Although the Parties have moved increasingly into non-tariff areas of protection, it cannot reasonably be claimed that the instruments of national policy which restrict agricultural trade have ever seriously been put up for negotiation in GATT. All that can be said is that the problem was brought further out into the open as a result of the Tokyo Round (whereas there was a tendency in the earlier history of GATT to paper over the divisions which existed).

The smallness of New Zealand inevitably puts it in a weak position in the purely bilateral aspects of these negotiations. The offers which New Zealand tables relate to its own tariff structure. Its import licensing is treated in GATT under Article 12, Balance of Payments, and is not therefore subject to trade negotiation. The real leverage is exerted in small groups, and principally by the EEC, US and Japan bilateral deals. Nevertheless there are some advantages to New Zealand in the framework provided by GATT. It brings the major trading partners together under the umbrella of a political commitment to liberalise terms of world trade. It provides New Zealand with an opportunity to team up with other exporters of temperate agricultural produce and as noted above there are times when political pressures, e.g. in the United States, can be used to back-up New Zealand's own objectives.

New Zealand's negotiating effort in this, as in earlier Rounds, concentrated on agricultural protectionism in the main industrial countries but some specific concessions were sought in other areas of growing interest to New Zealand exporters, e.g. processed foods, forestry products and horticulture. Industrial tariff cuts have traditionally been of little direct interest to New Zealand manufacturers and exporters of non-farm products. Although this may change as the pattern of trade changes, the fact remains that the tariff cuts are of equal benefit to all our competitors. New Zealand has also used the last two GATT negotiations to seek international arrangements on key agricultural products, dairy produce and meat.

After five years of intensive negotiations the Tokyo Round produced "agreements" on both dairy products and bovine meat. No doubt these will be presented as one of the concrete results but we need to look at the detail of the two arrangements in order to establish whether they will assist New Zealand's trade. (The text of these Arrangements, the Codes and other aspects of the negotiations are set out in the New Zealand Government White Paper, 1979.)

(a) Arrangement on dairy products

This arrangement covers all dairy products. The text is geared towards certain generalities about liberalisation of world trade and the achievement of stability in markets. There is a commitment to "monitor and assess the world market situation for the products concerned". There is an institutional arrangement - an International Dairy Products Council - normally to meet twice a year, which can identify "possible remedial solutions" when problems arise. There is a general provision on food aid and a set of protocols which cover minimum prices for the main dairy products entering world trade. The criteria for review of these prices include the level of support to the dairy industry in the exporting countries, but the agreement does not place any more real limitation on export subsidisation than the previous minimum price arrangement for milk powders and anhydrous milk fat.

There is a general consultative clause which ties the reconciliation of differences between trading partners into GATT procedures, with the usual provision for "unilateral emergency action".

(b) Arrangement on beef

This is even sketchier than the dairy arrangement, with an exchange of information and an "International Meat Council" in which it is provided that decisions will be taken by consensus. There are similar consultative provisions but no price or food aid clauses in this arrangement.

Although the two councils may provide a useful forum for New Zealand's trade diplomacy on meat and dairy products it is extremely doubtful whether anything has been conceded which will be accepted as an effective constraint on their political freedom to restrict market access by the main partners in the Tokyo Round. Indeed, given the fact that GATT first provided a reasonably useful consultative framework for difficulties in the butter trade in the period 1957-59 and given that New Zealand has worked for almost twenty years to extend this coverage into "true" international arrangements with greater impact on domestic policies in the agricultural sector, the outcome must be regarded as nugatory. The seal of GATT on the minimum price arrangements may give the agreement a slight contractual strength which New Zealand did not previously enjoy. Even this is debatable.

New Zealand's principal aim in the Tokyo Round was to obtain increased access to its main overseas markets for meat, dairy and other primary exports. Bilateral negotiations therefore concentrated on Japan, the US, EEC and Canada. The principal concessions obtained were as follows:

Beef: minimum access commitments (global) by the US and Canada. (1.2 billion lbs and 139.2 million lbs respectively.) This was combined with a tariff cut of minor significance and an increase in the EEC's global quota, from 38,500 tonnes to 50,000 tonnes.

Sheepmeat: Reduction in the US tariff, from 1.7 cents/lb to 0.5 cents/lb. Also by Japan, 7.5 percent to free.

Cheese: The EEC reinstated an access commitment for New Zealand of 9,500 tons (the trade had previously been eliminated after five years under the transitional arrangements for British membership). A minimum annual import quota into the US of 17,422 tons. This is not a significant increase in access.

There were some miscellaneous concessions of interest to New Zealand including a reduction in the tariff on carpet yarns to the US. Although the specific concessions won by New Zealand form a brief and fairly insubstantial list, they do provide safeguards with GATT backing in some of our major markets. In return New Zealand had to maintain specific offers to bind its tariff on items which meet the requirements of the countries concerned. None of these bindings threatens the market position of New Zealand producers.

On balance, the outcome of the Tokyo Round adds up to some gain in security of access but little in terms of new market access for New Zealand. It does not greatly assist the thrust towards diversification of trade and production which has been the aim of New Zealand's trade policies since Britain joined the EEC. Furthermore, it can be argued that the above concessions were due more to the fact that New Zealand has some political leverage with each of the main trading partners concerned, rather than to any intrinsic advantage of the GATT as an instrument for the pursuit of New Zealand's trade interests. Clearly when the main trading countries are working within the multilateral framework New Zealand has no option but to join these negotiations. On the other hand, it is in the nature of any GATT round for the partners to "hoard" their concessions until the final package deal (and then withhold them if other elements, over which New Zealand has no control, are unsatisfactory).

Looking at the outcome in terms of what other countries gained, there is no commitment on agricultural commodities which is at all comparable with the generalised tariff reduction agreed upon in the negotiations (approximately one-third of all industrial tariffs). The Parties failed to reach agreement on the various proposals for an international framework on agricultural trade. This is to be pursued following the negotiations but it is unlikely that the success will be any higher during a period when no major trade decisions are before the policymakers. We may note too that New Zealand did not obtain any concessions from the "newly industrialised countries", such as Korea and Mexico, although these countries participated in the Tokyo Round. This group is important to New Zealand's trade future as a growing potential market for foodstuffs and materials, and the main approach is obviously intended to be in the bilateral, rather than multilateral context.

Given the New Zealand specialisation in products of the land, its access to world markets in terms of its major export commodities has worsened relative to those of other countries, especially the industrial countries which should benefit significantly from the tariff reductions.

(c) Pointers for Trade Policy

For the immediate future, it is clear that New Zealand should not therefore regard GATT as a primary avenue for the pursuit of concessions in other markets. With the conclusion of the Tokyo Round, there will now be a pause of several years at the least. The countries which are of major interest

to New Zealand in the current phase of its trade diversification, including those in Asia and the Middle East, are not all participants in the GATT. A strong bilateral and regional thrust is thus advisable during the period immediately ahead.

RECENT CHANGES IN THE NEW ZEALAND ECONOMY AND NEW ZEALAND TRADE

Past experience suggests that the more New Zealand can move into trade which is not politically sensitive, the greater the economic return will be to New Zealand exporters. It has been shown that the pervasive intervention by governments in agricultural markets has affected the return on the products traditionally exported by New Zealand. Although the concentration of trade policy on these items can be justified by doctrines of comparative advantage, future efforts will be more productive if they concentrate on market opportunities rather than trade obstacles. Once these opportunities are exploited and markets established, government-to-government action should be geared to securing commitments in whatever form our trading partners will consider. This may frequently mean stepping outside the GATT framework, but it will also mean overcoming some of the limitations which that framework has in the past imposed on New Zealand.

Concerning the distribution of exports by country and groups of countries, 46 percent of exports by value are sent to the Industrial Areas and more than one-third of total exports were exports of Agricultural Products to the Industrial Areas. Thus, New Zealand sends a proportion of total exports to the Industrial Areas which is less than the average for the world (60 percent) but, unlike the rest of the world, these exports are predominantly Agricultural Products.

NOTE 1. "Agricultural Products" are defined as wool, skins, and hides, and meat and bones, etc., from sheep and beef cattle, and wool.

NOTE 2. Closer examination reveals the true uniqueness of New Zealand's leading pattern. Grassland farming products including the processed products derived from the outputs of grassland farming (that is dairy products, meat and hides and skins, etc., from sheep and beef cattle, and wool) comprised 65 percent by value of total exports in 1976/77. (In 1960/61, which is the base year of most of the time series and analysis in this study, they comprised 50 percent.) No other country in the world is specialised to the extent of 30 percent of total exports in this commodity group.

| | | | | | | |
|---|------|------|------|------|------|------|
| Developing Countries - excluding the O.E.C. Exporting Countries | 7.7 | 2.7 | 6.1 | 1.8 | 1.9 | 2.9 |
| Industrial Areas | 40.2 | 8.0 | 33.3 | 9.3 | 18.1 | 24.6 |
| World | 58.0 | 17.7 | 48.3 | 18.6 | 27.4 | 36.5 |

This commodity group is economically significant for two reasons. Domestically, in the long-term, there is a greater degree of substitutability in production among these animal products than between these products and non-animal products such as vegetables or fruits. Grassland farmers in many areas, though by no means all, can switch among the dairy and beef cattle and sheep which graze the grass. There are some further possibilities of end-product substitution in the factories which process

RECENT CHANGES IN THE NEW ZEALAND ECONOMY
AND NEW ZEALAND TRADE

(i) Distribution of New Zealand Export Trade

Table 3.1, p.23 records the value of exports by countries and by commodity group. Whereas for the world economy exports equal imports of each commodity and in the aggregate, they diverge for one country. This examination is confined to exports from New Zealand. The country and commodity groups are the same as those used in Table 2.1, p.11 for immediate comparison with the world trade pattern. The major countries of destinations of New Zealand exports are listed separately.

Concerning the commodity group distribution of New Zealand trade, the outstanding feature is that it is very heavily concentrated (79 percent) in Agricultural Products, that is food and land-based raw materials, by comparison with the distribution of total world trade. The corresponding percentages for Industrial Area exports and Developing Country excluding Oil-Exporting Countries exports were 14 and 38 percent respectively in 1977. Indeed, there are no individual countries within the Industrial Areas group (which includes all OECD members other than Australia and New Zealand) and very few among the Developing Countries which have such a high degree of concentration on exports of agricultural products. The percentage of exports which are Manufactures was 16 percent compared to 58 for the World, 77 percent for Industrial Areas and 40 percent for Developing Countries excluding the Oil-Exporting Countries.

Concerning the distribution of exports by country and groups of countries, 46 percent of exports by value are sent to the Industrial Areas and more than one-third of total exports were exports of Agricultural Products to the Industrial Areas. Thus, New Zealand sends a proportion of total exports to the Industrial Areas which is less than the average for the world (66 percent) but, unlike the rest of the world, these exports are predominantly Agricultural Products.

Closer examination reveals the true uniqueness of New Zealand's trading pattern. Grassland farming products including the processed products derived from the outputs of grassland farming (that is dairy products, meat and hides and skins, etc., from sheep and beef cattle, and wool) comprised 65 percent by value of total exports in 1976/77. (In 1960/61, which is the base year of most of the time series and analysis in this study, they comprised 90 percent.) No other country in the world is specialised to the extent of 30 percent of total exports in this commodity group.

This commodity group is economically significant for two reasons. Domestically, in the long-term, there is a greater degree of substitutability in production among these animal products than between these products and non-animal products such as vegetables or fruits. Grassland farmers in many areas, though by no means all, can switch among the dairy and beef cattle and sheep which graze the grass. There are some further possibilities of end-product substitution in the factories which process

TABLE 3.1

NEW ZEALAND EXPORTS BY AREAS AND COMMODITY GROUPS
YEAR ENDED JUNE 1977

(\$ millions)

| | United Kingdom | Japan | United States | Total Industrial Areas | Australia | Total All Countries |
|---|----------------|-------|---------------|------------------------|-----------|---------------------|
| Agricultural Products | 623.4 | 259.1 | 281.7 | 1164.2 | 111.8 | 2439.1 |
| Minerals (incl. fuels and non-ferrous metals) | 0.5 | 118.4 | 0.4 | 119.3 | 2.7 | 136.7 |
| Manufactures | 15.3 | 25.3 | 57.8 | 98.4 | 252.7 | 482.2 |
| | 639.2 | 402.8 | 339.9 | 1381.9 | 367.2 | 3096.7* |

SOURCE: External Trade Report and Analysis 1976 and 1977, Department of Statistics, 1978, Table 11.

NOTE 1. "Agricultural Products" are sections 0, 1, 2 (excluding Divisions 27 and 28), 4 of the Standard International Trade Classification. "Minerals" are Divisions 27, 28, 68 and Section 3. "Manufactures" are all other Divisions.

2. The sub-totals for the three commodity groups for Total Industrial Areas are the sum of exports to the UK, Japan and US only and hence understate the true values. The total value of exports to the industrial areas was in fact \$1928m, with the bulk of the difference going to other EEC countries.

* Includes ships' stores and passenger goods produced in New Zealand.

raw milk or other animal products from grassland farms. There is much less substitutability between grassland farming and other forms of farming and cultivation on the areas of land used for grassland farming, with the exception of some products such as horticultural products in some areas. Hence, this group of commodities largely limits the end-product substitution possibilities for farmers owning grassland farms. Second, the total world demand for the products of grassland (Table 2.3, p.14) has grown since 1960 at a slower rate than the world demand for non-agricultural products (Table 2.2, p.12) over the same period. Thus the real incomes of large group of farmers is closely tied to world market demand for these products.

These characteristics of the New Zealand commodity concentration of exports were considerably aggravated by the geographic concentration in the sales of our grassland farming products in the UK market. In 1960/61 sales to the UK alone of grassland farming products accounted for 50 percent of total exports by value. The slow growth of per capita real incomes and population in this market coupled with the low income elasticity of demand for these commodities yielded few opportunities for increasing the quantities sold on this market compared to other potential markets. Finally, the market share which New Zealand did enjoy in the UK at the beginning of this period was subsequently reduced by the UK accession to the EEC in 1971.

With the relatively slow rate of growth of agricultural products in world trade and the severe restrictions on market access for these commodities as a group noted in Chapter 2, the specialisation upon which the New Zealand economy had been based since the late Nineteenth Century was peculiarly ill-suited to take advantage of the opportunities for growth in international trade during the long period of continued expansion of the decades of the Sixties and Seventies. The next section examines the growth of New Zealand exports during this period.

(ii) Growth of Export Trade and Production

Table 3.2, p.25 reports statistics of the growth of exports and production of the commodity groups which are comparable as far as possible with those reported in Table 2.2, p.12 for the World. The volume and quantity indices are only available for the categories of "All Pastoral and Dairy Products" in lieu of Agricultural Products which is more narrowly based since it excludes forest products and other non-pastoral agricultural products (though this grouping does correspond to the economically more meaningful group of grassland farming products), and for the category of "Manufactures other than Food" which excludes some exports that are included in the Manufactures. The period terminates in the June year 1977 because some of the series were not available for the June 1978 year.

As with the world series the New Zealand series of the value of export trade show an acceleration after 1971 due to the higher rate of inflation in the world markets. In New Zealand the rate of increase in prices (strictly unit values) was very similar for the two commodity groups, Agricultural Products and Manufactures. The volume index is only available on a consistent basis for the Total Commodities. It shows an average annual rate of increase of 4.1 percent which is much below the average for all world commodity trade of 7.2 percent. This is the consequence of the fact that the rate of growth of the volume of "All Pastoral and Dairy

TABLE 3.2

TRENDS IN NEW ZEALAND EXPORTS AND PRODUCTION, 1960-77

| | JUNE YEARS | | | | Average Compound Rate of Growth | |
|----------------------------------|------------|-------|--------|--------|---------------------------------|-----------|
| | 1961 | 1963 | 1971 | 1977 | 1961 - 77 | 1971 - 77 |
| EXPORTS | | | | | | |
| Value (\$ million f.o.b.) | | | | | | |
| Agricultural Products | 270.4 | 298.9 | 975.7 | 2440.4 | 14.7 | 16.5 |
| Minerals | 0.6 | 0.7 | 12.7 | 173.8 | | |
| Manufactures | 9.4 | 10.4 | 119.7 | 482.5 | 42.5 | 26.2 |
| Total - all Commodities | 280.4 | 310.0 | 1108.1 | 3096.7 | 27.9 | 18.7 |
| Unit Value Indices (1971 = 1000) | | | | | | |
| Agricultural Products | 813 | 859 | 1000 | 2287 | 6.7 | 14.8 |
| Manufactures | n/a | n/a | 1000 | 2061 | n/a | 12.8 |
| Total - all Commodities | 807 | 850 | 1000 | 2301 | 6.8 | 14.9 |
| Volume Indices (1971 = 1000) | | | | | | |
| Agricultural Products | n/a | n/a | 1000 | 1088 | n/a | 1.4 |
| Manufactures | n/a | n/a | 1000 | 2927 | n/a | 19.6 |
| Total - all Commodities | 632 | 712 | 1000 | 1211 | 4.1 | 3.2 |
| PRODUCTION | | | | | | |
| Agricultural Products | n/a | n/a | 1102 | 1161 | n/a | 0.9 |
| Manufactures | n/a | n/a | 1251 | 1683 | n/a | 5.1 |
| Total - all Commodities | n/a | n/a | n/a | n/a | n/a | n/a |

SOURCES: Export statistics; Values: External Trade Report and Analysis, various years. Unit Value and Volume Indices: Prices, Wages and Labour, Part A Prices, 1978, and Monthly Abstract of Statistics. Production Statistics: Monthly Abstract of Statistics.

NOTES: Export statistics for unit values and volume indices: "Agricultural Products" = "All Pastoral and Dairy Products"; "Manufactures" = "Manufactures other than Food" but for values categories are as defined in Table 3.1, p. 23, except they now include Ships' Stores. Production statistics: for Agricultural Products, the index is the index of gross Agricultural Production. For Manufactures, the index is the index of net production for Division 3 of the ISIC.

Products", which dominated the export bundle at the beginning of the period, grew at an average rate of only 1.4 percent. Other Agricultural Products such as non-manufactured forest products grew more rapidly. Manufactures grew at the annual rate of 19.6 percent which is considerably in excess of the world average rate of 9.0 percent but the New Zealand exports grew from a very small initial base, and some of this manufacturing output consists of a higher level of processing of land products such as leather and paper manufactures.

The rate of growth of Manufacturing production was less than the rate of growth of the volume of exports of Manufactures. This implies an increase in the proportion of manufacturing output which was exported over this period but it should be noted that the two series of exports and production are not exactly comparable (compare Table 4.3, p.37).

These trends in the volumes and prices of the broad commodity groups show that the New Zealand economy over this seventeen-year period did experience slow growth with some change in the commodity composition of its exports. However, to consider the change carefully we need to examine the exports of commodities at a more disaggregated level and to compute the trend rates of growth of volume and price indices for these commodities.

(iii) Trends in Export Prices, Quantities and Terms of Trade

Year-to-year changes in the prices of individual commodities sold abroad and in the value of these sales, and the average prices and aggregate value for all exports, have always been substantial in New Zealand economic history. These year-to-year changes combine two separate influences, the trends in prices and the fluctuations around the trends. The trends provide a more precise quantitative description of long-term market behaviour than point-to-point growth rates. Fluctuations in the export prices and receipts are also important because they may have a destabilising influence on the whole economy principally via the income effects on the consumption and investment expenditures of export producers, liquidity and the demands for higher gross money incomes of wage-earners to compensate for the increase in the domestic prices of export commodities. We concentrate on the trends because of our focus on long-term issues. Section 5 (iv) discusses briefly the policy implications of these fluctuations for a strategy of developing a more trade-oriented economy.

Table 3.3, p.27 reports the estimates of the trend rates of growth per annum in the price and volumes for nine major commodity groups. These groups accounted for between 67 and 90 percent of total New Zealand exports during the period 1960-61 to 1977-78. (The definition of these commodity groups and the method of computation of the indices are given in Appendix 2). The prices have been converted to SDR units. These conversions remove the artificial jumps in the series expressed in NZ dollars which occurred each time the exchange was adjusted. Thus, these series measure the price changes in the overseas markets in which the New Zealand products were sold. They are preferable to the New Zealand dollar series reported in the previous section. To obtain an improved fit several forms of the trend function were fitted. For the price indices, in all groups the exponential equations (constant percentage rate of growth) were preferred. This reflects the fact that the secular inflation dominates

these series. For the volume indices, linear equations were preferred for the commodity groups "Butter", "Mutton and Lamb" and "Wool". This implies that the trend rate of growth in percentage terms fell during the period. The range of these trend rates is given in the Table. In the case of "Cheese", the preferred parabolic equation divides the total period into two sub-periods around the peak. From 1960-61 to 1966-67 the trend was upwards, thereafter it was downwards. This reflects primarily the exclusion of New Zealand from the UK markets after the UK accession to the EEC. The trends in column (3) for "Cheese" refer to these sub-periods.

TABLE 3.3

ESTIMATED TREND RATES OF GROWTH OF COMMODITY EXPORT PRICES AND VOLUMES, 1960-61 TO 1977-78

Rates of Growth (Percent per annum)

| Commodity Group | Export Price (1) | Export Purchasing Power ^a (2) | Export Volume (3) | Preferred Equation (4) |
|---------------------------------------|------------------|--|-------------------|------------------------|
| Butter | 1.6 | -2.5 | 0.31 to 0.29 | Linear |
| Cheese | 3.2 | -0.9 | +1.1 and -2.9 | Parabolic |
| Milk Products | 5.1 | 1.0 | 9.0 | Log |
| Beef & Veal | 3.2 | -0.9 | 6.2 | Log |
| Mutton & Lamb | 4.4 | 0.3 | 0.77 to 0.87 | Linear |
| Wool | 1.8 | -2.3 | 0.65 to 0.73 | Linear |
| Hides & Skins | 4.8 | 0.7 | 1.6 | Log |
| Woodpulp | 1.8 | -2.3 | 11.5 | Log |
| Paper | 1.4 | -2.7 | 8.3 | Log |
| Average ^b - Nine Groups | 3.0 | -1.1 | 5.1 | |

Note a. The Average is the weighted geometric mean of the individual rates.

b. For each commodity group the export price index was deflated by the index of prices of all imported commodities to give an index of the purchasing power of each commodity group.

Column (1) gives the trends in the prices of these exports in terms of foreign currency units. But the purchasing power of exports in terms of imported commodities depends also on the prices of the imported commodities and the quantities traded. Column (2) gives the trend in purchasing power of each unit of exports for the commodity group. For six of the nine groups a unit of exports has bought progressively fewer imports over this period. These include all of the grassland farming products which were important at the beginning of the period, except "Mutton and Lamb" for which the purchasing power changed little. Together with the slow rate of change of export volumes for these commodities as recorded in column (3), these trends explain why the aggregate volume of imports has been severely restricted. The rate of growth of volume of exports of "Milk Products", "Woodpulp" and "Paper" have been much higher. Taking the nine commodity groups together the trends in export prices and volumes and import prices have allowed an increase in the volumes of imports of only +4.1 percent per annum which compares poorly with the world average of about +7.2 percent.

This slow growth reflects the pattern of New Zealand's export specialisation since world exports of agricultural products have grown slowly. In the future, if the rate of growth of world trade of these traditional export commodities continues to be relatively slow, there are only three possible ways New Zealand can escape the constraint of low growth in the trade sector. It might be able to increase its market share for these agricultural exports or it might concentrate on particular commodities within these commodity groups with a higher-than-average rate of growth. Both of these strategies cannot, by definition, succeed for all countries which export these commodities. Furthermore, the severely restricted access for New Zealand to major world markets limits the prospects for greater volume of sales for many commodities and depresses the average prices, as noted in Chapter 2. The third, and in our view more promising, alternative is to diversify into the export of products with higher-than-average rates of growth of world demand and trade.

CHAPTER 4

STRUCTURAL CHANGE IN THE ECONOMY

Discussions of structural adjustment problems and the design of policies to deal with these problems emerged in the developed countries during the late Sixties and early Seventies. In neighbouring Australia a fairly intense debate on problems of structural change occurred in the mid-Seventies (see Green Paper on Policies for Development of Manufacturing Industry, 1975; Industries Assistance Commission, 1976, 1977, a, b, and c; Kasper and Parry, 1978) and a special Study Group on Structural Adjustment reported to the Commonwealth Government in 1979.

In relation to other developed countries, there has been much less discussion in New Zealand and what little discussion has taken place has concentrated on the structural problems relating to the series of large deficits in the balance of payments (for example, OECD, 1977 and 1979; Preston, 1978; Maughan and Ward, 1978), or the rising unemployment rate (New Zealand Planning Council, 1978, pp. 54-55). These problems are important and urgent. There is also a persistent long-term problem of slow growth of input productivity and real national output. Moreover, the balance of payments problem is a manifestation of an underlying national expenditure disequilibrium which arises fundamentally because the New Zealand aspirations for higher levels of consumption of private and public goods cannot be satisfied from the recent levels of output (see Appendix 1). The recent growth of unemployment may also have been aggravated by these long-term problems. This chapter is concerned with long-term structural changes in the economy but it touches on the related short-term problems.

(i) The Nature and Significance of Structural Change

While the definition of structural change has not been a matter of great debate a careful definition will help to set up appropriate measures of past change and to understand more clearly the problems and alternative policies to deal with them. Structural change could be interpreted to encompass all changes in the structure of the economy. This concept seems too broad as it includes changes in the structure of the demand for the outputs of the economy and of other countries as well as the changes in the structure of the outputs and inputs of the domestic economy. The concern with structural problems is typically with problems of shifting resources from the production of one product to another, of shifting their location of production, of employers changing employees, of changes in the market shares of domestic producers. We shall consider only changes in the production sector of the economy, recognising that some of these changes are induced by changes in domestic and overseas demand for the outputs of domestic industries. Structural change is equated to changes in the long-term allocation of productive resources among production activities of the economy. (A more formal definition and problems of measuring structural change are considered in Appendix 3.) These resources are the primary resources of the economy, its labour and capital stocks and its natural endowments.

These structural changes are equivalent to mobility of resources. There are three basic dimensions of mobility of resources among activities: inter-occupational, inter-employer, and inter-locational mobility. This definition includes both the movement of existing stocks and of new additions to the stocks of capital and labour. The latter is important as entrants into the labour force and newly-created capital tend to be more mobile between activities and account for a large part of the changes in the allocation of all resources.

Unemployment of labour and capital due to cyclical or other short-term fluctuations in demand is excluded from these changes as we focus on long-term changes. However, "structural unemployment" due to shifts in the demand for labour between locations or occupations or employers is an aspect of long-term structural change.

This simple but general definition has some important implications. It implies that one should be concerned with adjustments in all industries and all employments of the national economy. Any restrictions to, say, the manufacturing sector or the export sector discriminate in favour of the chosen group. From the point of view of the national economy, limited commodity or industrial coverage of structural adjustment measures means that opportunities for improving the allocation and efficiency of resource use in other areas of the economy may be overlooked. All activities compete for the use of national resources and the benefits and costs of maintaining some resources in their current employments or of moving them to other activities can be assessed only by considering all alternative activities.

A second implication is that one is concerned with all causes of structural change. It is useful to distinguish between structural changes which originate because of changes in the private sector's demand and supply of goods and those which originate in changes in government interventions in the markets of goods (on grounds other than structural change). The New Zealand government intervenes directly by means of controls on prices, foreign exchange transactions, and the licensing of imports and many business operations, and indirectly via taxes on commodities and incomes. Each government intervention changes the relative profitability of different activities in the economy and any changes in these interventions is itself a cause of structural changes. If the New Zealand government were, for example, to change substantially policies relating to the exchange rate or import licensing or export controls or price controls, it would affect substantially the profitability of numerous New Zealand producers.

In the debates concerning structural adjustment policies in other countries it has sometimes been argued that adjustment assistance should be confined to those problems which are "caused" by a reduction in government assistance to some producers or to some industry, such as those which would follow a liberalisation of import licensing in New Zealand. For example, in the US two of the first programmes to provide assistance to industries or producers specifically designed to cope with structural change were the US Trade Expansion Act of 1962 and the US-Canada Automotive Agreement and both of these were concerned exclusively with the effects of multilateral and bilateral reductions respectively in tariffs. In Australia, the Structural Adjustment Assistance programme introduced in 1974 was the first to provide structural adjustment assistance to manufacturing producers and payments under it were confined to producers adversely affected by the 1973 across-the-board tariff cut and reductions in tariffs on consumer electronic equip-

ment and other goods, apart from the minor exceptions relating to the Cessation of Free Milk to Schoolchildren and the Removal of Sales Tax Exemption on Aerated Waters. In a country such as New Zealand where the level of government direction and intervention in production is high, it is likely that some of the first calls for "structural adjustment assistance" will come from industries or producers from whom high levels of government assistance are withdrawn.

Similarly, it has been argued in other countries, as it will no doubt be argued in New Zealand, that the current problems of some group of producers or employees is due to some particular event in the private sector. The favourite alleged cause of domestic difficulties is competition from foreign suppliers, especially "low-cost" or "subsidised" or "unfair" competition. If government knew the cause of some producers' structural adjustment problems it might be tempted to try to control the rate of structural change by controlling the causal factor.

These views imply that it is possible to isolate the factors which have caused adjustment problems. It is possible, in some instances at least, to say that the adjustments made by a group of producers may have been precipitated by some change in the demand for the commodities they produce or because of a dramatic increase in the price of essential raw materials or of the labour they employ. Yet, it is the total or cumulative effect of a myriad of changes which determines a firm's ability to compete and to employ labour and purchase other inputs. The prices of the products they sell and the inputs they buy are changing continually, almost daily, for every producer and rarely will any single factor, such as the withdrawal of some item of government support or increase in the cost of some input, be solely responsible for the sacking of workers or the demise of some plant or a company failure. Most firms, even small businesses, are quite highly diversified in that they produce a range of products and they continually adjust this product range to counter the vicissitudes of the market for individual products. Indeed, the closure of some part of a firm's operations which causes loss of job opportunities for some employees or the necessity to move in order to take another job in another location is itself a vital part of the way in which producers adjust to market changes in order to survive and remain profitable. Conversely, many changes create opportunities for employment and profit.

Empirical studies in other countries have verified that it is difficult to ascribe the problems of particular industries or producers to particular "causes". In Australia the debate has centred on the importance of the 1973 tariff cut as a cause of structural adjustment difficulties in the manufacturing sector. Manufacturers and manufacturers' associations claimed that this was the principal cause of the loss in employment in the manufacturing sector after 1973. However, investigations by economists have found that other factors were more important; in particular, the revaluations of 1972 and 1973, the sudden increases in female wage rates in 1973 and 1974 and the growing unemployment after 1974 due primarily to world recession were more important (see Dixon, Parmenter and Sutton, 1978 and Gregory, 1978). An unfortunate conjunction of circumstances, not a single cause, was responsible for the collective problem.

What of the effects of structural changes? These are conceived popularly as the loss of jobs or company profits or the necessity for employees to change jobs and companies to change their product mix and/or the location of production, etc. More generally, each change in the production

structure changes the real incomes of households which supply labour services or own shares or interests in the capital of business enterprises and, by affecting future incomes, it changes the capital values of productive assets. It may also increase job insecurity and the psychic cost of job changes. Although attention is commonly concentrated on the problems of those who lose jobs or incomes, it is important to appreciate that in every instance of structural change (other than those in which an adverse shock is imposed from outside the economy, such as an earthquake or decline in the terms of trade) some households benefit while some lose. Thus an increase in the market share of imports for some group of commodities (for whatever reason(s)) will result in a loss of jobs and incomes for producers and retailers of the domestic substitutes while it lowers the market prices which consumers would have to pay and thereby increases the real incomes of the consumers. Conflict between groups of income-earners is an inherent part of the effects of structural change.

Structural change is not itself a "good" or a "bad", that is, it is not an objective of economic policy-making which should be pursued or discouraged. One is concerned with changes in the production structure of the economy because of the effects which they have on the levels and distribution of real household incomes. Or, to put it in terms of the more conventional objectives of economic policy, one is concerned with the effects of structural change on the objectives of the growth of real incomes, income distribution, and full employment.

The relationships between structural change on the one hand and these objectives on the other are not simple. It is argued in this study that an increase in the rate of change in the production structure of the economy is a necessary condition for the attainment of a higher rate of growth of average real incomes in the economy. But it is not a sufficient condition. An increase in structural change does not ensure higher real incomes. The relationship between structural change in the economy and the distribution of real income will differ from one instance to another. There is probably little that one can say about the pattern of these effects except that the losses and gains in income which fall directly upon the owners of capital and the suppliers of labour in the activities affected will in many cases be concentrated on fewer households than the benefits in the form of lower consumer prices or new products.

The relationship between structural change and unemployment is problematical and has received less empirical attention. First, the amount of current "structural" unemployment, that is, unemployment which is due to changes in the structure of production such as the introduction of labour-saving technologies, is uncertain and easily exaggerated. One must consider the effect on the total demand for labour. This includes the indirect demand for labour in the industries which supply the new machines or capital equipment as well as the direct effect on the labour displaced because much technological change is capital-embodied. Furthermore, in many cases such innovations reduce the price of the product or services produced and thereby lead to an increase in the demand for the output and a secondary increase in demand for inputs. It is possible that the increase in the quantity of output may more than compensate for the reduction in direct labour input per unit of output and thus lead to an increase in labour demands. Second, a higher level of aggregate demand for labour in the economy increases the proportion of those losing jobs involuntarily who are able to find other jobs. However, the level of "non-structural" unemployment may be related to the rate of structural change. In New Zealand and Australia the observed increase in unemployment rates have been considerably higher than

in most other developed countries. In both of these countries the levels of protection against import competition are much higher on the average than in other developed countries. Moreover, in Australia, the IAC (1978, pp. 4-5) has noted that within the manufacturing sector the rates of unemployment have tended to be higher in industries which receive above-average levels of industry assistance from the Commonwealth Government. This set of coincidences suggests that the strategy of protecting domestic producers against increased competition from foreign suppliers may reduce their capacity to accommodate structural change but this is an untested hypothesis at this time.

It is important not to overemphasise the negative or harmful effects of structural change. Long-run gains in real incomes (rare instances of international munificence in the form of unrequited income transfers apart) can be realised only because of changes in the structure of production. Increases in aggregate real consumption because of the introduction of new and more productive technologies or new opportunities for international trade are permanent whereas the costs in terms of the labour and capital which is displaced are mostly temporary. The direct loss of jobs and incomes in the case of technological change is offset by indirect and secondary employment, in part at least. Often the losses are confined to particular firms or locations within an industry rather than to the entire industry. Moreover, structural change brings other gains in the forms of relief from repetitive and unsatisfying jobs, wider job opportunities, produce availabilities and life styles for residents of the economy.

To discuss further problems of structural change we need some knowledge of the rates and patterns of this structural change.

(ii) Measurements of Structural Change

This section presents some basic measurements of the rate and pattern of structural changes in the New Zealand economy over the last two decades or so. These are the first systematic measurements of structural change in New Zealand. The main measures and the dates are tailored to parallel as closely as possible the measures of structural changes in Australia and other OECD countries, but excluding New Zealand, which were made recently by the Australian Industries Assistance Commission (1977a, Chapter 2 and Appendix 2.1) in order to make some international comparisons.

It is not possible to record all of the shifts in the labour and capital resources among activities and within activities. In this Section we concentrate on the changes in the distribution of national output by industry group and national employment by industry group and changes in the distribution of exports by industry group. Analysis at the level of aggregation of sectors or industry groups indicates the broad patterns only as it hides many changes which occur between and within the many activities that make up an industry.

Table 4.1, p.34 records the changes in the structure of the economy in terms of the distribution of output in current prices and employment among the four sectors of the economy over the decade 1963 to 1973. Unfortunately the New Zealand data was not available to compute the longer series from 1953 to 1973. While these series are not strictly consistent because of the shift from the Standard Industrial Classification to the SNA in 1971-2,

TABLE 4.1
GROSS DOMESTIC PRODUCT AND EMPLOYMENT BY SECTOR - NEW ZEALAND

| YEAR | Proportion of Total GDP* attributable to each Sector | | | | Proportion of Employment in each Sector | | | |
|-----------------------|---|--------|--------------------|----------|--|--------|--------------------|----------|
| | Rural | Mining | Manufac- turing | Services | Rural | Mining | Manufac- turing | Services |
| 1950/51 ^a | 20.4 | 0.9 | 23.8 | 54.5 | 19 | 1.0 | 25 | 55 |
| 1954/55 ^c | | | | | | | | |
| 1955/56 ^d | 19 | 0.9 | 23 | 57 | 16 | 0.9 | 24 | 59 |
| 1960/61 ^d | 15 | 0.7 | 25 | 59 | 14 | 0.8 | 25 | 63 |
| 1965/66 ^{bd} | 12 | 0.5 | 26 | 61 | 13 | 0.6 | 27 | 63 |
| 1970/71 | 13 | 0.5 | 23 | 64 | 11 | 0.5 | 25 | 62 |
| 1971/72 | 15 | 0.4 | 22 | 63 | 12 | 0.4 | 24 | 62 |
| 1972/73 | 13 | 0.4 | 22 | 64 | 12 | 0.4 | 25 | 62 |
| 1973/74 | 9 | 0.5 | 23 | 67 | 12 | 0.4 | 24 | 62 |
| 1974/75 | 11 | 0.3 | 22 | 67 | 12 | 0.4 | 24 | 62 |
| 1975/76 | 12 | 0.5 | 22 | 66 | 11 | 0.4 | 25 | 62 |
| 1976/77 | | | | | | | | |

* At net factor cost.

^a The figure for mining was estimated.

^b There is a break in series: 1950/51 to 1970/71 industries classified as NZSIC and Employment using Census Definitions, 1971/72 to 1976/77 both industries and employment classified according to NZSNA.

^c GDP percentages calculated from the 1954/55 "Input-output transactions table" Department of Statistics.

^d GDP percentages calculated from input-output tables prepared by Gareth Morgan. These figures are not comparable with the manufacturing or services figures for 1954/55. The 1954/55 manufacturing figure should be lower and the services figure higher to be on a similar basis.

they reveal clearly, in terms of both output and employment, the relative decline of the Rural sector and the rise of the Services sector. These basic trends have been common to all developed countries (see Australian Industries Assistance Commission, 1976, Tables 2.1 and 2.2 and the Economic Commission for Europe, 1978). The share of Manufacturing has been roughly constant in New Zealand. While these shifts are undoubtedly important, we need to examine the trends at a more disaggregated level since there may be considerable and significant changes in the composition of output and employment within these sectors. We need also to remove the effects of differential rates of increase in the prices of outputs during periods of inflation.

Variation among industry rates of change of output and employment in any economy indicates change in the structure of the economy. The greater this variation among rates of change the greater the structural change. Appendix Tables A.5.1. p.116 and A.5.3. p.118 record the average annual compound rates of growth of nine industries of gross output in constant prices and employment in New Zealand and other OECD countries. In all countries the structure of the economies has changed considerably. The rate of change of this structure is measured in terms of the standard deviation among these average rates of growth for industries, following the Australian IAC. (Alternative measures of structural change are considered in Appendix 3.) Considering all countries, one general feature is that the structural change tends to be approximately the same on average for output as for employment. However, in the case of New Zealand, the rate of structural change is much less in terms of employment.

Comparing the New Zealand rates of change with those of other OECD countries one sees that the rates of structural change in terms of employment for all industries are considerably less than that for all individual countries and well below the average (1.5 compared to 2.5) of those developed countries for which statistics are available. However, the New Zealand rate of change of real output is only slightly below the OECD average.

In Appendix Tables A.5.2. p.117 and A.5.4.p.119 the same measures of structural change are reported for the manufacturing sector industries only of New Zealand and the OECD countries. The rate of structural change in New Zealand in terms of output is significantly less than the OECD average but the rate of change of the structure of employment within the New Zealand manufacturing sector is above the OECD average.

Table 4.2 p. 36 also shows that for this period New Zealand had the second lowest rate of growth of real Gross Domestic Product and the lowest rate of growth of all OECD countries over this period of Gross Domestic Product per capita. This association of low rates of structural change in terms of national employment and output in the manufacturing sector with relatively low rates of growth of real output in New Zealand is consistent with the finding for all countries that the rates of structural change and of real output are positively correlated (see IAC, 1978a). But this association does not hold for the two other series.

The distribution of exports by industry in 1962/3, 1972/3 and 1975/6 are reported in Appendix Table A.5.6. p.121. We have already commented on the distribution of exports by commodity group in Chapter 3. The most relevant aspect of exports by industry is the percentage of output of each industry which is

TABLE 4.2

**STRUCTURAL CHANGE AND GROWTH:
SELECTED COUNTRIES, 1963 to 1973**

(percent)

| COUNTRY | Growth Rate ^a | | | Structural change as measured by standard deviations of industry growth rates | |
|----------------------------|--------------------------|------------|-----------------------------|---|------------|
| | GDP ^b | Population | Per Capita GDP ^b | Gross Product ^b | Employment |
| New Zealand | 3.9 | 1.6 | 2.2 | 2.3 | 1.5 |
| Australia | 5.2 | 1.9 | 3.3 | 2.2 | 2.0 |
| Belgium | 5.1 | 0.5 | 4.6 | 2.9 | 2.7 |
| Canada | 5.6 | 1.6 | 3.9 | 1.9 | 2.5 |
| Denmark | 4.7 | 0.7 | 4.0 | 2.3 | n/a |
| Finland | 5.3 | 0.3 | 5.0 | 2.6 | n/a |
| France | 5.7 | 0.9 | 4.8 | n/a | 2.7 |
| Germany FR | 4.7 | 0.8 | 3.9 | 2.0 | 2.2 |
| Greece | 7.7 | 0.5 | 7.1 | 4.0 | n/a |
| Italy | 4.7 | 0.8 | 3.9 | 2.2 | 2.8 |
| Japan ^c | 10.2 | 1.1 | 9.1 | n/a | 3.8 |
| Netherlands | 5.5 | 1.2 | 4.3 | n/a | 3.0 |
| Norway | 4.7 | 0.8 | 3.9 | n/a | 2.8 |
| Portugal | 6.7 | -0.6 | 7.4 | 4.2 | n/a |
| Sweden | 3.8 | 0.7 | 3.1 | 2.2 | n/a |
| UK | 3.0 | 0.4 | 2.5 | 1.7 | 1.9 |
| USA | 4.4 | 1.1 | 3.3 | 1.6 | 2.0 |
| All Countries ^d | 5.3 | 0.8 | 4.9 | 2.5 | 2.5 |

^a Rates of growth were calculated as the simple annual average change between base and final years.

^b At constant 1970 prices.

^c Data relates to the period 1962 to 1972 except for the standard deviations for employment which relate to the period 1963 to 1973.

^d The All Country Average is the unweighted average.

Source: Table A.5.1. p. 116 A.5.3. p.118 and Australian Industries Assistance Commission (1977a, Table 2.3).

TABLE 4.3
EXPORTS AS A PERCENTAGE
OF GROSS OUTPUT

| | 1962/63 | 1972/73 | 1975/76 |
|---|---------|---------|---------|
| Rural | 23.0 | 20.1 | 17.4 |
| Agriculture | 23.7 | 19.5 | 17.4 |
| Fishing, Hunting | 27.6 | 45.4 | 52.7 |
| Forestry and Logging | 4.4 | 26.5 | 11.2 |
| Mining and Quarrying | 0.0 | 6.5 | 14.2 |
| Manufacturing | 18.5 | 20.9 | 16.9 |
| Food, Beverages, Tobacco | 42.1 | 48.7 | 46.7 |
| Textiles, Clothing, Leather | 1.3 | 5.0 | 5.8 |
| Wood and Wood Products | 1.4 | 4.7 | 3.4 |
| Paper, Printing | 5.7 | 7.8 | 12.7 |
| Chemicals, Petroleum | 2.5 | 2.5 | 2.1 |
| Non-Metallic Mineral Products | 0.1 | 2.1 | 1.5 |
| Basic Metal Fabricated Metal Products) | 0.3 | 4.1 | 5.2 |
| Other Manufacturing | 3.1 | 0.7 | 0.8 |
| Services | 3.3 | 5.0 | 5.6 |
| Electricity, Gas, Water | 0.0 | 0.0 | 0.0 |
| Construction | 0.0 | 0.0 | 0.0 |
| Trade | 5.5 | 7.5 | 5.9 |
| Transport | 14.8 | 22.6 | 28.5 |
| Communication | 0.0 | 0.0 | 0.0 |
| Finance, Business Services | 5.4 | 2.6 | 8.4 |
| Other Services | 1.9 | 4.4 | 6.9 |
| Total | 11.6 | 12.6 | 10.8 |

Source: Gareth Morgan, unpublished data.

exported and changes in this percentage over time. Table 4.3, p.37 these percentages for the same industry groups and periods as used in Tables 4.1, p. 34 and 4.2, p. 36 from consistent time series of these outputs, which were kindly supplied to us by Gareth Morgan. They show that for all sectors in the economy the proportion of national output which was exported increased from 11.6 to 12.6 percent over the period 1962/3 to 1972/3 but declined to 10.8 percent over the last period from 1972/3 to 1975/6. The average percentage for all industries was less in 1975/6 than thirteen years previously. That is, the economy has become less export-oriented during a period of rapid growth of world trade and increase in the export orientation of the world economy (recall Chapter 2).

This decline in export orientation over the period 1962/3 to 1975/6 applies to both the Rural sector and the Manufacturing sector, the two sectors which account for the bulk of exports of goods and services. The proportion rose in several Manufacturing industries but these increases were more than offset by the fall in the proportion of exports of "Food, Beverages and Tobacco". However, this is mainly a fall in the exports and the production of processed meat products, and in Wood and Wood Products as a proportion of output.

Total exports in any period may be distributed by firms in place of the distribution by industry. The purpose of this distribution is to examine inter-firm differences in the export orientation of their outputs. Table 4.4, p. 39 gives a distribution of exports from the Manufacturing sector in 1974/5 by firm size (as measured by the value of export sales). This shows that almost 50 percent of the firms covered sold less than 10 percent of their total sales in overseas markets and two-thirds sold less than 15 percent in overseas markets. On the average each of these manufacturing firms sold less than \$1 million overseas. One would like to test whether there is any relationship between firm size, as measured by value of output, and exporting. Unfortunately, the data are not available for firms of different size as measured by value of output (sales). One should also allow for the differences in export proportions among industries and for the sizes of non-exporters who were not included in the sample. Data is not available for individual industries. We can not, therefore, test the effects of firm size on exporting for all firms. Yet, we can still observe two features of this distribution. There is, from Table 4.4, p. 39, considerable variation in the export orientation of firms. And there is a clear tendency for the firms which export more than \$½ million to be more export-oriented as measured by the proportion of total sales exported than other firms.

Another distribution of national output and national employment which has economic and social significance is the distribution by region. No statistical series are available by region for the national output. Table 4.5 gives a regional breakdown of the national employment. The first division is between the North and South Islands which is obviously significant because of transport barriers. Over this period the employment has been shifting continuously from the South to the North Island. The total employment in the two islands is then disaggregated into the Upper and Lower parts of the North Island, and in the South Island into Christchurch district and the Rest of the South Island. These divisions represent areas which have distinct economic characteristics, including different growth patterns over this period. This is verified in the Table. The Rest of the South Island

TABLE 4.4

NEW ZEALAND MANUFACTURING EXPORTERS
BY TOTAL EXPORT SALES, AND RATIO OF
EXPORT SALES TO TOTAL SALES, 1974/75

1. Cross-classification Showing Number of Firms in Each Category.

| Ratio Ex- port Sales to Total (per cent) | Export Sales (\$ thousand) | | | | | Total |
|---|----------------------------|---------------|---------------|-----------------|---------------|-------|
| | Under 100 | 100 to 300 | 300 to 500 | 500 to 1,000 | Above \$1m | |
| Under 5 | 10 | 18 | 6 | 2 | 1 | 37 |
| 5 to 10 | 5 | 15 | 9 | 4 | 1 | 34 |
| 10 to 15 | 2 | 14 | 4 | 3 | 2 | 25 |
| 15 to 20 | 1 | 3 | 1 | 2 | 2 | 9 |
| 20 to 30 | 3 | 5 | 2 | 1 | 4 | 15 |
| 30 to 40 | | 3 | 3 | 2 | 5 | 13 |
| 40 to 60 | | 3 | 1 | 2 | 3 | 9 |
| 60 to 95 | | | | 1 | 1 | 2 |
| 95 to 100 | | | | 1 | 3 | 4 |
| Total | 21 | 61 | 26 | 18 | 22 | 148 |

2. Cross-Classification Showing Value of Export Sales of Firms in Each Category.

| Ratio Ex- port Sales to Total (per cent) | Export Sales (\$ thousand) | | | | | Total | Average Export Sales per Firm \$000 |
|---|----------------------------|---------------|---------------|-----------------|---------------|---------|---|
| | Under 100 | 100 to 300 | 300 to 500 | 500 to 1,000 | Above \$1m | | |
| Under 5 | 660 | 2,813 | 2,505 | 1,218 | 1,430 | 8,626 | 233 |
| 5 to 10 | 375 | 2,537 | 3,227 | 2,746 | 3,656 | 12,541 | 369 |
| 10 to 15 | 162 | 2,211 | 1,354 | 1,943 | 10,286 | 15,956 | 638 |
| 15 to 20 | 98 | 637 | 402 | 1,416 | 10,976 | 13,529 | 1,503 |
| 20 to 30 | 277 | 1,139 | 712 | 698 | 15,958 | 18,784 | 1,252 |
| 30 to 40 | | 751 | 1,125 | 1,484 | 9,907 | 13,267 | 1,021 |
| 40 to 60 | | 487 | 320 | 803 | 31,068 | 32,678 | 3,631 |
| 60 to 95 | | | | 777 | 1,406 | 2,183 | 1,092 |
| 95 to 100 | | | | 559 | 15,160 | 15,719 | 3,930 |
| Total | 1,572 | 10,575 | 9,645 | 11,644 | 99,847 | 133,283 | 901 |

Average
Export
Sales
per Firm
(\$000)

| | | | | | |
|----|-----|-----|-----|-------|-----|
| 75 | 173 | 371 | 647 | 4,538 | 901 |
|----|-----|-----|-----|-------|-----|

Source: New Zealand Institute of Economic Research.

Notes: The data were extracted by the Department of Statistics from the 1974/75 Manufacturing Census returns with the consent of the firms reporting. Some exporters did not respond and the sample of respondents in this table is self-selected.

TABLE 4.5

REGIONAL DISTRIBUTION OF
NEW ZEALAND EMPLOYMENT

| AREA | 1963 | 1973 | 1978 | Annual Growth 1963 to 1978 |
|----------------------|-----------------|-----------------|-----------------|-------------------------------------|
| Upper North Island | 274,232 40% | 382,106 44% | 426,741 46% | 3.0% |
| Lower North Island | 210,186 31% | 257,302 29% | 269,350 29% | 1.7% |
| Total North Island | 484,418 71% | 639,408 73% | 696,091 74% | 2.5% |
| Christchurch | 87,458 13% | 107,566 12% | 106,402 11% | 1.3% |
| Rest of South Island | 112,128 16% | 125,993 14% | 134,231 14% | 1.2% |
| Total South Island | 199,586 29% | 233,559 27% | 240,633 26% | 1.3% |
| Total New Zealand | 684,004 100% | 872,967 100% | 936,725 100% | 2.1% |

Source: Department of Labour. Surveyed Labour Force (males and females). Full Time employees and working proprietors, in all surveyed industries. These exclude agriculture, hunting fishing, waterfront work, seagoing work and domestic services in private households.

- Notes:
1. Upper North Island is the Employment districts of Whangarei, Auckland, Manukau, Hamilton, Tauranga and Rotorua.
 2. The figures for April and October of each year have been averaged to reduce the seasonal variation in the series.

experienced a rate of growth of employment which was slightly lower than that of Christchurch, which was distinctly lower than that of the Rest of the North Island, which in turn was distinctly lower than that of the Northern North Island area. This last area has been the main growth area of the economy, as is well known.

While it is not possible to compare these measurements of regional structural change with those of other countries, they indicate a substantial change in terms of the regional distribution of jobs. These broad regions also mask even more rapid shifts among individual cities, towns, and townships, with some experiencing rates of growth much in excess of those for the Upper North Island as a whole and some experiencing zero or negative rates of growth. These substantial shifts in the regional distribution of employment are one of the notable features of the pattern of structural change in New Zealand.

The changes in the distributions of national output and employment which have been examined above measure only a portion of the significant structural changes which occur over time in the economy. Many of the important changes occur within industries and even within activities and individual production plants. For example, changes in the mix of skills employed by producers in some activities or changes in the market shares of firms within an industry imply changes in the demand for primary resources and cause employees to adjust by moving to other occupations, locations, or firms. Some owners of labour and capital may not adjust readily and may become unemployed or suffer a substantial reduction in income. Because of limitations of time and data we were able to look at only a few aspects of micro-economic structural change.

Perhaps the single most important aspect of production within activities from the point of view of structural change are the changes in input proportions which result from changes in relative input prices, technological change and other causes. One basic summary measure of these is the physical capital-labour ratio in activities. Unfortunately, there are no consistent time series for these ratios in New Zealand, even for industry groups of activities. Table 4.6, p.42 records the distribution of total private and government sector gross capital formation and total private sector gross capital formation, by industry, in 1971/2 and 1976/7. Between these two particular years the two significant shifts were the decrease in the proportion of gross capital formation which occurred in the private sector, and the growth in the share of the total capital formation accounted for by Mining, at the expense of both the Rural and Manufacturing sectors (but the distribution among industries of capital expenditures is somewhat affected by the timing of large capital projects).

Another significant development in recent years is the increase in female employment. As shown in Table 4.7, p.43 there has been a steady increase in female employment as a proportion of the national total and in each of the sectors since 1960. The increase is most marked in the Services sector. These trends reflect an increase in female labour force participation rates which is common to most developed countries over this period. Because of differences between the female and male sub-populations in terms of their age distributions, skill mix and other work characteristics, this shift has caused significant adjustments in the labour markets.

TABLE 4.6

**DISTRIBUTION OF GROSS FIXED CAPITAL FORMATION
1971/72 and 1976/77**

| | As a Percentage of the Total | | Percentage put in place by the private sector | |
|-------------------------------|------------------------------|------------|---|-----------|
| | 1971/72 | 1976/77 | 1971/72 | 1976/77 |
| Rural | 10.8 | 7.9 | 93 | 93 |
| Mining | 0.6 | 5.6 | 89 | 43 |
| Manufacturing | 16.1 | 12.4 | 99 | 98 |
| Food, Beverages etc. | 4.5 | 3.7 | 98 | 100 |
| Textiles, Clothing etc. | 1.1 | 0.7 | 93 | 100 |
| Wood & Wood Products | 0.6 | 0.9 | 88 | 97 |
| Paper, Printing | 1.8 | 1.6 | 100 | 98 |
| Chemicals, Petroleum | 1.1 | 1.4 | 100 | 100 |
| Non-Metallic Mineral Products | 0.6 | 1.0 | 100 | 100 |
| Basic Metal | 4.4 | 1.1 | 100 | 100 |
| Fabricated Metal Products | 1.9 | 1.9 | 96 | 89 |
| Other Manufacturing | 0.1 | 0.1 | 100 | 100 |
| Services | 72.5 | 74.5 | 53 | 55 |
| Market Services | 55.8 | 61.1 | 68 | 68 |
| Non-market Services | 16.7 | 13.4 | 9 | 13 |
| TOTAL | 100 | 100 | 66 | 63 |

Source: NZSNA 1971/72 - 1976/77. Supplement to the November 1978 Monthly Abstract of Statistics.

TABLE 4.7
**FEMALE PARTICIPATION IN THE
LABOUR FORCE, by SECTOR**

| | PERCENTAGE FEMALE | | | |
|----------------|-------------------|-------------------|--------------------|--------------------|
| | 1960 ^a | 1970 ^a | 1971 ^{bc} | 1977 ^{bc} |
| Rural & Mining | 7.5 | 11.5 | 12.0 | 16.3 |
| Manufacturing | 23.5 | 24.1 | 26.0 | 27.1 |
| Services | 30.2 | 35.0 | 47.7 | 49.2 |
| TOTAL | 24.8 | 28.8 | 29.2 | 31.7 |

^a Source: Estimated distribution of the Labour Force, Yearbook 1971, p. 907, NZGP.

^b Source: Estimated Distribution of Total Labour Force, Table 14, Monthly Abstract of Statistics, Department of Statistics, NZGP.

^c April.

NOTE: The figures for 1960 and 1970 are compiled on a different basis to those for 1971 and 1977 and are not directly comparable.

In summary, structural change in the New Zealand economy may have occurred at a lower rate than in other developed countries but the empirical evidence is contradictory. Yet, there have been a number of substantial changes in the distribution of national output and employment and in demand for primary resources in economic activities. Note that there is nothing in the measures of change themselves which indicates that the changes have been beneficial or harmful in terms of assisting the growth of output or posing undesirable adjustment problems, or that the pattern of change which did occur was optimal for the country.

(iii) Limitations of Structural Change Policies in New Zealand

There are no programmes operating in New Zealand, either for particular industries or for the economy as a whole, which have been specifically designated as "structural adjustment" programmes.* One scheme which seems to follow the structural adjustment assistance policies common in other countries is the Regional Development programme. This programme was designed in part to encourage the development of industry in certain priority regions which have experienced less than the average level of economic growth. Other programmes which were set up to foster industrial development, technology development and manpower deployment do contain elements of what in other countries and in the OECD are commonly regarded as structural adjustment assistance policies. However, these structural adjustment components seem small and seem not to have been pursued with any vigour.

It is difficult to assess the precise extent of structural adjustment policies in New Zealand for two reasons. First, there is no Government Department or advisory body which has responsibility for overseeing all programmes which might be classified as structural adjustment programmes. Hence we shall make only general qualitative comments about the pattern of policies related to structural adjustment.

The second difficulty is that there is no universal agreement on what constitutes structural adjustment policies. From the definition of structural change as changes in the long-term allocation of domestic resources among production activities, structural adjustment assistance could be taken to mean any assistance from the government to producers or suppliers of labour and capital which promotes structural change. However, this usage is too comprehensive. All government assistance is intended to and does change resource allocation in some way.

* The "structural change" policies announced in the 1975 Budget (1975, pp. 7-8) have lapsed. This Budget announced: "It is now widely accepted that Government should actively assist industry in coping with structural change ... measures to be introduced to assist firms with structural adjustment include compensation grants for redundant capital equipment and consultancy service grants. The Department of Scientific and Industrial Research and the Productivity Centre will help firms with the technical and other requirements of a rationalisation programme. As part of a structural adjustment programme the Development Finance Corporation will provide loans for firm restructuring their activities in line with the results of the industry studies". This could have been the start of a comprehensive structural adjustment programme, though the measures were severely qualified by the condition: "The required changes will necessarily take place gradually and will be carried out in an environment of adequate protection for the adapting industries" (p.8).

The distinguishing feature of structural adjustment policy is that it changes resource allocation as a means of increasing the aggregate production and consumption. This is equivalent to what the OECD calls "industrial adaptation policies".* It includes assistance designed to increase resource productivity by such means as technology development. It includes subsidies to resource movements such as subsidies on the relocation of plant or household removal expenses associated with job changes and labour retraining. It includes payments to employees or firms to compensate them for income losses resulting from some structural change. All of these are commonly regarded as structural adjustment assistance. There are grey areas. For example, job creation schemes and job placement services combine placements in the labour force as a short-term stabilisation measure with some structural change. There is a skill promotion component in the job creation schemes and the job placement in part assists the relocation in the labour force of persons whose previous jobs were affected by structural change.

The problematic area concerns changes in government assistance, such as export development subsidies, which are designed to change the structure of production. Export subsidies are forms of industry assistance to producers who sell part of their output overseas which are exactly equivalent, for export production, to tariffs and import licensing restrictions which assist producers who sell their output on local markets; both a tariff and an export subsidy are equivalent in their economic effects to a combination of a production subsidy plus a consumption tax on the commodity. If one accepts export subsidies as structural adjustment assistance one should accept also changes in import restrictions. These too may be made in order to make the economy more trade-oriented. But this puts one in a curious position. If, for example, the government lowers a tariff, this change in this instrument of government policy may give rise to demands for structural adjustment assistance; that is, a change in one instrument of structural adjustment policy would be a cause of structural adjustment!

To overcome this problem and to make a necessary distinction we shall distinguish between structural change (or structural adjustment) policies and structural adjustment assistance policies. Structural change policies are all policies specifically designed to effect any change in the structure of the economy in pursuance of the objective of economic growth. They include changes in the present levels of government instruments, notably tariffs, import licensing and export subsidies, where these are now considered to be fixed at inappropriate levels. They also include structural adjustment assistance policies.** Thus structural adjustment assistance policies are

* Structural adjustment policies are only a sub-set of industrial development policies, though in most developed countries it is true that industrial development policies are being increasingly oriented towards long-term structural problems. Obviously it excludes some areas such as pollution control policies and it is only one aspect of other areas such as regional, foreign investment, small business and energy policies.

** Technically the distinction is between policies which do not increase the production possibilities surface of the economy but merely move the economy around it, and those which increase the production possibilities of the economy. (Some policy changes may do both. Thus increases in export subsidies or reductions in protection are primarily policies which shift resources and induce movement along the production possibility surface but they may also increase production possibilities through lowering real costs of production of individual commodities; for example, by making these activities more competitive.) The former are structural change policies but not structural adjustment assistance policies.

a sub-set of structural change policies. They are the policies which are intended to promote economic growth by increasing the production capabilities of the economy via technology development and other sources of change in input productivity (viz. industrial adaptation policies). Structural adjustment assistance policy also include policies which are intended to offset the consequences of the socially undesirable features of the changes in the structure of the economy, such as relocation subsidies and compensation payments.

There are also government policies which are designed to slow down the rate of structural change in certain activities, such as the phasing of changes in levels of tariffs or other instruments of protection. These might be called negative structural change policies but they are more accurately referred to as anti-structural change policies.

Accelerated depreciation and investment allowances, and the Small Business Agency operations are excluded from the set of structural adjustment assistance. The former are designed to promote a mixture of objectives: to increase aggregate investment expenditures as a short-term stabilisation measure, to promote aggregate business investment and to reduce the incidence of company taxation on the business sector. The principal objective of the latter is "to encourage and promote, the establishment, and development of efficient small businesses in New Zealand". Insofar as it is intended to promote the efficiency of business operations it might be considered a structural adjustment assistance programme but the exclusive limitation to designated small businesses indicates that the primary focus is on discriminating in favour of a particular sub-group of enterprises within the business sector of the economy.

One may distinguish between structural adjustment assistance which is paid or lent to the producers and that which is paid or lent to the workers. Table 4.8, p. 47 sets out some of the major readily-identifiable programmes of assistance to producers which have a significant structural adjustment assistance component. The list is not exhaustive. In addition to export subsidies, accelerated depreciation and investment allowances and small Business Agency operations, it excludes a number of advisory services offered by the DSIR, Ministry of Agriculture and Fisheries and other government Departments and some industrial development programmes such as the Industry Studies programme,* the Pacific Islands Industrial Development Scheme, South Island freight concessions and other subsidies which are not, primarily at least, promoting structural adaptation. On the other hand, some of the schemes included are not designed solely to promote industrial adaptation but this has been judged to be their primary objective. No attempt is made to estimate the fiscal cost of these programmes because some of the assistance is in the form of loans and one has to compute the implicit capital subsidy element of the loan to make loan assistance comparable with outright grants.

* Announced in 1975, this programme was intended to give a long-term assessment of each of the 11 industries which had been identified by the Tariff Review Committee for further study, and to assist in the formulation of government policies with a view to increasing productivity in these industries. The Industries Development Commission has only recently completed the draft of an industry development plan for the first of the 11 industries, the textile industry.

TABLE 4.8

ASSISTANCE TO PRODUCERS WITH STRUCTURAL
ADJUSTMENT COMPONENTS

| | Year of Introduction | Industry Coverage | Main Forms of Assistance | Administering Agency |
|--|----------------------|---|--|----------------------|
| High Priority Status Scheme | 1977 | Manufacturing activities eligible for existing increased export taxation incentives (activities must meet criteria) | Exemptions from price control and sales taxes, priority access to import licences and DFC loans and guarantees | DTI |
| Development Finance Corporation (DFC) | | All industries (projects must meet DFC criteria) | Subsidised development loans and loan guarantees, export suspensory loans | DFC/ DTI |
| Applied Technology Programme | 1977 | " | Research and development grants and finance | DFC |
| Regional Development | 1973 | Manufacturing and processing developments in Designated Priority and Slow-Growth Areas | Suspensory loans, relocation subsidies, staff transfer and staff training subsidies | RDC/ DFC |
| Pioneer Status Incentive Scheme | | " | Loans for qualifying development expenditures | RDC |
| Industrial Design Council | | | Design Advisory Services | DC |
| Research and Development Taxation Incentives | | | Special Depreciation rates | IR |
| Fishing Industry Assistance | 1978 | Fishing Industry | Investment Allowances, duty-free importation of vessels, suspensory loans on vessels | |

Several broad features are apparent in the list of policies in this Table. First, the programmes are ad hoc and unco-ordinated in that they have no common administration and no common eligibility criterion. They are administered as separate schemes by several different Government Departments and Councils. This complex administration must impose substantial costs on both the Government and the private sector beneficiaries. It was partly in recognition of the complex web of government controls and administering bodies affecting individual businesses that the High Priority Status scheme was set up in 1977. The Explanatory Guide to this scheme written by the administering Department, the Department of Trade and Industry, states: "The Government has decided to set up a scheme which will offer firms engaging in such activities a reduced level of administrative control and preferential access to services provided by state agencies". This goal is desirable and the scheme should result in some reduction in administrative costs for the fortunate qualifiers, though they remain high even for them.

Another common characteristic of these industry assistance schemes is their complexity in terms of eligibility criteria and the number of potential benefits or concessions available under the one scheme. For example, the High Priority Status Scheme suffers in a rather acute form from this characteristic. The available concessions include exemption from price control and sales tax on plant and machinery, preferential treatment for import licences, export suspensory loans, Trade Commissioners Services, loans and guarantees from the DFC and trading banks, and forward exchange cover, and a 40 percent investment allowance. (All of these government controls from which the High Priority Status producers are exempted or for which they are given priority treatment, are the controls which the administering Department for this scheme, the Department of Trade and Industry, are responsible.) The four initial criteria (reduced to three in the 1979 Budget) are complex.* This leaves a great deal of administrative discretion, and therefore, administrative control over private production activities in the hands of this Department.

Another related feature is that the payments or concessions to producers are mostly in the form of input subsidies rather than output subsidies or output-related or income tax concessions and they generally favour capital input subsidies - as in Research and Development tax incentives, Regional Development, Fishing Industry assistance, the implicit capital subsidies of the operations of the Development Finance Corporation, and in the High Priorities Status scheme via the licensing preference for importable capital inputs and 40 percent investment allowance. (We note that the latter characteristic is also true of many rural production subsidies.) To evaluate these features it is helpful to use a result from economic theory. A

* This scheme is interesting in two further ways. First, it recognised that the efficiency of activities may be distorted by multiple government interventions, thus encouraging less efficient activities. It is intended, therefore, as a structural change policy.

Second, the argument behind these calculations is a second-best or sub-optimum argument. It assumes that the distortions which impose the costs on efficient producers cannot be removed and then endeavours to minimise their effects. But it shows that there are great problems in devising second-best policies which lead to a real improvement. It is difficult to obtain the information which tells the well-intentioned intervener when in fact one activity is worthy of assistance and to devise another intervention which moves resources in the right direction. We return to this subject in Section 5 (ii).

subsidy which is paid on the base of units of output is equivalent, in terms of its effects on unit costs of production and the demand for all inputs, to a set of subsidies based on all inputs and paid uniformly at the rate equal to the output subsidy. Single or multiple differentiated input subsidies are administratively more complicated than simple output subsidies and, for the same effect on producers output, they distort the structure of inputs in favour of the subsidised input(s). This distortion of relative input prices has the untoward effect of encouraging producers to substitute capital for labour. This is a questionable bias, especially in a period of rising unemployment of labour.

Concerning manpower policies, an inventory of New Zealand manpower and employment measures is contained in the report of the OECD Working Party on Employment (1978). These may be divided into three categories. First, and overwhelmingly important in terms of public expenditures in New Zealand, are the schemes designed to reduce unemployment by job creation for the unemployed in the private sector and temporary employment in the public sector, or the payment of income maintenance through the unemployment benefit. While there is a small structural adjustment assistance component in the private sector job creation schemes in that the wage subsidies are used to encourage employers to upgrade the skills of subsidised labour and some priority is given to particular industries in order to encourage the restructuring of the labour force, the schemes have all been designed primarily as short-term stabilisation measures. Second, there are a number of labour training schemes for apprentices, public service employees and other groups. These are intended to increase labour skills for persons entering the labour force and youth unemployed rather than to retrain labour force members whose jobs have been affected by structural changes. Third, there are schemes to adjust the supply to the demand for labour. These are somewhat more closely related to structural adjustment assistance. The traditional job placement and vocational guidance services of the Department of Labour perform the dual roles of reducing aggregate unemployment and relocating in the labour force persons whose existing jobs have ended or become less attractive because of structural changes. There has been provision for the Department of Labour to assist workers proceeding from one employment district to another by paying for the cost of furniture removal in the case of married persons, and fares for the worker and dependents. Until 1977 this applied only to workers who had been accepted by an employer for employment. The Government decided then to authorise the Department to pay fare costs for workers attending job interviews for distant employments. These provisions have been virtually unused. In 1978/79 the total expenditures less recoveries were \$3,300, of which \$2,787 were devoted to seasonal labour movements to the Nelson district.

A dramatic illustration of the little expenditure devoted to relocating workers in the labour force and of the social benefits of increased expenditure in this area was provided by the fall in national unemployment total as at June 1, 1979. The number of registered unemployed in the Auckland district fell by 939 while that in the rest of the country rose by 79. On the release of the statistics, the Minister of Labour stated: "The decrease in the number registered is due entirely to increased interviewing and placement activity in the Auckland employment district following appointments to additional positions approved by the Government for the Employment and Vocational Guidance Service"!

Perhaps the main instrument used by government to reduce excess demand for particular labour skills has been the policy of recruiting immigrants who are skilled and qualified in occupations in which there is excess demand. (However, a significant and growing proportion of the immigrant flow are comprised of immigrants who do not have skills in excess demand and/or are not English-speaking and do not therefore relieve excess labour market demand for skilled workers.) Since 1975 this excess demand for some kinds of labour has co-existed with excess supply of labour in aggregate. It is extraordinary that a government wittingly or unwittingly has preferred to subsidise the placement of immigrant workers in these jobs before seeking to improve the job search, placement and retraining of available labour in New Zealand and thereby relieve both the excess demand for some labour and the unemployment in the country.

There have been no programmes which offered packages of assistance available to both employers and employees in industries adversely affected by structural change. In this respect New Zealand stands in marked contrast to most countries which have had some package programmes, either for all industries or specific industries.

Overall these adjustment assistance efforts represent a very limited and piecemeal attempt to deal with the problems of structural change. They have been directed towards producers rather than employees, have favoured producers in the manufacturing sector and several have favoured exporters within this sector. There have been no substantial structural adjustment assistance schemes for employees, or for rural producers, despite the widespread concern over the decline in the volume of farm production between 1971 and 1975 and the relatively high proportion of output exported from the farm sector. In this sector the emphasis has been on attempts to increase the output of farms by offering a wide variety of input and output subsidies (and a wide range of measures to deal with adverse short-term climatic and foreign price fluctuations) rather than on schemes designed to increase productivity per unit of output.

Some of the tentative steps in the direction of a structural adjustment assistance policy which have been taken appear to have stalled. We noted that the Structural Change policies announced in the 1975 Budget have lapsed and that the provisions in the Industries Study programme and the mobility assistance provisions which are available have scarcely been used.

There have been a number of anti-structural change policies in operation in New Zealand which have opposed the effects of structural policies. In the import-competing sector the import licensing system has been used frequently to limit or reverse increased market penetration by foreign suppliers. Price controls and small business loans have also at times been used to maintain the market share of some producers. In effect these policies protect jobs and profits. There have been few solely job protection policies.* This is no doubt principally due to the maintenance of over-full employment for more than 30 years until 1975.

* The redundancy provisions under the Wage Adjustment regulations limit the amount of "redundancy" pay upon the termination of a job to a maximum of 40 percent of the total ordinary time pay during the last 12 months of employment. This policy looks like an anti-structural change policy but it originated in an attempt to control "redundancy" payments as a wage supplement, chiefly in the building and construction industry, during a period of wage controls.

On balance in New Zealand the anti-structural change policies have predominated over the structural change policies. The lack of Government programmes to facilitate movement between jobs may be related to the finding in the previous section that there had been less change in the structure of New Zealand employment than in other OECD countries but we will not know what is cause and effect until more disaggregated data is available and has been carefully analysed.

CHAPTER 5

POLICIES FOR THE FUTURE

The dismal record of almost stagnant average real incomes, rising unemployment, wide fluctuations, and rising net emigration in the economy which was noted in the previous chapters has become of more concern to New Zealanders in the last few years. This has prompted a number of economists and groups to call for a restructuring of the economy (for example, the New Zealand Planning Council, 1976 and 1979; Preston, 1978; Maughan and Ward, 1978; New Zealand Government Budget 1979, pp. 3-6). Yet the nature of the long-term problems of the New Zealand economy and policy options are not fully understood. This chapter brings together some of the main findings of earlier chapters and suggests the basic features of a new and radically different set of policies to facilitate desirable restructuring.

(i) Priorities and Understanding the Economic Choices

In order to decide what mix of policies should be pursued in the best interests of the residents of the country, it is first necessary to comprehend the types of choices which can be made and to decide on priorities since different choices will be preferred by different groups within the country.

We noted in Chapter 4 that successive New Zealand governments have in general preferred anti-structural adjustment policies which have reduced business adjustments and protected specific jobs to policies designed to foster economic structural changes. Closely associated with this avoidance of structural change, there has been a great emphasis on the maintenance of full employment, or more recently job creation in the private and public sectors. There is a deep-rooted belief that all members of the labour force have a right to work. This belief has become almost universal among the developed countries of the world since the Beveridge Report and the experiences of the Thirties, though the objective of full employment seems to have been given a greater weight in policy formation in New Zealand than in almost any other developed country. And there is also a deep-rooted belief in New Zealand that the Government should "insulate" the economy from short-term fluctuations caused primarily by fluctuations in the export sector of the economy. There was much discussion of "insulating the dependent economy" from changes in world prices for farm exports in the Thirties and this gave rise to the farm income stabilisation schemes which persist till the present in modified form.

The preferences of the individual members of the public must be taken by the economist as they are. However, it is a role of the economist to indicate if and where the objectives of economic policy-makers have been misconceived in that they do not reflect public preferences. This may occur because the political process allows greater weight to be given to some individuals than to others, and because some of the accepted objectives are not related to the true preferences of the public in the way which is popularly believed. It is also an essential role for the economist to indicate that the costs of pursuing some objective by means of some instrument of government policy may be greater than perceived by

the public.

Concerning the objective of higher real incomes (economic growth) we noted in Chapter I that this is desirable because it permits a wider range of choices for the individual and for the society as a whole. We also noted in Chapter 4 that structural change is in general positively related to the rate of growth of output and real incomes. It is not an objective itself. In New Zealand structural change has been considered a "bad" rather than a "good". This is the primary explanation for the very limited scope of structural adjustment assistance in New Zealand.

In our view this opposition to structural change stems to a significant degree from an inadequate appreciation of the relationships between the rates of change of the productive structure of the economy and the benefits in terms of higher real incomes, more leisure, greater choice of jobs and relief from tiresome and physically demanding work. (In part it may reflect a greater desire for security on the part of New Zealanders compared to residents of other countries. However, many New Zealanders clearly desire higher real incomes.)

There is also a grave lack of understanding of the limits to increases in real income which can be sustained for the long-term. Appendix 1 develops the concept of the aggregate national expenditure that can be sustained, given the trend in the growth of real national product, the trends in the export and import prices. These estimates show clearly that the recent rates of growth of aggregate real expenditure in the New Zealand economy cannot be sustained unless there is an increase in the rate of growth of production or upward shifts in the trend of the terms of trade.

How probable is an upward trend in the terms of trade? No one, including governments, can forecast accurately for more than a few months the path of prices and quantities in individual commodity markets. Food exports still comprise more than 50 percent of the total value of commodity exports from New Zealand. The relative price trends calculated for these products in Chapter 3 have been mostly downwards. The extrapolation of time trends is a naive method of price forecasting because it assumes that the economic factors which have determined these trends will continue. This is not necessarily the case. However, most of the international forecasts by the FAO, OECD, USDA and others for export prices and volumes of this group of commodities are for slow growth. (See Freebairn, 1978, for a review.) We are pessimistic concerning the growth of exports of traditional rural products. Yet, there may be good growth prospects for some individual commodities within this group or for sales of the group in some individual countries. Actual market behaviour for this group, as noted in Chapters 2 and 3, depends greatly on market access as well as on the path of international supply and demand for each commodity.

In the longer-term New Zealand may develop exports or reduce imports of natural gas or other energy materials or manufactures which use large inputs of electricity or other energy forms in which New Zealand may develop a comparative advantage. New Zealand will face many choices in the development of these opportunities; for example, it must decide in what proportion to use energy resources in the form of final consump-

tion of petrol, or petrol substitutes and other final commodities, what proportion in the form of inputs to downstream import-substituting industrial users and what proportion to export. In a trade-oriented economy there is no merit to achieving a given increase in national expenditure from import substitution rather than from exporting. These developments might also improve the prospects for some traditional exports, especially wool, because of increases in the world prices of petroleum feedstocks. Bilateral trade agreements or other developments may improve the consumption possibilities of the New Zealand economy quite substantially.

It must be appreciated that such fortunate events would not obviate the need for major structural changes. In the first place a substantial and sustained improvement in the commodity terms of trade is not sufficient to maintain a higher rate of growth of real consumption. If the rate of growth output does not increase, a continued increase in the rate of growth of real consumption requires a continual improvement in the terms of trade. This is an event which cannot be relied upon. Second, a favourable movement in the terms of trade or volume of exports would itself create strong and pervasive pressures for major structural change, chiefly through a strengthening of the exchange rate and through changes in relative prices within New Zealand. An export boom would induce an appreciation of the New Zealand dollar and this in turn would increase international competition for the traditional export and import-competing activities. This has been the experience of other countries such as Norway, Indonesia and Australia which have enjoyed a large commodity export boom. In Australia these effects of the rapid growth of mineral exports are known as the "Gregory thesis" (Gregory, 1976. See also the survey by Lloyd, 1978). In fact, this exchange rate change is the mechanism which changes the relative price of producing commodities and induces the movement of resources into the new growth areas.

If the terms of trade does not improve substantially and continually, sustained increases in real consumption must come fundamentally from increases in the productivity of resources of the economy. It will also be necessary to change the commodity structure of exports. There may be some prospects for an increase in the volume of exports of traditional rural exports, but unless market access is greatly improved, this growth will not be rapid and may be achieved at the cost of receiving lower average prices. Much of the growth must come from exports of non-traditional manufactures.

Overseas borrowing may increase the aggregate supply of goods available to the economy currently (see Appendix 1) but, unless the repayment of loans or the return to overseas equity investments is not to reduce the aggregate supply in the future, this strategy also requires an increase in the rate of growth of output. Hence, there is little doubt, in our opinion, that an acceleration in the rate of structural change is a necessary (but not a sufficient) condition for an acceleration in the rate of growth of average real incomes.

Such structural change will pose conflicts of objectives. More rapid structural change will lead initially to an increase in job insecurity and other forms of uncertainty concerning real incomes. It is probable too that changes in trade and industrial policy which are designed to promote more efficient production and to increase input

productivity will increase the inequality of income distribution, both among households and regions. This is particularly serious if the real incomes of lower-income households are reduced. The problem of increased inequality of distribution among households if the growth-oriented structural changes policies are successful will be primarily a short-run one because the higher growth permits more real incomes transfers to lower income households than otherwise. The problem of regional income inequality is partly an economic one in that increased inequality causes some economic losses (through the creation of an unutilised stock of private houses for example) but these may be more than offset by the economic gains. The main problem from regional disparities in growth rates is a social one for those who remain in the stagnating areas or towns, especially the reduced availabilities of services in these areas.

One of the functions of structural adjustment assistance policies is to reduce harmful effects of structural change. This could be done by forgoing some of the structural changes. But this choice would reduce the benefits as well as the costs. Well-designed structural change policies improve the trade-offs between conflicting objectives so that it is possible to enjoy more of the benefits for the same cost or less cost for the same benefit than would occur if the structural change were permitted and no measures taken to ameliorate the harmful effects. Clearly an economy which undertakes a policy of deliberate structural change should seek the set of structural adjustment policies which will maximise the net benefits to the whole economy.

(ii) Structural Change and Trade Development Policies

This section concentrates on government policies intended to make the economy more trade-oriented and thereby to increase the real income of the economy. These are structural change policies in the terminology of Chapter 4. Structural adjustment assistance policies to facilitate movements of resources or cope with the adverse effects of structural change are considered in Section 5 (iii).

Changes in government trade policies are by no means the only sources of change, nor necessarily the main sources. We concentrate on this source of changes only because this study is limited to questions that relate directly to the international trade sector of the economy. In the last few years there has been considerable discussion of the need to change other instruments of government policy as part of a growth-oriented strategy. Notably, there has been discussion of the need to "free up" the economy, to reduce the level of government regulation and administrative control of economic activities; OECD 1977, the New Zealand Planning Council 1979, McLean 1978. (This discussion is not new in the economic history of New Zealand, see, for example, Condliffe, 1960, chapter "The Habit of Regulation.") Proposals to reduce the level of government intervention in economic activities have related to many areas; domestic transport policy, government ownership of commodity production and finance corporations, controls on prices, and foreign exchange and take-overs, and shop trading hours, wage relativities, energy exploration and other business decisions. Others could be added.

The only aspect of changes in government policies other than those regulating trade flows which will be noted here is that the benefits from changes in trade policies and those from changes in other government inter-

ventions may interact positively with each other. That is, the benefits from changing both sets of policies in concert may be greater than those from changing them separately. In particular, the gains in the form of higher real incomes resulting from a movement to a more trade-oriented economy may not be fully realised unless the economy is "freed up" in some respects. For example, the movement of labour currently, and to a greater extent under a growth-oriented strategy, is hindered by wage margins for work in more skilled or less attractive jobs which are sometimes not adequate to attract workers. Rigidity of wage relativities is a major handicap to the movement of workers among industries and jobs.

We come to the structural change policies which are directly concerned with changes in international trade flows. The discussion in New Zealand has been in terms of making the economy more "export-oriented". It is essential to realise that there are two distinct aspects of the trading problems of New Zealand. The first, and most commonly debated, is the balance of payments problem. This may be overcome by increasing the value of exports, reducing that of imports or foreign borrowing, or most likely some combination of these. A long term solution will require major changes in trade in goods and services. We return to this question at the end of this section. The second problem is one of making the economy more trade-oriented. As noted in Chapter 3, this has the dual meaning of allocating resources on the basis of the competitiveness of the outputs with goods available on world markets, and of increasing the proportion of the national output which is exported and the proportion of national expenditure which is supplied from overseas. Therefore, we refer to a trade-oriented strategy of structural change rather than an export-oriented strategy. We shall also refer to trade development rather than export development. This terminology indicates that the movement towards a trade-oriented economy may be made either by increasing incentives to export producers or by reducing incentives to import-competing producers or both. (A devaluation is equivalent to a subsidy paid to all exports and a tariff on all imports at a uniform rate). Indeed, the choice between these alternatives is a vital question.

We consider government regulation of export trade first. In New Zealand it appears to have been frequently taken for granted that the movement towards a greater trade orientation should be achieved by increasing the incentives to exporters. A brief history and some details of the export subsidies which applied up to and including 1979 is given in Appendix 4. Export subsidies, in the economic sense, are subsidies which are based on the value of exports or related bases, such as production for export or inputs used in the production for export. The list of export incentives given in Appendix 4 does not exhaust the forms of export subsidies which are paid in New Zealand. There are a number of hidden export subsidies or subsidy elements in services to exporters, such as the preferences given by the Development Finance Corporation and the Small Business Agency to exporters and the export credit provided by the Export Guarantee Office. More importantly, for the rural sector, there are a range of production subsidies which are pseudo-export subsidies for many commodities because most of the production is sold in overseas markets.

There is an inadequate awareness of the complexity and discriminatory nature of the various export subsidies which have been available in New Zealand. These subsidies have applied mainly to manufacturing. When introduced in 1962 they were intended to offset the bias against production for export in this sector which resulted from the past encour-

agement to production of import-competing manufactures for sale on home markets through the import licensing system and tariffs. These export subsidies must have benefited some exporters but they have a number of undesirable characteristics. As with the New Zealand government interventions on structural adjustment (Chapter 4) and import restrictions (see below), there is a complex system of multiple and overlapping subsidies, each with its own eligibility criteria. The pattern of assistance implied by the multiple schemes has discriminated greatly among producers of different exportable commodities. The situation will be considerably improved with the introduction of the Export Performance Taxation Incentive at the end of the 1979/80 income year. This scheme will eventually replace the four current export performance schemes and the base of this subsidy, net foreign exchange earnings, offsets much more closely the distortions in the economy from protection of import-competing activities. However, it continues to be supplemented by several export subsidies based on inputs which distort input usage and the industry structure of assistance (See Appendix 4). And because of almost annual changes in the export subsidy schemes since they were introduced, the implicit rates of assistance to export producers are highly variable and uncertain.

The alternative approach to export subsidisation in order to increase trade orientation is to reduce import restrictions. Two major sets of instruments restrict imports into New Zealand, namely, tariffs and import licensing. GATT (1972) calculated that the average tariff in New Zealand at that time was higher than that of any other developed country. However, import licensing has provided the main protection in high-cost areas of manufacturing (and some non-manufacturing activities such as horticulture). Elkan (1972) and Elley (1976) indicate that, in these areas, New Zealand prices exceed the cost of imports by more than the tariff margins. The fact that protective tariffs are high but largely redundant indicates the very restrictive nature of the import licensing regime. Yet the tariff structure reinforces the structure of industry protection given by import licensing. Duty-free admission of non-competitive raw materials, components and capital equipment, coupled with the exemption of these inputs from import licensing, increases substantially the average levels of effective protection.

The traditional argument against export and import restrictions is that they lead to levels of assistance for producers of different commodities which are differentiated among the economic activities in the economy. The proliferation of forms of assistance to export and import-competing industries is such that we do not know how severe are the distortions they have created. Surprisingly, there is in New Zealand no set of measures of rates of assistance to all activities in the economy from all substantial forms of assistance, even at the level of aggregation of the industry. A detailed costing and examination of all forms of assistance to all industries, including non-tariff restrictions on trade, all subsidies and industry-specific tax concessions, is an essential prerequisite for understanding the overall impact of government intervention on the structure of industries. It is long overdue.

Yet, we can be sure that the pattern of assistance has severely distorted the allocation of resources between the export and import-competing sectors. Despite the range of export subsidies (Appendix 4) and the considerable range of output-related subsidies to rural producers (see Maughan and Ward, 1978, Appendixes 1 and 2), it is almost certain that the pattern continues overall to bias production away from export production because of the very

high average rates of protection for import-competing industries. (For the import-competing sector, the average rates have been estimated by industry and are well documented; Elkan, 1972 and Elley, 1976.) Within the manufacturing production sector, it is doubtful whether the export subsidies have offset the incentives to import - competing activities which raise the costs of material inputs and labour for the export activities. They have not greatly reduced the dependence on grassland farming products. The highly differentiated structure has also distorted the allocation of resources among industries within these sectors.

The inter-industry effects of the structure of industry assistance can be considered as if it occurs in stages. First, one could estimate the level of the uniform ad valorem tariff which, if applied to all importable commodities without exception, would result in the same aggregate level of imports. Second, one could estimate the level of the uniform ad valorem export subsidy which would maintain the existing level of aggregate exports and yet be free of the problems of a differentiated structure of export subsidies. These two changes would imply the same level of trade as at present. The third stage is to harmonise the level of tariffs and export subsidies. Suppose the uniform ad valorem substitute in the sense above for existing assistance to all export and to all import-competing activities were say 20 percent for export activities and 60 percent for import-competing activities. Then one could lower the uniform rate of assistance for importables to that for exportables, namely to 20 percent. This would eliminate all discriminations among different activities in the entire trade sector and it would increase the trade orientation of the economy. Fourth, one could lower all export subsidies and tariffs to zero and replace these rates with a 20 percent devaluation of the currency. This change, other things being equal, would not change the positions of all producers of export and import-competing commodities vis-a-vis each other in any way. However, the devaluation would bring other benefits in that, unlike the 20 percent export subsidy-tariff, it treats producers and consumers of all service exports and imports equally with producers and consumers of all commodity exports and imports, and it changes the real terms of all international capital transfers. Finally, one could devalue (revalue) the currency if the balance of payment were in deficit (surplus). A change in the exchange rate changes the price of all tradeables relative to non-tradeables.

This breakdown of the present structure of industry assistance illustrates the different ways in which it differentiates among groups of producers and consumers and distorts the allocation of resources in the economy.

The central property of uniform rates of course is that they do not distinguish between different producers. In particular, they do not attempt to pick or identify those industries or products which have the best growth prospects. In almost every discussion of export development in New Zealand in recent years the authors have offered views as to whether the country should promote "traditional" or "non-traditional" exports. One feature of these views is notable. Farmers, farm organisations and agricultural economists almost without exception offer the opinion that farm products should be subsidised whereas industrialists and manufacturing groups equally invariably offer their view that non-traditional manufacturing exports offer the best prospects for solving the trading problems of the nation. For example, the official 1963 Report on the Economic Position of the Farming Industry" concluded: "It is obvious that the ability to achieve rising living standards for our increasing population is dependent, to a large extent, on a continued growth in farm exports" (New Zealand Government, 1963,

p. 62). Fifteen years later, despite a slow growth in export volume and a fall in export prices, two agricultural economists concluded "... the prime function of agriculture in New Zealand is to grow at a rate sufficient to provide the export income needed to maintain full employment and a rising standard of living. If agriculture does not grow, then the standard of living must fall and full employment will be an unattainable goal with a consequent outflow of skilled workers and a permanent pool of unemployed". (Maughan and Ward, 1978, p. 97.)

We do not believe that, aside from "infant industry" arguments considered below, it is desirable to differentiate the structure of export subsidies or import restrictions in order to foster growth of output of particular products. It does not matter, from the national point of view, whether a given increase in exports comes from the traditional or the non-traditional sectors. It is only the ultimate effect on the supply of goods and services for final use which matters.

There is a second line of argument against trade interventions which is based on the longer-run effects of the restrictions on efficiency and input productivity within the protected activities. Recently economists have come to recognise that the main economic costs are probably not the so-called "static" allocation losses which come from the encouragement of activities in which a country is not competitive with producers from other countries, but rather the "dynamic" or "X-efficiency" losses. These losses are especially great when the instruments chosen to restrict or regulate trade flows involve quantitative controls. Quantitative controls which regulate directly the quantity of imports or exports (or other variables) are very different in terms of their economic effects from controls, such as ad valorem tariffs, which work through the price mechanism and allow importers, producers, consumers, and other economic decision-makers to decide for themselves on the basis of price signals what quantities they will buy or sell. In terms of a trade-oriented strategy the preference for quantity-based controls over price-based controls represents a further departure from the efficient world trade orientation.

These losses are illustrated by the preference for import licensing restrictions over tariffs as the principal instrument of restriction of imports.* There are several such losses. Quantitative restrictions reduce the level of competition in an industry by eliminating competition from abroad. Moreover, when potential new domestic entrants into the activity are restricted by the requirement of licences for essential imported capital equipment or materials or components, or when licences are allocated on the basis of historic market shares as they mainly have been in New Zealand, import licensing also severely restricts competition from other producers within the national economy. Lack of competition in domestic markets results in high unit costs, abnormal profits and it encourages domestic producers to engage in dumping in foreign markets. The last practice, like all forms of price discrimination, increases the total profits of the producer but reduces the aggregate national welfare. These

* It should be noted that certain tariffs may have some of the harmful consequences of quantitative restrictions. Non-ad valorem forms of tariffs, such as sliding scale and threshold tariffs which increase in ad valorem equivalent terms as the landed price falls, may act like quantity restrictions. And any tariff, if set sufficiently high, will prohibit all imports and import competition.

restrictions on competition and the availability of inputs also inhibit the adoption of new technologies. Quantitative restrictions on trade also result in substantial costs of administration, both within the companies producing the commodities and within the government sector. Companies or their representatives invest substantial time in lobbying activities. These administrative and lobbying activities frequently divert high-level management from the real problems of product development and cost minimisation. Another hidden cost is the increase in the costs of undertaking new investments, both in the form of the costs of obtaining licences for imported components and in the delays imposed on the investor by this process. Finally a closeted local market produces a lower awareness of market trends in other countries.

These features of import licensing impose substantial costs on the economy. They have reduced input productivity within activities and discouraged the development of exports of non-traditional manufactures, and the other desirable structural changes. The costs are ultimately borne by all consumers in the form of higher prices for final consumable commodities, and a reduced range of consumer choice. Some resource owners in other production activities also lose because assistance for one group of activities raises the prices which producers in other activities must pay to attract resources. For example, protection from import competition raises the input costs of all activities which are downstream and must pay a high price to purchase the protected input. From a longer term point of view the highly restrictive import licensing regime may well be one major factor in explaining the slow growth of real incomes in the New Zealand economy during the period of industrial development through import replacement which has lasted since 1938.

In other countries these costs are well-known and are no longer a source of economic debate. (For some recent overseas discussion, see Bhagwati, 1978 and Krueger, 1978.) There is ample evidence that these effects have occurred in New Zealand too. (For recognition of these costs in New Zealand see Carpinter, 1979.) New Zealand is the only developed country to retain reliance on import licensing as the primary instrument of protection of import-competing manufacturing industry and in so doing joins a number of developing countries such as India and Turkey which have done likewise, and are beset with the same problems of chronic balance of payments crises, a large non-competitive segment of the manufacturing sector and slow growth.

It has been argued that these costs could be reduced by an appropriate liberalisation of the import licensing regime, such as an exemption of further commodities from import licensing or an increase in all quota levels (for example, New Zealand Planning, 1979, p.3.) This is true to some extent. However, some of these costs are inherent in the use of comprehensive import licensing. An import licensing quota inherently restricts competition more than a tariff which restricts equally imports of the commodity because it allows local producers to raise their prices without fear of increased imports. Greater transferability of quotas among commodities or the auctioning of quotas would reduce the anti-competitive effects of quantitative restrictions.

Quantitative restrictions also have the characteristic that the levels of nominal protection are not explicit. They depend on the quotas of imports allowed and on the elasticities of domestic demand for and supply of each commodity. Thus, even if the government administrators were to attempt to set the quota levels so as to achieve a given structure of nominal protection for a commodity, it is very difficult to do so because of errors

in estimating the supply and demand relationships. This produces a tendency for some high rates and rate differentiation. Producers and the administrators may also prefer import licensing restrictions over tariffs because they could have difficulty justifying to users and other producers the high levels of protection given by the system to some producers if these rates were set explicitly as tariffs. Moreover, the maintenance of any import licensing schedule would, whenever the balance of payments or the competitive position of major New Zealand producers worsened from the effects of recession or import market penetration or any other structural change, give an ever-present temptation to administrators, acting upon pressures from producers, to tighten the quotas and impose a more restrictive regime. A structure of protection substantially determined by quantitative restrictions is more easily adjusted and more variable over time than one determined by ad valorem tariffs.

In our view, for these reasons, there cannot be an efficient import-competing sector if import licensing is retained as the main instrument of protection against import competition. Although we eschew making specific recommendations in relation to other instruments of government policy, we recommend that import licensing be abolished. (The use of occasional quantitative restrictions for the exclusion of drugs and other undesirable imports does not require import licensing.) The ending of import licensing would give New Zealand an opportunity to reform the structure of its tariff* and export subsidies at the same time. These changes should not be made overnight. Questions of timing and phasing, of changes in the exchange rate and temporary protection are discussed briefly below.

It should be noted that there are restrictions on export trade which reflect on the export side the New Zealand willingness to control trade by a means of quantitative controls. Kostecki (1979) has examined all of the major state trading organisations dealing in agricultural commodities which were notified to the GATT by the OECD countries.** New Zealand had in 1976 a larger number of agricultural state trading organisations (8) than any other OECD country. The high level of state trading in the agricultural sector for New Zealand reflects the long tradition in New Zealand of regulating trade in primary products through Boards. Most of them, including the Dairy

* A new Customs Tariff was introduced in July 1978 after a Tariff Review. While some rates were lowered and some raised and many reclassified or regrouped, the changes overall were not drastic. The average tariff is approximately the same and the structure is still highly differentiated.

** The distinguishing characteristic of state trading is that a state agency controls directly the quantities and/or prices and other terms of transactions between residents of the country and other countries. This contrasts with tariff and export subsidies and other forms of regulation where the government interventions influence but do not control directly the actual quantities and/or terms of the transactions. As the term is used conventionally it includes the producer boards for agricultural products, such as those in New Zealand, Australia and Canada. While the New Zealand Boards are autonomous of the government in terms of their daily operations there are government representatives on every Board and the Boards have considerable powers over individuals wishing to trade in the commodities covered by each Board which derive from Government Statutes.

Board and the Apple and Pear Marketing Board, have a total monopoly on export sales (and some on internal sales) since other traders or individual companies are prohibited from trading these commodities. Others regulate private trade. All have important domestic functions relating to the distribution of export receipts and prices in particular. Economists in other countries have recently examined the operations of state trading companies and boards, especially in the area of agricultural trade (for example, the Symposium in the American Journal of Agricultural Economics, 1978), to try to find whether state traders have performed better than competitive private traders in terms of pricing, and other criteria. (See also Rae, 1978). In the present context the important question is whether the Boards have performed well in the area of market and product diversification and adjusting to changes in the structure of the world markets for these commodities. Given the dominance of state trading in the New Zealand agricultural trade this is a field of enquiry that needs attention. (See also Section 5 (iv) for some comments on the approaches to price and income instability.)

This leaves two remaining aspects of changes in commodity trade policies. These are the employment consequences and the infant industry argument for a differentiated system of industry assistance.

The reallocation of resources which would follow the policy changes discussed above would lead to reductions in demand for labour (and other resources) in some activities and increased demand for labour in other activities. The net effect on aggregate demand for labour would be small, provided the aggregate demand for goods and services is maintained. The unemployment of particular members of the labour force would mostly be temporary, provided labour was able to move to locations and occupations where jobs were available. The appropriate set of policies is to maintain the level of aggregate demand and to introduce structural adjustment assistance to enable those who cannot move to do so. These policies are considered in the next section.

It is important not to exaggerate the extent of labour displacement. The present regime has, it was argued above, restricted the growth of employment in low-cost areas that would have expanded more if they did not have to buy high-cost inputs from protected upstream producers or compete with them for skilled labour. These policy changes could also reduce the foreign exchange constraint on the supply of imported inputs by promoting low-cost export activities. One may note that the Manufacturing sector, which benefits from the present regime of import restrictions, has not absorbed as much of the increase in the labour force as has the Services. (Table 4.1, p. 34). In addition to the maintenance of aggregate demand and assistance to job movers, there are policies which reduce the effect of the changes on the demand for labour. These policies are also considered in the next section.

Some may argue that substantial industry assistance is required on "infant industry" grounds. In recent times economists have become sceptical of such assistance. It can justify only temporary assistance and never permanent assistance. The presence of some market failure is not sufficient; one must always demonstrate that the supposed benefits of some contemplated intervention would exceed the costs. Perhaps the most important, and certainly the most neglected, aspect of these considerations is that all of the arguments for "infant industry" protection relate to product-specific or plant-specific or input-specific assistance and cannot justify assistance to all outputs and associated inputs in an industry.

If there is some argument for a government subsidy on labour training or technology development it should not be disguised as an argument for industry assistance. Assistance to an industry benefits all inputs in the industry. This has the consequence that less of a given amount of assistance goes to the specific input.

Both the full employment and the "infant industry" considerations raise a quite fundamental principle of policy-making: the form of an intervention should be tailored exactly to the justification of the intervention. This innocent-sounding and unexceptionable principle has profound implications. Any intervention which is not carefully designed in this way will have untoward harmful effects. These will reduce the benefits and if the harmful effects are sufficiently large the intervention will overall harm not benefit the country.

The same basic considerations arise with the choice between first-best and second-best policies. Much of the argument in the past for new interventions in New Zealand has been of the second-best variety. It is argued that there is some distortion, some tax or whatever, in the economy at present that cannot, at least for the time being, be removed and, therefore, this justifies a new intervention which will offset in part the harmful effects of the first intervention. For example, export subsidies arose as a means of offsetting the effects of protection of import-competing activities. Again, economists in many countries have become much more critical of second-best arguments in recent years for several reasons. (For an excellent example relating to the use of fertiliser inputs in an economy which already assists the import-competing producers and thereby harms the rural exporters and which has considerable relevance to New Zealand, see Warr, 1977. For a discussion of US opinion, see Yeager and Tuerck, 1976.) In the first place most of the distortions which give rise to the arguments are not irremovable. It may be politically inexpedient to remove them but that is quite another matter. Second, second-best policies are usually very complex and require information on the relationships between inputs and outputs in production and the substitutability and complementarity of products in demand which is not obtainable. Third, if the second-best policies are not chosen, and this entails the choice of the correct level of the instrument in addition to the correct choice of instrument, it is quite likely that the economy will be harmed. The net benefits are sensitive to the levels and forms of assistance. Fourth, even if true beneficial second-best policies could be devised, the actual policies are chosen by politicians who are subject to considerable pressures. Their choices may favour the politically strong rather than the economically deserving and may differ markedly from true second-best policies.

These problems of second-best attempts to improve resource allocation have been exemplified in New Zealand by the complexities of the High Priority scheme (Chapter 4) and those of the export incentives (see above and Appendix 4).

For these reasons we strongly favour policies which will reduce undesirable distortions in the New Zealand economy rather than a further proliferation of industrial assistance interventions. In particular, we favour reducing existing high levels of assistance to import-competing producers rather than increasing export subsidies as the means to make the economy more trade-oriented. We repeat that the recommended abolition of import licensing as an instrument of trade and industrial development policy and the reform of export subsidies and tariffs are not panaceas to New Zealand policies and that other policies should also be devised to promote the growth of productivity in all activities.

Another set of policies that would require attention if the changes recommended in this section were adopted are those concerning the balance of payments. Implicitly the analysis of changes in the structure of industry assistance would require a devaluation of the New Zealand dollar in order to control the excess demand for foreign exchange which would emerge if import restrictions were greatly reduced.

Many New Zealanders perceive this aspect of the economy in terms of the foreign exchange constraint on development. On this score several observations may be made. First, as noted in Chapter 1, the size of this constraint is not known because we do not know how essential are the supposed capital imports, and because changes in the exchange rate which might have relieved the excess demand for foreign exchange were until recently infrequent and slow in New Zealand. Second, the combination of restrictive import licensing to limit import payments and export subsidies to increase exports has not relieved the balance of payments difficulties. On the contrary, it has been argued above that the commodity trade policies have reduced the efficiency and competitiveness of many New Zealand production activities and have thereby exacerbated the long-term balance of payments difficulties. Third, structural adjustment policies which increase the mobility of resource movements should also increase the responsiveness of the New Zealand economy to changes in the exchange rate. Balance of payments concerns should not prevent the pursuit of policies designed to accelerate the rate of growth of output.*

(iii) Structural Adjustment Assistance Policies

Clearly any substantial changes in the set of policies concerning assistance to industries would set up substantial changes in the structure of the economy. Technological change, changes in overseas markets and other factors will also cause unavoidable structural changes. To what extent and in what ways should the government facilitate these structural changes?

We shall consider only the broad basic features of structural adjustment assistance rather than recommend a detailed set of policies. There are three reasons for caution in devising a set of structural adjustment policies. First, the optimal set of policies will depend very much on the main structural changes. Second, we do not know enough about how structural change occurs in New Zealand and what the main problems have been and will be in the future. Third, there are no firm guidelines to be obtained from overseas experience. Despite a decade or so of experience with structural adjustment assistance of various forms in OECD countries, the experience is still limited in scope and no universal principles have emerged. (Some overseas experience is conveniently reviewed by the Industries Assistance Commission, 1977 b, Appendix and Study Group on Structural Adjustment, 1979, Vols. I and II.)

* One may also view the balance of payments problems from the macro-economic perspective of aggregate expenditure and output. The excess of aggregate demand over the aggregate supply of goods and services from current output, which is discussed in Appendix 1, is expressed in terms of the excess demand for foreign exchange. Exchange controls should also be reviewed along with commodity trade policies but the former are outside the scope of this study.

The lack of definitive opinions in the world concerning structural adjustment assistance policies itself suggests the first general principle. A programme of structural adjustment assistance measures should be flexible. In this area New Zealand should be prepared to experiment and to learn lessons from its own experience.

Much resource movement occurs at present in the economy in response to the signals of economic market prices without any government assistance. Producers change inputs in response to changes in the relative price of inputs in order to minimise the cost of producing commodities. They expand and contract the production of individual commodities as the market prospects of individual commodities are predicted to be profitable or unprofitable. All producers are multi-product producers and they diversify their product range and markets to reduce the riskiness of their aggregate profits. (As an example of autonomous responses, O'Malley, Gillion and Rose, 1973, Chapter 4 show how New Zealand farmers have rationally responded to variations in the market prospects of agricultural commodities.) Similarly, jobholders continually adjust to changes in labour markets by changing jobs when alternative jobs offer better career income prospects than the present. There is a considerable regional mobility in New Zealand, as shown by the measurements in Chapter 4.

Structural changes which result from changes in government assistance to producers, including assistance via protection from import competition, affect the demand for labour and for capital mainly via the changes in output. A change in output affects the demand for inputs only at the margin. Even with no change in output there is a continual replacement of both labour and capital stock in all business enterprises. For example, if capital equipment in a certain activity has a life of say, five years, and the output is approximately constant, then on average one fifth of the capital equipment needs replacement each year. Hence a reduction in output by about one fifth can be accommodated with no loss due to an underutilised capital stock. Similarly labour employed in a job may retire from the labour force or change jobs. (In the year ended October 1976, the latest year in which statistics of labour force terminations are available, the terminations in all surveyed industries equalled 23 percent of the whole labour force). An approximately equal percentage of the labour force is replaced annually. These resource replacements allow a substantial reduction in the demand for inputs without the need to displace any of the existing labour force or underutilise capital.

The amount of involuntary labour and capital adjustment resulting from a given amount of structural change increases with the aggregate level of unemployment for the economy. The short-term difficulties of displaced labour increase with the unemployment rate because unemployment reduces the opportunities for displaced resources to find work in other activities. This relationship is true of capital to a lesser extent because as noted above a higher proportion of the capital stock is retired each year and also because more of the capital stock is completely activity-specific and cannot be converted to other uses. Unemployment also depresses the average level of demand and therefore adds another simultaneous and unwelcome source of structural change. Any difficulty in finding alternative work increases the demand for assistance for government intervention to postpone or avoid permanent structural change. More specifically, in some countries, the restoration of near full employment has been set as a condition for undertaking changes in government policy towards industries. New Zealand is fortunate that its unemployment rate though rising rapidly is still lower than other devel-

oped countries. It is well below the average national rate of 5 percent which the Crawford Study Group in Australia recently recommended be used as a trigger point for not implementing planned long-term changes in government trade policies. (Study Group on Structural Adjustment, 1979, I.)

Another economic factor which is important in determining the change which can be accommodated in the economy without unemployment of resources is the degree of price and wage flexibility in the economy. The reduction in the domestic demand for a commodity, and consequently the reduction in the demand for inputs of resources used in the production of the commodity, upon a given reduction in its level of protection or industry assistance will be greater if the price for the commodity and its inputs are not flexible downwards relative to other prices. If the commodity price falls this will increase the total market demand for the commodity and, unless the domestic product is completely non-competitive, alleviate the adjustment problems. Similarly, if the wage rates of specific skills of labour fall relative to other wage rates and input prices, the reduction in the demand for labour will be less. Excess supply of particular labour skills in the economy is prolonged if there is no flexibility in the structure of wage margins.

The amount of involuntary labour and capital adjustment increases with the amount of structural change, for a given level of aggregate unemployment and price and wage flexibility. In particular, it was argued above that the replacement demand for labour and capital in all activities at all times provides a method of absorbing some structural change without the need for displacing resources. Beyond these rates of normal replacement, however, higher rates of structural change impose real costs on the owners of resources employed in those activities which are adversely affected. It may also impose costs on those who do not lose their jobs in the form of greater uncertainty and fear of change.

This relationship suggests that a strategy of phasing in some changes may be economically desirable for the country as a whole if it reduces these economic costs. However, there are counter arguments. Phasing in changes, or any postponement of changes, introduces economic costs which may offset the economic gains mentioned. Postponement may give the industry and its employees "more time to absorb the change" but equally it postpones the benefits. There is a danger too that the acceptance of postponement naturally leads its advocates to a strategy of "gradualism", and if gradualism is extended to a long timetable it means virtually no change. It may be better to seek forms of adjustment assistance which will maintain the incomes of those most severely affected without preventing the movement of resources into activities which increase aggregate real consumption in the economy. The optimal rate of change over time is a complex question that will require detailed examination. (In Australia some of these issues were considered by the Study Group on Structural Adjustment, 1978 and will be considered further in a reference to the Industries Assistance Commission in 1980.)

Considering these aspects in relation to the abolition of import licensing and reform of the tariff and the structure of export subsidies, the general strategy in our view is to change them all simultaneously and according to a pre-determined and announced timetable and over a fairly short period of, say, three to five years. A timetable has two great advantages. It makes the changes less subject to pressures to reduce the programme, and it reduces the uncertainty which is a feature of any untimetabled changes. In particular,

decisions to invest are made on the basis of expected future prices rather than present prices.

Simultaneous changes on a broad front reduce some of the adjustment problems. The adjustment problems may be less if several changes are made at once rather than made singly in some sequence. Some producers are handicapped by the high cost of inputs which are domestically-produced by upstream industries or by the unavailability of imported inputs. Others are handicapped by the cost or unavailability of skilled labour. One of the costs of protection of high cost activities is that they absorb scarce resources of skilled manpower which are thereby not available to other producers seeking to obtain more resources for expanded export activities, especially non-traditional exporters for whom these inputs are essential. A devaluation of the exchange rate also offsets some of the adverse effects of a trade liberalisation programme.

The short-term costs of structural change also indicate that a trade liberalisation programme should be accompanied by appropriate provisions for temporary protection. Judicious use of temporary protection will mitigate the economic costs of reduced protection for high-cost activities. But care must be taken to ensure that a sequence of temporary protection measures does not yield *de facto* long-term protection which discourages movement of resources from high-cost internationally uncompetitive activities into low-cost competitive activities. It should be reserved for substantial costs which are not overcome by phasing and other structural adjustment assistance measures.

This leads to the central question of when is structural change desirable. This is a difficult question because, as noted in Chapter 4, any structural change benefits some and harms others. Conflict between groups is inherent in the change of government policies. Welfare economics indicates that, on economic grounds, one can approve any change when the long-term benefits outweigh the short-term costs in the precise sense that the index of aggregate real expenditures on final goods and services in the economy has increased. Since changes in resource allocation affect the supply of final goods and services in future periods as well as the present it is necessary to add the effects on future expenditures by discounting future period expenditures. An increase in the index of (discounted) aggregate national expenditure is the true meaning of an improvement in resource allocation. Such an increase makes it possible for those households which stand to lose from the resource allocation to be compensated by those who gain.

Should those who lose from a structural change be compensated in whole or part? Firms and their employees are not usually persuaded that structural change should proceed because it is in the interests of the economy as a whole. Indeed, experience in other countries has shown that individuals and firms prefer not to be structurally adjusted as it were, even if they do not suffer a loss of real income. In a democracy losers will attempt to block politically any structural changes which are economically disadvantageous to them or they will demand compensation. Without compensation they may in some instances succeed in blocking the changes. It is a characteristic of changes in production that the losses tend to be concentrated on a few households - those who own the enterprises or have job skills specific to the activities affected - whereas the gains are more widely distributed among buyers and some workers whose skills may become more in demand.

In our view the case for compensation to the equity owners of enterprises that lose from changes in government policies is severely limited. Governments must remain free to change policies at any time. They have changed levels of assistance to groups of producers frequently in New Zealand and the possibility of change is understood. Compensation for government action should be limited to cases in which the government is abrogating a definite commitment to fix some tax, tariff or quota for a specified period of time. Any such payments should not be regarded as a precedent to compensate other equity-owners who may lose from change in some other instrument of government policy.

Payments to workers who lose jobs as a result of structural change in the form of redundancy pay or income-related unemployment benefits would parallel compensation to equity-owners. Individuals may lose quasi-rents from particular job skills. For the same reasons we do not believe the government is generally obliged to make such payments. We believe that payments to individual workers adversely affected by structural change should be regarded as welfare payments and should be associated with measures to re-locate workers in the labour force by means of retraining and regional relocation.

Government expenditures on structural adjustment assistance should concentrate on measures to increase aggregate production via the reallocation of resources and an increase in input productivities within activities, rather than on compensating losers. Here there is another fundamental choice. This is what the OECD refers to as the "positive" approach to structural adjustment interventions.

Assistance may be given either to the producers who hire the resources of labour and other inputs or to the resource-owners. To some extent assistance to producers is passed on to the owners of resources it employs and conversely assistance direct to workers benefits the employers who are able to hire labour which has been retrained or encouraged to move to activities in which there is an excess demand. Yet, it is probably that the incidence of the benefits does depend largely upon who is the direct recipient and therefore the choice is a material one.

In our view there may be a prima facie case for concentrating payments which are designed to facilitate adjustments upon the labour resources. Individual employers are generally much less diversified than producers. Whereas any firm, including most small manufacturing businesses and farm firms, produce many products for sales, the worker typically holds only one job and has only one professional or trade skill. The individual worker also has less access to information concerning changes in labour markets than the producer has concerning changes in product markets and input markets because gathering market information is a normal part of business operation. Access to information is a critical input in making structural adjustment decision. Furthermore, it appears as if some aspects of the company income structure such as the carry forward of losses and the tax offsetting from loss operations within a large business operation may enable some business to shift losses to the public sector, that is, to taxpayers in general. These views are tentative and the problems which individual firms and resource-owners have in coping with structural change urgently deserve detailed micro-economic examination.

This argument does not deny that there may be areas in which real social losses are caused by failures in the capital market. In particular, the supply of venture capital for risky but potentially high profit activities is an essential requirement for major restructuring of the economy. Technology assistance must primarily be channelled through producers.

The questions of compensation for losers aside, we are dealing with efficiency arguments for new government interventions which if successful will increase real aggregate incomes in the economy. The efficiency arguments derive from removable obstacles or impediments which hinder resource movement and maximum resource productivity. These impediments to resource movement and efficiency may arise in numerous ways. For example, there are deficiencies in the supply of information concerning job and profit opportunities. Prices in output and input markets may be distorted; for example, the movement of resources from existing employments is usually not costless and the unavailability of credit or credit terms which do not reflect the creditworthiness of the potential borrower may impede the movement of both capital and labour from contracting activities into expanding activities. People own assets which are locationally-specific, such as houses and land, and ownership of these assets must be transferred if they are to be geographically mobile. Hence, problems in asset markets may impede movement.

The efficiency arguments justify government intervention if the benefits exceed the costs of intervention. These same arguments indicate the best choice of policies to carry out that intervention. For example, if the problem is one of unavailability of credit for individuals or for firms wishing to move resources, and this unavailability is due to a failure of the capital markets and not to the riskiness of the proposed movement, the direct and quite possibly the only way of remedying this impediment is to change the capital markets. Or, if the problem is one of lack of information, a private information service may be subsidised or perhaps the service may be provided directly by the government. As with the policies relating to industry assistance, the fundamental principle of intervention on the grounds of structural adjustment is to make the intervention as closely as possible to the identified cause of the problem.

Both the compensation and the efficiency grounds for structural adjustment assistance can justify only temporary assistance. Adjustment assistance must not be regarded as another form of long-term assistance to industries. Nor can the government solve all structural adjustment problems. It should concentrate its efforts on areas where the benefits to the nation are greatest.

Further guidance as to the kind of structural adjustment assistance policies which should be set up in New Zealand clearly requires more knowledge of the changes the government is introducing, the preferences of the community and the economics of structural change. We shall merely indicate the major kinds of policies and comment very briefly upon a few aspects.

The options available include:

- capital market subsidies and reforms
- labour market subsidies; labour retraining subsidies, mobility assistance, temporary income maintenance, etc.
- technology development
- productivity improvement schemes; managerial efficiency, inter-

- firm competition, improved industrial relations etc
- hard-core industry problems
- regional problems

The last two recognise that the adjustment difficulties will to some extent be concentrated in certain regions or industries. Regional problems appear to be pressing in New Zealand in relation to other structural adjustment problems and deserve considerable attention. Otherwise regional dissatisfactions may thwart structural change or produce excessive economic hardships. There may also be some industries which require special attention. However, in many industries the major problem will be one of less competitive firms within the industries. Firms within an industry which are less competitive than other New Zealand firms within the same industry do not merit any assistance. The essence of beneficial structural change is to move resources into stronger more competitive activities and this entails their movement out of weaker less competitive activities. The one is the complement of the other.

No single programme in the area of structural adjustment is adequate for structural adjustment problems. A package approach will be required.

Within each of these broad areas there are further options. One choice for all kinds of programmes is between programmes which are "generally-available" or "specifically-available", that is, the eligibility is restricted by some criterion of cause, location, industry, etc. In Chapter 4 we have indicated that structural change involves the movement of resources around all activities in the economy and that it is usually impossible to identify a single or even the major cause of a problem. Clearly compensation payments are related to a specific cause but the efficiency arguments for assistance suggest that when assistance is justified it should be available to all who have been adversely affected, irrespective of the cause or the industry, region of occupation to which the resources belong. However, in cases where there are many aspects to a problem, such as labour which needs to be retrained and relocated geographically or when particular regions or industries are severely affected programmes tailored for particular groups of producers or workers may be called for.

For each government intervention (apart from the subsidisation of loans) there is a choice between giving the assistance to private producers in the form of a grant/subsidy payment or tax incentive or the government undertaking the provision of the service or the production activity itself. There is a presumption against the government undertaking the activity itself unless the service is a type of public utility. Government assistance on efficiency grounds should be a supplement to private efforts to restructure the economy. It should help the firms and workers to help themselves rather than command the resource movements. Regarding the choice between a subsidy and a tax incentive, they both increase the net outgoings of the public sector. Generally speaking, tax incentives cannot be used as selectively to screen beneficiaries as can grants because of the principle of horizontal equity in tax laws.

As a solitary example of some of the options and the complexities of devising structural adjustment policies we consider labour market policies. Assuming the absence of large-scale unemployment, the problem is one of matching the demands of the producers with the supplies offered by workers.

Manpower planning can forecast some long-term features of the demand for job skills but it cannot anticipate many long-term changes, especially those which originate in changes in overseas markets. Structural changes in the economy will continually change the occupational and regional mix of demands for jobs. If the regional mix only were changed inter-regional movement of the labour force would reduce the regional imbalances. If the occupational mix only were changed, the adjustment may be more difficult since it takes years in most cases to train for craft skills and longer for most professions. If the changes in the structure of the economy are substantial some labour retraining will be necessary since it is certain that the composition of skills of the labour terminated will not equal that of the skills in the jobs for which demand increases.

Here one choice is that between retraining of labour on-the-job and retraining off-the-job. For labour which is unable to find another job, income maintenance may be paid in some form. But again there are some difficult choices as to the level of the payments. If payments are not income-related, the labour in general will suffer a greater income loss. Consequently, it will in the first instance more vigorously oppose changes. If it is income related there is less incentive to seek another job or to undergo retraining. In addition income-related benefits may be considered inequitable, though the equalisation of the income loss from structural change would require a differentiated income-related system of benefits.

Finally, no doubt the fiscal cost of any structural adjustment assistance programme will be raised as an objection by some, probably by recipients of other government assistance or transfer payments. The cost of a very large programme could be financed by reducing other non-structural adjustment forms of industry assistance, output and export subsidies, etc. It has been argued that these have not succeeded in overcoming the structural problem of the New Zealand economy. The emphasis of government industry policy should be shifted from industry "assistance" to policies designed to promote and facilitate beneficial structural change. If structural adjustment assistance policies are successful they will in the long-term be more than self-financing since the returns are potentially much greater than the initial expenditures on assistance to individuals and firms.

(iv) Policies for Export-Induced Instability

Policies to deal with the short-run problems of instability in the macro-economy lie outside the primary focus of this study. They are discussed very briefly only because the fear of greater instability through a more trade-oriented economy and greater exposure to world markets may make some wary of the trade-oriented strategy.

It does not follow that, because the trade sector of the economy fluctuates more than the non-trade sector of the economy presently, an increase in the relative size of the trade sector must increase the variability in the whole economy. This is a naive view which ignores the importance of individual commodities and the relationships among commodities in determining the total variability. Only part of the high degree of variability of the terms of trade in New Zealand is due to the concentration of commodity exports on a few commodities, such as wool and dairy products, whose prices are subject to substantial fluctuations. It is also important that the fluctuations in the prices of individual export commodities do not offset each other to

a great degree and that the substantial fluctuations in import prices do not offset those of export prices. All of these features are the result of the pattern of primary product specialisation of the New Zealand economy. (Lloyd and Procter will report further analyses of instability in the trade sector in a later publication).

Indeed, considering the price of individual commodities, international trade generally reduces fluctuations for the trading partners by pooling the risks of market fluctuations among them. This is a form of the gains from international trade. The difficulty which New Zealand has encountered is that access to the major potential markets of the world for its main rural products is far from free and regional price stabilisation, such as those operated under the Common Agricultural Policy of the EEC, has made the markets in the rest of the world more unstable.

The significance of these factors is twofold. First, the commodity price fluctuations would be substantially reduced if New Zealand had much greater access to the major world markets. But there is little that we can do about this. Second, a more trade-oriented strategy, which is within our national set of choices, could reduce average price and export instability in all probability because it could involve the development of exports of different commodities, manufactures and more highly processed agricultural products. Hence, the weight attached to the price variability of the present major export commodities would be reduced and there would be more offsetting in the price variability among individual commodities.

Whatever the effects of greater trade orientation on the average instability of prices, the country has multiple options for counteracting these effects, as in other areas of policy-making. It can, for example, seek to reduce the variability of prices and export receipt by further diversification of markets or products. Or, it can seek to stabilise producer prices and export receipts by stabilising the commodity prices and/or incomes of the domestic producers. Or it can engage in various policies of secondary stabilisation through countercyclical monetary and fiscal policies. The choice of options depends on the objectives of stabilisation and the effectiveness of each option, again as in other areas of economic policy-making.*

Hence we do not believe that fluctuations in the trade sector provide a sound argument against a strategy of a more trade-oriented economy.

* If the concern is with the fluctuations in the income of individual farms, these may follow a different path again because individual farmers typically produce a mix of products and the fluctuations of their individual farm incomes, for a given set of fluctuations in the set of farm (export) prices, will depend on this mix. For individual farmers, as for the country as a whole, one of the defences against price fluctuations is to diversify the product mix. (For an examination of this factor in Australia, see IAC, 1978b) Government intervention by stabilising prices and/or incomes reduces the incentive for private producers to pursue their own risk reduction or transfer strategies (see Chisholm, 1979).

CHAPTER 6

FINAL COMMENTS

In understanding the current problems of the New Zealand economy it is important to appreciate that the perception of these problems is not new. Indeed, it is now a long-standing theme in the economic history of the country. The importance of the choice between policies which may increase economic growth but also increase income and job insecurity and income inequality on the one hand, and on the other policies which preserve to a much greater degree the present jobs and structure of the economy but are inimical to faster increase in real incomes, was appreciated in the 1930s. This earlier debate led to one of the classics of New Zealand economic history, A.G.B. Fisher's study, "The Clash Between Progress and Security". Similarly, the recently-expressed concern over the high level of regulation of economic activities by the New Zealand government was recognised as a distinguishing characteristic of the economy by earlier economists (for example, Simkin, 1962).

These problems of choice are more serious now than ever before. The exports of grassland farming which largely propelled the economy until the Seventies now offer limited growth prospects and the international economy in which we trade has changed greatly in terms of the commodity composition and direction and competitiveness of trade.

If the aspirations of many New Zealanders for a higher rate of growth of real incomes are not to be frustrated, substantial changes in the structure of the economy and in government policies which guide these structural changes are essential, it has been argued above.

Political and social changes will be needed to complement changes in the economy. There is a need for political leadership to construct a national commitment to new policies. Some degree of bipartisan agreement is needed to avoid sudden switchings of policies and politically-generated uncertainty for all decision-makers.

This study has been concerned with clarifying and improving the choices among alternative economic policies and policy instruments. The precise choice of policies and instruments should be based on a clear view of the economy, the relationships between government actions and the response of workers, firms and households. It should also be based on a clear weighting of the different objectives of economy policy. These are essential parts of the consciousness of the true economic issues involved. These policies should be co-ordinated and not piecemeal responses to each exigency of the economic or political situations. The deployment and development of human resources, both policy-makers and others alike, is more important than the utilisation of natural resources.

There is little doubt that some of the radical changes in instruments of trade and structural adjustment policy which are advocated here, like changes in other policies which are designed to stimulate the growth of the economy,

will be vehemently opposed by some interest groups. It is important to appreciate that such opposition rests on three distinct grounds. First, producers and their employees in activities which receive levels of assistance which are higher than the average for all activities in the economy or which are protected from competition would resist the loss of their privileged position.* Second, many laymen do not appreciate the fundamental point of economic analysis of policies which "assist" or "protect" particular groups, namely, that it is the relative changes in the prices which change the profitability of different industries and activities and bring about the changes in resource allocations. Thus equal assistance for all is zero assistance for all. Third, some employees would lose their present jobs. It is the third aspect and the policies which obstruct economic changes which would increase consumption possibilities for the whole economy which deserve attention.

Whatever policies are adopted there will be continual changes in the demand and supply of individual commodities due to shifts in the population, rising real incomes, changes in taste and technology, etc. In an ever-changing environment the easiest option in the short-run is to resist and minimise these changes but this merely postpones the solution of many problems and it may be the choice which maximises the long-run social discontent in a poorly performing economy.

* As the Australian Industries Assistance Commission (1977 b, p.3) noted: Assistance from the government can be likened to an asset or piece of property. It enables specialised factors of production such as labour with particular types of skills or land in certain areas to earn higher returns than they would otherwise. Tariffs, quotas, subsidies, business licences, government supported marketing schemes or other forms of assistance are likely to be capitalised (in some way and to some degree) into the value of the resources used in, or associated with, the activities they support Thus reductions in assistance - or sometimes a refusal by the government to increase it - can lead to a fall in the value of the human and physical capital in the industry concerned, and provoke responses like those which governments encounter with other actions they take that affect the values of some people's capital.

APPENDIX 1

SUSTAINABLE GROSS NATIONAL EXPENDITURE AND THE TERMS OF TRADE

It has long been recognised that the international trade sector has important macro-economic influences on the New Zealand economy. In particular the terms of trade have been considered as a factor determining the size of the monetary deficits in the balance of payments and the foreign exchange constraint on the availability of imports (for example, New Zealand Planning Council, 1978 Chapters 2 and 3) and as a major source of instability in the national economy (for example, Campbell and Haywood, 1978, and Ross 1976). The terms of trade is also important in determining the level of real output and expenditure on goods and services which can be sustained in an economy. This role has been discussed in New Zealand too, notably by the OECD (1977, 1979), but the precise way in which the terms of trade affects national output and expenditure is imperfectly understood. This Appendix develops a notion of the level of aggregate real expenditure which is sustainable. This depends upon trends in national product and the level of overseas borrowing as well as upon the terms of trade. This concept is then applied to the recent economic history of New Zealand. The problems of fluctuations around the trend in the terms of trade will be examined in a subsequent publication.

Relationships between Terms of Trade and National Expenditure

The importance of changes in the prices and quantities of traded commodities as a determinant of the level of real expenditure on final goods and services has long been recognised. One application has been recognised in examining claims for increased real wages, or for money wages increases which will restore past real wages, of some wage-income earning group. It is often stated that the level of wages should depend on the productivity of labour adjusted in some way for changes in the terms of trade.

Recently the OECD (1977, Table 8 and 1979, Table 12) made calculations of the change in the aggregate real income for New Zealand since 1973 which have resulted from the change in the commodity terms of trade. They estimated that from 1973 to 1977 the decline in the commodity terms of trade reduced the real income per capita by 8 percent. Over this period almost all OECD countries experienced declines in their commodity terms of trade due largely to the increase in the relative price of petroleum products but the greater decline in New Zealand had a much more adverse effect on its real income than in any other OECD country. The method used by the OECD was to multiply the computed real national product by a factor which represented the gain (loss) in the purchasing power of exports minus the loss (gain) in the purchasing power of imports as a percentage of GDP (OECD, 1977, p. 26).

* The OECD used a different adjustment factor in each of its two reviews of the New Zealand economy. In OECD (1979) they also included net international factor incomes and transfers in the concept of income.

They referred to this as the income terms of trade effect. The intention of this calculation is to make year-to-year adjustments which allow for the fact that the part of the national output which is exported will buy more (or less) goods and services for national expenditure if the commodity terms of trade improve (deteriorate). The New Zealand Planning Council (1978, Table 1) adopted the OECD concept and the New Zealand Department of Statistics has for many years made a similar but cruder estimate of what it calls the Effective Gross Domestic Product by simply adjusting the export production component of the Gross Domestic Product by the commodity terms of trade.

The precise adjustment that should be made for the terms of trade is quite complex. One should begin with an index of real national expenditure.* This provides the appropriate measure of changes in aggregate expenditure. The adjustment factor for the terms of trade should then be derived explicitly from this index. The choice of index will affect the determination of the adjustment. In this area as in others most laymen and regrettably many economists regard index number problems as statistical sophistry but they neglect them at their peril.

Real national expenditure as computed is a complex index number because the components of national expenditure are deflated separately and then summed. The implicit price deflator so obtained is a function of the component deflators. The main component is personal consumption expenditure for which the deflator, the Consumers Price Index, is a Laspeyres price index. If a value index, such as GNE in current prices, is deflated by a Laspeyres price index, such as the CPI, the resulting quantity index is a Paasche quantity index with current period price weights rather than base period price weights. Hence we shall regard real national expenditures as (approximately) a Paasche Index of the aggregate value of final goods and services available to the economy, that is,

$$Y = \frac{\sum_i p_i^c x_i^c}{\sum_i p_i^b x_i^b} \quad (A. 1. 1)$$

where $p = (p_1, \dots, p_n)$ is the vector of prices and $x = (x_1, \dots, x_n)$ is the vector of quantities of the final consumer goods and services included in national expenditure, both consumption and investment goods, and c and b denote current and base period values respectively. The prices are market prices.

With this precise index of real national expenditure we can derive the relationship between real national expenditure on the one hand, and real national product and the changes in the prices of tradeable commodities on the other. The quantity traded of any commodity (e_i)** is the difference between domestic absorption (X_i) and domestic production (Y_i) of the commodity***

* By contrast the OECD (1979), following Geary (1961), derived their adjustment factor from the external account balance equation in a set of real national income accounts. This is inappropriate for this purpose.

** Hence e is positive for imports and negative for exports.

*** Non-tradeables can be handled simply by setting $x_i = Y_i$. The goods produced locally do not have to be identical to those imported. If the goods are distinct one sets $e_i < 0$ for the exported good and $e_i = x_j$ for the imported good. Intermediate input usage is accommodated by treating inputs as negative outputs. This yields a vector of final outputs net of intermediate inputs and allows the trade terms in (A.1.2) and (A.1.3) to cover all final and intermediate commodities.

$$e_i^t = x_i^t - y_i^t \quad i = 1, \dots, n \quad (A., 1.2)$$

The actual current account of the balance of payments deficit is defined as

$$B^t = \sum_i p_i^t (x_i^t - y_i^t) \quad (A. 1.3)$$

where \tilde{p} are the producer prices net of taxes on the consumption of commodity i , that is, prices at the international border. A tax on commodity i (τ_i) creates a divergence between the price of commodity i to producers and the price to consumers

$$p_i^t = \tilde{p}_i^t (1 + \tau_i^t) \quad i = 1, \dots, n \quad (A.1. 4)$$

Substituting Equations (A.1.2)-(A.1.4) in the numerator of Equation (A.1.1), we obtain the required decomposition of the aggregate real expenditure index

$$Y = \frac{\sum_i p_i^c y_i^c}{\sum_i p_i^b y_i^b} \cdot \frac{\sum_i p_i^c x_i^b}{\sum_i p_i^b x_i^b} + \frac{\sum_i p_i^c \tau_i^c x_i^c}{\sum_i p_i^c \tau_i^b x_i^b} \cdot \frac{\sum_i p_i^c x_i^b}{\sum_i p_i^b x_i^b} + \frac{B^c}{\sum_i p_i^c x_i^c} + \frac{B^b}{\sum_i p_i^b x_i^b}$$

$$= Gw_1 + Rw_2 + H \quad w_1 + w_2 \leq 1; w_2 < 1 \quad (A. 1.5)$$

where $G = \frac{\sum_i p_i^c y_i^c}{\sum_i p_i^b y_i^b}$, etc. in the order of writing.

Equation (A.1. 5) gives the true method of deriving the chosen index of real national expenditure from the adjusted Paasche index of real national output, which is the first component in this equation, and other indices. The second component is a scaled Paasche index of commodity taxation revenue. This measures the change in consumption possibilities, given national output and the terms of trade, which results from the distortions of consumer choice.* R is positive if the tax system became less distorting between the current and base situations and negative if it became more distorting.

The last component H , is the component of national expenditure, in addition to the national output used domestically and the exchange of some part of it for imported goods and services, which can be realised by net borrowing from abroad. This component is positive if there is net borrowing or negative if there is net lending, including repayment of past loans.

* See Lloyd (1979) for some numerical simulations which illustrate the use of Equation (A.1.5). The index, Y , is in fact the well-known Hicks index of potential income.

My derivation puts the Ohyama (1972) decomposition of the Paasche index of aggregate supply of goods into index number form.

As a good first approximation to Y for New Zealand conditions the first component only of equation A.1.5. can be used.

The commodity terms of trade enter through the adjustment factors, w_1 and w_2 . It can be shown that the Laspeyres index of the commodity terms of trade moves adversely (favourably) as the sum of these adjustment factors is less (greater) than unity.*

The expression in Equation (A.1.5) confirms the basic proposition for a trading economy that the aggregate possibilities of consumption and investment are determined by the terms on which it trades with other nations as well as by its physical productivity. Thus gains in national production must lead to an increase in real national expenditure (without increased borrowing) which is less than the gain in production if the movement of the terms of trade is adverse.**

The OECD method in effect ignores the second and third components. It is reasonable to ignore the second tax component since this will be negligible unless commodity taxes are significant as a percentage of national expenditure. By neglecting the third component the OECD excludes that part of actual national expenditure which is financed from current borrowing.

In the first component the index of national output which is adjusted is a Paasche index of output at factor cost. The adjustment factor can be converted into a more meaningful form for computation. Substituting from Equation (A.1.2) - (A.1.4)

$$\begin{aligned} w_1 &= \left(\sum_i \tilde{p}_i^c x_i^b - \sum_i \tilde{p}_i^c e_i^b \right) / \sum_i \tilde{p}_i^c x_i^b \\ &\approx 1 - \sum_i \tilde{p}_i^c e_i^b / \sum_i \tilde{p}_i^c x_i^b \\ &= 1 + \left(\left[P_x^c X^b - P_m^c M^b \right] \right) / \sum_i \tilde{p}_i^c x_i^b \end{aligned} \quad (\text{A.1.6})$$

where P_x and P_m are Laspeyres indices of prices of all exports and imports respectively. This adjustment represents the change in the value of the base period export bundle and the cost of the base period import bundle because of changes in export and import prices between the base and current situations. The adjustment factor can be readily estimated from indices of export and import prices and the base period value of exports and imports. The denominator of the ratio can be approximated by the base or current situation income.

- * If one started with, say, a Laspeyres rather than a Paasche index of aggregate national expenditure, the appropriate indices of real output, the terms of trade and commodity tax revenue would all be interchanged. Where in Equation (A.1.5) there is a Paasche index there would be a Laspeyres index and vice versa.
- ** This decline in output resulting from an adverse movement in the exogenous foreign prices is closely related to, but distinct from, the proposition of "immiserising growth" in international trade theory. In the latter case a prior increase in a nation's productive capacity may lead to reduction in real expenditures if it causes a change in the endogenous terms of trade which is adverse and sufficiently large. Here the terms of trade are regarded as exogenous.

Because the adjustment factor in Equation (A.1.6) is derived solely from the definitions of real national expenditures, tax rates and the balance of payments, it makes no assumptions about the behaviour of the economy. It takes account only of the proximate effects of the changes in international prices. It does not take account of the effects of changes in relative prices of tradeable commodities on national product itself. Clearly change in the terms of trade will also affect the aggregate national output and the output of the individual commodities within the aggregate. If, for example, the price of some imported material (or capital) input used in the production of certain goods rises, other things being equal, the ability of the domestic economy to produce these commodities will be reduced. The actual output of these commodities will probably be reduced (though it might be maintained by drawing resources from the production of other commodities) and aggregate national production must fall. Thus an adverse movement in the commodity terms of trade has two adverse effects on real national expenditure. The adjustment we have discussed measures only one of these and therefore understates the total effect.

The magnitude of the "output effect" will depend among other things on the substitutability of domestically-produced inputs for the imported inputs and the elasticity of supply of the domestic substitutes. At the same time the changes in import prices may cause some changes in the domestic price of the final output in which the imported material has been used and thereby induce a reduction in demand for both the output and its imported inputs. In fact all producers and consumers in the economy will adjust to these, and other, price changes and the final effect on both national output and the terms of trade of a change in even one price will be determined simultaneously.

The expressions in Equation (A.1.5) and (A.1.6) relate to actual output and expenditure by the economy in one year. In reality there are substantial fluctuations from year to year in the rate of growth of output and more particularly in the terms of trade and overseas borrowing. To take account of this problem we define the concept of the sustainable aggregate national expenditure. This is defined as the series of expenditures which can be sustained given the trends in the real national output and the terms of trade and the level of overseas borrowing which excludes compensatory financing and other short-term borrowings because of fluctuations in the economy. Symbolically, it is given by

$$Y_s^t = G_s^t w_s^t + H_s^t \quad (\text{A.1.7})$$

where the subscript "s" denotes the sustainable levels of the components. The sustainable rate of growth of real national expenditure will be greater or less than the rate of growth of real national output (G_s) as the trend in the terms of trade is favourable or unfavourable, assuming no long-term borrowing. This concept allows for national expenditure to be maintained at the sustainable level in years in which the national output, or more likely the terms of trade, is below trend levels by means of short-term borrowing. Of course such borrowings must be repaid in the future. Roughly speaking the borrowings and repayments will cancel out over a long period.* Borrowing at times of cyclical

- * This is only true approximately. The precise possibilities of shifting aggregate consumption from the present to the future periods and vice versa depend on the particular pattern of deviations from the trend, rates of interest at which the nation can borrow and lend, and the trend itself.

or random downward fluctuations in the national economy permits the effects of these fluctuations on the real incomes of the residents to be smoothed. (This anti-cyclical borrowing is distinct from long-term foreign borrowing which remains in H_s .)

The identification of trends in macro-economic variables is not easy. It requires a sufficiently long period to distinguish trend from fluctuation. There is also the possibility that underlying trends may have changed. Such changes imply a change in the fortunes of the country.

Actual aggregate national expenditures may exceed the sustainable expenditures over a long period but only if the present generation borrows from the future generation which must repay the long-term loans with no corresponding increases in output.

One may apply the notion of sustainable national expenditure to estimate the real national expenditures which can be realised in the future by estimating future values of the indices of national production and the terms of trade and the sustainable long-term overseas borrowing. Ignoring the tax components, this is given by

$$\hat{Y}_1^t = \hat{G}^t \hat{w}_1^t + \hat{H}^t \quad (\text{A.1.8})$$

where $\hat{}$ denotes an estimated value for the future period t . The future sustainable levels of real national output and the terms of trade can be estimated from the trend levels of the past but these levels should be modified if the balance of evidence indicates that the economy is likely to depart from the trend rates of change. Indeed the estimation of sustainable aggregate national expenditure in the future is much more difficult than in the past. First, in the past the trends have already revealed themselves. This difficulty is especially acute if a country undertakes a programme of structural change such as that advocated here which would shift the future course of the economy. Second, the long-term borrowing must be decided. This should be the level which is optimal from the point of view of the growth of the economy.* Properly, the future estimates should be based on a model of the working of all producers and households in the economy which would take account of the relationships between production, the terms of trade and the long-term overseas borrowing and, using these relationships, estimates the sustainable levels for the scenario of future events which lie outside the control of the economy.

New Zealand Experience

There are several statistical problems in applying these concepts to New Zealand. The first relates to the choice of a base year for the estimation of past trends. This choice may influence the estimates in three ways. It may affect the trends in GDP, or those in export and import prices, and the choice of base year exports and imports in the adjustment factor. Ideally one should fit a trend on a peak-to-peak basis or use some other method of

* This involves the problem of determining the optimal mix of borrowing as between fixed interest loans and equity investments. This will depend on the terms of the borrowing, including the access to technologies and new markets which may be associated with direct overseas investment.

TABLE A.1.1

ESTIMATES OF TRENDS IN REAL GDP, GDE,
AND IMPORT AND EXPORT PRICE INDICES,
1960-61 to 1972-73

| Variable | | | |
|------------------|----------------------|-----------------------|--------------|
| $\ln \text{GDP}$ | $= 8.0$ (578.1) | $+ 0.0366t$ (21.0) | $R^2 = 0.98$ |
| $\ln \text{GDE}$ | $= 8.0$ (288.0) | $+ 0.0337t$ (9.7) | $R^2 = 0.89$ |
| $\ln P_x$ | $= 6.64$ (127.0) | $+ 0.0295t$ (4.5) | $R^2 = 0.65$ |
| $\ln P_m$ | $= 6.462$ (159.3) | $+ 0.0355t$ (6.9) | $R^2 = 0.81$ |

Figures in parentheses are t-statistics

removing the influence of the deviations from the trend in the end-points. The year 1960-61 is used as the base year to be consistent with other parts of this study. According to Campbell and Haywood (1978) this year was at the start of the contraction phase of the New Zealand trade cycle. All of the indices in this Appendix have been expressed in terms of March year 1960-61 as the base. This means that we are measuring trends in real GDP and GNE and the sustainable GDE in relation to this base year.

Table A.1.1 reports the preferred equations for the trends in real GDP, real GDE, export and import price indices. The trends are for the period 1960-61 to 1972-73. Trends in these variables were also fitted for different terminal years ranging from 1972-73 to 1977-78. Those for the period till 1972-73 were preferred because the years after 1972-73 represents a distinct change in the macro-economic behaviour of the New Zealand economy. Evidently, the rate of growth of real aggregate expenditure accelerated sharply in 1973-74 (see Figure 1). More particularly, the New Zealand terms of trade first rose sharply in 1973-74 and then fell more sharply in 1974-75 and 1975-76. This reflects the disturbances in the world economy after 1973 due largely to the activities of OPEC. (In Chapter 2 it was noted that 1973 was the end of the earlier post-war period of relative price stability in world commodity markets.) In all cases the preferred form for the fitted equations was the exponential (constant rate of growth) equation which fitted better than linear trends.

In the case of real GNP the actual time path follows very close to the constant rate of growth path. The factors which determine the rate of growth of real output have produced a stable growth path. Real GDE tends to grow at a constant rate, though there are significant variations. In the case of the export and import price equations the fit is less good, representing the influence of cyclical and other factors which determine the annual prices. Coefficients of the time variable in all equations measure the trend estimate of the annual rate of growth. Thus real GDP and GDE grew at trend rates over this period of 3.7 and 3.4 respectively. Export and import prices increased at trend rates of 3.0 and 3.6 respectively, and, therefore, the terms of trade declined at the rate of approximately 0.6 per cent per year.

The sustainable levels of aggregate national expenditure for 1960-61 to 1972-73 were calculated from these trend estimates, using Equation (A.1.7). The term B in the numerator of H_t^S of Equation (A.1.7) is the deficit in the current account of the balance of payments. This component fluctuates greatly from year to year. The most distinct characteristic of this series in New Zealand is the very great increase in the magnitudes of the deficits starting in 1973-74. In terms of the relationships between aggregate national output and aggregate national expenditure this is due principally to the increase in real aggregate national expenditures during 1973-74 and 1974-75 (see Figure 1). Over the thirteen years from 1960-61 to 1972-73 there was a deficit in ten years and surplus in only three but the average deficit over this period was only \$40 million. It is reasonable to take this deficit as an indicator of the contribution of long-term overseas borrowing to the sustainable levels of national expenditure. When, as in Equation (A.1.7), this deficit is expressed as a percentage of aggregate real national expenditure, it is equivalent to less than 0.03 percent of national expenditure over the period. Thus it made a negligible contribution to the trend in the growth of real national expenditures. The term H_t^S is, therefore, set at zero in the calculation of the New Zealand sustainable expenditure.

TABLE A.1.2

A COMPARISON OF SUSTAINABLE AND ACTUAL
NATIONAL EXPENDITURE, 1960-61 to 1976-77

| | TREND GDP (1) | ADJUSTMENT FACTOR (2) | SUSTAINABLE GDE (1) (3) | SUSTAINABLE GDE (2) (4) | TREND GDE (5) | ACTUAL GDE (6) |
|---------|---------------------|-----------------------------|-------------------------------|-------------------------------|---------------------|----------------------|
| 1960-61 | 1000 | .980 | 980 | 980 | 1000 | 1000 |
| 1961-62 | 1037 | .978 | 1015 | 1015 | 1034 | 1019 |
| 1962-63 | 1076 | .976 | 1050 | 1052 | 1070 | 1032 |
| 1963-64 | 1116 | .974 | 1087 | 1091 | 1106 | 1118 |
| 1964-65 | 1158 | .971 | 1124 | 1132 | 1144 | 1204 |
| 1965-66 | 1201 | .968 | 1163 | 1175 | 1184 | 1307 |
| 1966-67 | 1246 | .956 | 1203 | 1210 | 1224 | 1353 |
| 1967-68 | 1292 | .963 | 1244 | 1261 | 1266 | 1145 |
| 1968-69 | 1340 | .959 | 1286 | 1305 | 1310 | 1254 |
| 1969-70 | 1390 | .956 | 1329 | 1355 | 1355 | 1325 |
| 1970-71 | 1442 | .953 | 1374 | 1410 | 1401 | 1423 |
| 1971-72 | 1496 | .949 | 1420 | 1466 | 1449 | 1444 |
| 1972-73 | 1552 | .945 | 1467 | 1522 | 1499 | 1527 |
| 1973-74 | 1610 | .941 | 1515 | 1582 | 1551 | 1745 |
| 1974-75 | 1670 | .937 | 1565 | 1645 | 1604 | 1880 |
| 1975-76 | 1732 | .932 | 1614 | 1706 | 1659 | 1748 |
| 1976-77 | 1797 | .928 | 1668 | 1773 | 1716 | 1695 |
| 1977-78 | 1864 | .923 | 1720 | 1839 | 1774 | 1636 |

NOTE: The figures in columns (1) - (5) are extrapolations, based on the trends estimated, for the period 1960-61 to 1972-73.

Table A.1.2 reports the estimates of sustainable GDE from these estimates in the trends in its components. Two estimates are presented. Estimate 1, the lower estimate for each year, uses the current situation GDE as proxy for $(\sum p_i x_i^c)$ in Equation (A.1.6). Estimate 2 uses the base situation GDE, which lowers the adjustment factor w_1 when the terms of trade are deteriorating. The first estimate overstates and the second understates the true figure. Over the period 1960-61 to 1972-73 trend GDE lies within these two estimates. Clearly, real GDE over this period was increasing at approximately the same rate as the sustainable GDE.

We have noted that the period since 1973 is a distinct period. At the beginning of this period perhaps the most reasonable projection into the future of sustainable GDE would have been the extrapolation of recent trends. The trends for 1960-61 to 1972-73 are extrapolated in Table (A.1.2) (and Figure 1) to 1977-78. For the first three years, from 1973-74 to 1975-76, actual expenditures accelerated sharply and were considerably in excess of these projected sustainable levels. Unfortunately after 1973-74, the actual terms of trade deteriorated sharply, thus reducing the sustainable GDE below recent trends at the very time when it increased above them.

The period 1973-74 to 1975-76, and the earlier period 1962-63 to 1966-67 (see Figure 1), represent periods when the collective economy-wide demands for increases in the supplies of goods and services exceeded the ability of the economy to supply them. In this situation either the rate of growth of expenditures must be reduced or the rate of growth of sustainable expenditures increased. The latter may be increased by taking advantage of a permanent and substantial improvement in the commodity terms of trade or an increase in long-term overseas borrowing. The country has little control over the terms of trade in the short-run. It may be wise for New Zealand to borrow substantially overseas in order to exploit new opportunities for increased national production. Nevertheless, if such long-term borrowings are not to result in a transfer of expenditures to the present generation from the future generation which must repay them (and the recent high levels of borrowings), they must be repaid from a higher level of national output. That is, long-term overseas borrowings must be accompanied by an acceleration in the rate of growth of output. This in turn requires that the overseas borrowings be used to increase expenditures on investments which will increase national output. It does not allow an increase in aggregate national expenditures on consumption and current government services until the increase in output comes on stream.

The force of these calculations is that the aspirations of the New Zealand community for more private and public goods and services can only be satisfied by an acceleration in the rate of growth of output.*

* These estimates also have strong implications for wages policies and other policies which affect the incomes of groups within the community. The change in real national expenditure are the sums of the changes of the real expenditures of different groups within the community. It is undesirable and probably impossible to reduce the expenditures of all households proportionately. Hence a reduction in the rate of growth of expenditures must call for a greater-than-proportionate reduction in the real incomes of some groups.

In a period of slow growth of aggregate real incomes, wage and other income relativities become vital because they determine the real income of each income group. It is not surprising that wage relativities have become a crucial factor in the settlement of many wage negotiations. The associated problems become still more difficult if the community or sections of it desire to increase the relative income of some group because they are considered more needy or because their historic relativities have been depressed.

APPENDIX 2

ANALYSIS OF TRENDS IN THE PRICES AND QUANTITIES OF EXPORTS

Selection of Commodities and Sources of Data

In compiling indices of the quantities and prices of commodities traded by New Zealand, we sought a small number of commodities which were reasonably homogeneous, which collectively constituted a large proportion of total exports, and for which reasonably long series of value, price and volume were available.

In both the 1960s and the 1970s, a few major agricultural products provided the bulk of New Zealand's export products. The choices of which of these to select was made partly by default. Because of the highly cyclical nature of New Zealand's export receipts, a period of at least 15 years was required to overcome endpoint problems. The Statistics Department was able to provide Laspeyres price indices (base 1959/1960) for about 24 different export groups for the June years 1960/61 to 1970/71. This dictated the use of a June year for all data. The exact SITC code associated with these price indices was however unclear. We selected those commodity groups for which long-run price series were published directly (butter, cheese, wool) or for which the commodity group was reasonably clear (milk, beef and veal, mutton and lamb, hides and skins, woodpulp). In particular, it was not possible to obtain a reliable series for manufactured goods, or for services exports. For these nine commodity groups, the SITC codes assigned to them, and the percentage of total goods exports they provided in 1962/63 and 1976/77 are given in Table 1.

Since 1971 the Statistics Department has prepared chain-linked Fisher export price indices. (Nominal base 1971 = 1000.) Of the above groups, the Department publishes indices for butter, cheese and wool. The Department has calculated (but not published) indices for all the remainder except milk, beef and veal, and mutton and lamb. Linked Fisher indices were prepared directly from the original Statistics Department worksheets for the remaining three groups. All the series were then linked to base 1970/71 = 1.0.

Table 2 gives the source of value series for the commodity groups. In some cases, the value series do not correspond exactly to the price series. However, the difference is small.

The Price Series

Except for the treatment of wool from 1961 to 1971 (q.v. "Prices Wages and Labour, 1971", Department of Statistics), all the export prices are derived from unit value figures. Unit value statistics of internationally-traded commodities are notoriously unreliable as measures of prices.

TABLE A.2.1

PERCENTAGE OF TOTAL GOODS EXPORTS BY COMMODITY GROUPS
1962/63 AND 1976/77

| COMMODITY GROUP | SITC CODE | PERCENTAGE OF TOTAL GOODS EXPORTS | |
|-----------------|--------------------|-----------------------------------|-----------|
| | | 1962/63* | 1976/77** |
| Butter | 023 | 14.7 | 8.2 |
| Cheese | 024 | 6.0 | 2.7 |
| Milk Products | 022 | 1.5 | 3.5 |
| Beef and Veal | 011.1 | 9.5 | 10.1 |
| Mutton and Lamb | 011.20 - 011.24 | 15.8 | 12.5 |
| Wool | 262 | 34.6 | 20.9 |
| Hides and Skins | 21 | 4.1 | 4.2 |
| Woodpulp | 25.2 - 25.9 | 0.9 | 2.3 |
| Paper | 64 | 1.4 | 2.8 |
| TOTAL | | 88.4 | 67.2 |

SOURCE: * "New Zealand External Trade 1962/63 and 1963/64: Report and Analysis" Tables 8 and 11, Department of Statistics.

** "External Trade Report and Analysis: 1976 and 1977", Tables 8 and 10, Department of Statistics.

TABLE A.2.2.
PERCENTAGE OF TOTAL GOODS EXPORTS BY COMMODITY
1960/61-1977/78 - SOURCES OF DATA

| COMMODITY GROUP | 1960/61 - 1961/62 | 1961/62 - 1976/77 | 1978 |
|-----------------|----------------------------------|---------------------------------------|--------------------------|
| Butter | CISS* | ETRA* (77) Table 8 | MAS (Mar 79) Table 50 |
| Cheese | CISS | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Milk | ETRA (62) Table 18 ¹ | ETRA (77) Table 8 | - |
| Beef and Veal | ETRA (62) Table 18 ² | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Mutton and Lamb | - | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Wool | CISS | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Hides & Skin | CISS | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Woodpulp | ETRA (62) Table 18 ³ | ETRA (77) Table 8 | MAS (Mar 79) Table 50 |
| Paper | - | ETRA (64) to ETRA (77) Table 12 | -- |
| Total Goods | CISS variable 221 13 | CISS | CISS |
| Services | CISS variable 10520 ⁴ | CISS | CISS |

* Key: ETRA (x) = "External Trade Report and Analysis, 19 x"
Department of Statistics.

: MAS (x) = "Monthly Abstract of Statistics", Department
of Statistics.

: CISS = Department of Statistics "CISS" data base.

- 1 includes "milk dried" plus "milk preserved".
- 2 includes "beef, chilled", "beef, frozen", and "veal, frozen".
- 3 includes "woodpulp".
- 4 prior to 1976/77, March year figures were linked to June year figures by assuming the same percentage change from year to year for March and June years.

The usefulness of the unit value associated with an item as an indicator of average price of commodities within the item depends on the homogeneity of the various products contained within the item, i.e. the dispersion of the unit values, and the extent to which the relative quantities of commodities within the item change over time. Accordingly, the commodity groups chosen for analysis were chosen to be as homogeneous as practicable within the limits of data availability. They can of course be regarded as being representative of other similar products. Even without this interpretation, they constituted some 67 percent of total goods exports in 1976/77.

As noted above, although the price indices for 1961 to 1971 were 1961-based-weighted Laspeyres indices, those since 1971 have been chain-linked Fisher. It is important to note that this change in the form of the index can itself cause a significant change in the time path of the linked index because of the differences in the weighting systems. Consider that there is a series of upward shifts in the demand curve for a particular commodity in the index bundle. Assuming that the demand and supply curves for this commodity have their normal shapes, and abstracting from the effects of inflation which will move the prices of all commodities roughly equi-proportionately, the price of this commodity would increase relative to that of other commodities. The quantity traded will also increase and hence the current period weight will increase. Thus the linked Laspeyres (and similarly the linked Fisher) will show a faster average price movement than the base-weighted Laspeyres. On the other hand, if the increase in the relative price of a commodity comes about because of a series of upward shifts in the supply curve, the quantity will decrease. Hence the base period weight for this commodity will definitely increase, but the current period weight for this commodity may or may not increase. Thus the linked Laspeyres will show a slower price movement than the base weight Laspeyres. If demand shifts dominate, as is likely, the linking of a Laspeyres price index to a later Chain-linked Fisher or Laspeyres index, may register an acceleration in the rate of price change which is due to this index effect and spurious.

To gauge the possible importance of this effect, a comparison was made between 1971 and 1978 for milk products. A 1971-base-weighted Laspeyres and a linked Laspeyres index were calculated. The results:

MILK EXPORT PRICE INDEX

| YEAR | Base 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 |
|----------------------------|--------------|------|------|------|------|------|------|------|
| Base-weighted Laspeyres | 1000 | 1789 | 1982 | 2107 | 2858 | 2441 | 1832 | 2175 |
| Chain-linked Laspeyres | 1000 | 1789 | 1969 | 2097 | 2835 | 2486 | 1969 | 2290 |

In this example the difference is small.

The use of a chain-linked Fisher index which is itself linked to a base-weighted Laspeyres also prevents the series being aggregated exactly without recourse to the original data. However, provided the relative weights of the various items in the index do not change substantially over time, all three indices (i.e. Laspeyres, Paasche and Fisher) can be approximated by a simple weighted average. Partly for the sake of mathematical convenience a geometric mean is taken.

Quantity series

To ensure consistency of price, quantity and value indices, quantity series are derived simply by dividing an index of the value series by the price index. Implicitly, therefore, each of the individual quantity indices are Paasche indices from 1961 to 1971, and chain-linked Fisher indices from 1971 on. The aggregate series is approximately a Fisher volume index, for the same reason as those outlined above for the aggregate price index.

Despite the non-availability of genuine price series for the traded commodities and these index number problems, the indices chosen appear to reflect genuine market movements.

Fitting Trends

Year-to-year fluctuations in exogenous prices reflect the joint influences of long-term and short-term sources of variation. To separate these influences we suppose that there is an independent long-term trend affecting each commodity price and random variability around this trend. This hypothesis decomposes the total year-to-year variability of prices into the two components, that due to the trend and that due to the variability-around-the-trend.

The separation of trend from the fluctuations around this trend overcomes the natural myopic tendency of commentators to interpret the latest upturn or downturn in market prices due to favourable/unfavourable but non-permanent random influences as a permanent change. (The distinction between the two sources of annual change also permits us to analyse the true trend-corrected variability. Variability-around-the-trend will be considered in a subsequent publication by Lloyd and Procter.)

There are many functions which might be fitted to give a trend equation. Commonly the linear and logarithmic functions are used. The latter has some appeal in that it represents constant annual rate of growth behaviour and, furthermore, it might be argued that economic decision-makers sometimes think and make decisions in terms of assumptions or predictions of a constant annual rate of growth. However, with some samples there may be a deceleration or acceleration in the trend. We follow the procedure of fitting several basic types of functions to each equation and choosing the best fit for each. This procedure means that the type of equation fitted may vary from commodity to commodity.

APPENDIX 3

MEASURES OF STRUCTURAL CHANGE

In Section 4.1 structural change was defined somewhat loosely as change in the allocation of resources among economic production activities over some interval of time. The term activities is used in the strict sense of any separable production process carried on by some producer. The allocation of resources among activities is described by the activities matrix for the economy, each column of which portrays the set of physical input-output relations for an activity. Structural change is any change in the activities' input-output matrix for the economy. This is more detailed than changes in industries' input-output flows because the input-output relations are measured only for highly aggregated industries and highly aggregated inputs. We shall be concerned in practice only with changes in primary resource usage. Changes in primary resource usage may be associated with changes in material input demands but as these are either imported or considered as output of a downstream domestic industry they need not be considered explicitly. It is these micro-economic changes in technique of production and primary input demands which give rise to problems of structural change.

The allocation of primary resources changes in many ways because industries grow at different rates and the use of inputs by activities within industries changes. Therefore, it is necessary to concentrate on certain features of these changes, that is, to select some variables. It is also necessary to use an appropriate measure or measures of changes in these selected variables. This Appendix concentrates on the second of these dual problems. It considers technical problems of measuring changes in the structure of the economy as highlighted by changes in some variables. This problem has received scant attention.

Changes in some variable, such as female employment or output, are really changes in the distribution of this variable among categories or groups, such as the firms or industries employing the female labour or producing the output. We are seeking to measure in some way changes in the frequency distribution of each variable.

For any fixed set of categories or groups among which the total of a variable is distributed, the shift in this distribution between two points of time is complex. There is, in general, no single measure which can describe all of this shift. We shall consider two measures of structural change which have been proposed, both of which may be considered as measures of change in the distribution of a variable among categories or groups.

The first measure of the shift in a distribution is that proposed by Schiavo-Campo (1978).^{*} If s_i^t are the sets of shares of each of the enumerated categories or groups in the total of some variable x at time t , the Schiavo-Campo measure is

$$C = 1/2 \sum_i |s_i^c - s_i^b| \quad 0 < s_i^t < 1, \sum_i s_i^t = 1 \quad (\text{A.3.1})$$

b and c denote the initial or base time and the terminal or current time respectively. This measure calculates the average of the changes in the percentage shares of each group, irrespective of the sign of the change. It is necessary to divide by one half to avoid double counting since a shift out of one group must imply a shift into some other group. This is the simplest measure. It varies between 0 and 1, 0 representing the limit case of no change in the distribution and 1 representing the other limit case in which all of the output at the initial time is shifted into some other group in the terminal time.

The second measure is the standard deviation of the rates of growth for each group within the total

$$D = \left(\sum_i w_i (g_i - \bar{g})^2 \right)^{1/2} \quad 0 < w_i < 1, \sum_i w_i = 1 \quad (\text{A.3.2})$$

g_i is the annual compound growth rate of the i 'th group and \bar{g} is the mean growth rate. This was used by Hill (1971) and the Australian Industries Assistance Commission (1977a, Appendix 2.1) and Economic Commission for Europe (1977). In Equation (A.3.2) the standard deviation is the weighted standard deviation and in their computations the Industries Assistance Commission employed base weights. One could use other sets of weights or calculate an unweighted (that is, equally-weighted) standard deviation. D varies from 0 to $+\infty$.

The two measures, C and D , must be related since the distribution of shares which enter in the Schiavo-Campo measure can only change if the value of the variable for at least two groups grow at different rates over the time period.^{**}

The relationship between these two measures can be obtained by manipulating the Schiavo-Campo measure

$$\begin{aligned} C &= 1/2 \cdot \sum_i \left| \left(\frac{x_i^c}{\sum_i x_i^c} \right) - \left(\frac{x_i^b}{\sum_i x_i^b} \right) \right| \\ &= 1/2 \cdot \sum_i \left| \left(\frac{x_i^b (1+g_i)^n}{\sum_i x_i^b (1+g_i)^n} \right) - \left(\frac{x_i^b}{\sum_i x_i^b} \right) \right| \\ &= n / (2(1+\bar{g})) \cdot \sum_i s_i^b |g_i - \bar{g}| \end{aligned} \quad (\text{A. 3.3})$$

* The Economic Commission for Europe (1977, esp. p. 15n.25) compute a "similarity coefficient" for two distributions. This appears to be the complement of C , i.e. $(1-C)$.

** Both measures are also affected by the level of aggregation used to calculate the distribution. In fact both measures must increase with disaggregation, as Schiavo-Campo recognised for his measure. We assume that level of aggregation is given by the nature of the economic concern.

making use of $(1+\bar{g})^n - (1+n\bar{g})$. n is the number of years between the base and current periods. Comparing (A.3.3) with (A.3.2), we see the Schiavo-Campo measure takes the absolute values of deviations of the growth rates of each group from the mean growth rate whereas the IAC measure makes these deviations positive by squaring them, before they are weighted and summed. If the base period weights are used in the standard deviation measure, which is the most logical system of weights to choose in this context, it is apparent that the two measures are closely related.

Other statistical measures of dispersion such as the log variance or semi-variance or the coefficient of variation could be used.

The Schiavo-Campo measure is simpler and appealing because it measures directly the percentage of the distribution which has shifted among groups. However, the standard deviation is used predominantly in this study in order to obtain measures of the change in economic variables which are immediately comparable with the measures for these same variables calculated by the IAC for Australia and other OECD countries (but excluding New Zealand). Further, there may be an advantage in using the standard deviation if the economic costs of adjustment or other economic problems increase more than proportionately to divergence in the growth rate of one group from the group average since these deviations are squared in the D measure before weighting.*

To test if the international patterns are sensitive to the choice of measure of structural change, a comparison was made for the change in the distribution of total employment among the nine industries used in Section 4 (ii). The three measures were the Schiavo-Campo measure, the standard deviation, and the coefficient of variation of the growth rates. The results are reported in Table A.3.1, p.3.5. There is a close correlation between the Schiavo-Campo and the standard deviation measures, as predicted above. In particular the rankings by country are very similar. This suggests that the choice between these two measures may not be important.

The coefficient of variation is distributed differently among countries than the standard deviation. An analogous comparison of the coefficient of variation and the standard deviation for the distributions of real output among these industries also showed that the two statistics give a very different pattern across countries, though in this instance the normalisation greatly reduces the range of values. This indicates that the usual procedure of normalising the standard deviations of the obser-

* The D measure can also be computed without knowledge of the distribution. For example, one may compute the rates of growth of real output of industries from measures of the real output of each industry in the two time periods. These outputs are heterogeneous and cannot be averaged. This may be the reason for the IAC choice of the D measure. One could then calculate the unweighted deviation of these growth rates. But if one computes a weighted average one must use some weights. The IAC employed the base period shares of each industry group in the distribution of the value of output among industries. The observations in this distribution are values which depend on the output prices and hence they are not strictly comparable with the physical outputs whose growth rates are measured.

vations may, in case of measurements of structural change, lose the significant economic pattern. It may be the standard deviation from the average which creates problems of resource movement. The international results for the standard deviation appear more reasonable and are, as noted in Chapter 4, correlated with the rates of growth of output. Hence the non-normalised measure is preferred.

TABLE A.3.1

COMPARISON OF MEASURES OF CHANGE,
EMPLOYMENT BY INDUSTRY, 1963-73.

| COUNTRY | Average Rate of Growth | Standard Deviation of Rates of Growth (D) | Schiavo-Campo Measure (C) | Coefficient of Variation (E) | Rankings By | | |
|-------------|------------------------|---|---------------------------|------------------------------|-------------|-----|-----|
| | | | | | (D) | (C) | (E) |
| New Zealand | 2.2 | 1.2 | .0512 | 0.55 | 11 | 11 | 10 |
| Australia | 2.8 | 1.9 | .0676 | 0.68 | 7 | 8 | 9 |
| Belgium | 0.6 | 2.5 | .0781 | 4.17 | 5 | 5 | 5 |
| Canada | 3.2 | 2.4 | .0776 | 0.75 | 6 | 6 | 7 |
| Germany | 0.0 | 1.9 | .0563 | ∞ | 7 | 10 | 1 |
| Italy | -0.6 | 2.6 | .1000 | -4.33 | 3 | 3 | 4 |
| Japan | 1.3 | 3.7 | .1300 | 2.85 | 1 | 2 | 6 |
| Portugal | -0.6 | 2.6 | .0855 | -4.33 | 3 | 4 | 4 |
| Sweden | 0.5 | 3.4 | .1424 | 6.80 | 2 | 1 | 3 |
| U.K. | 0.2 | 1.8 | .0638 | 9.00 | 10 | 9 | 2 |
| U.S. | 2.7 | 1.9 | .0689 | 0.70 | 7 | 7 | 8 |

APPENDIX 4Introduction

Since 1962 the New Zealand Government has operated many schemes to provide incentives to exporters. There are basically 3 economic reasons for providing specific assistance to exporters, these are:

- (a) as compensation for an inappropriate exchange rate,
- (b) as compensation for the cost disadvantages which arise from the protection of a domestic industry,
- (c) as encouragement to diversify the composition of exports.

While all three reasons have been important in the history of the New Zealand incentives, the compensation arguments have been the most significant. In particular, the manufacturing sector has, over a period of time, lobbied for higher levels of import protection for the domestic market and export incentives to restore their international competitiveness. This lobbying has been somewhat intensified by the tendency for the incentives to redistribute the benefits of exporting from the shareholders in an enterprise to the managerial staff. At the same time other sectors, most notably the pastoral sector, have received input subsidies partly as compensation for their loss of profitability resulting from trading with the protected manufacturing sector. In addition there has been for some time, a general reluctance on the part of both policy-makers and advisers to face up to the option of maintaining a competitive exchange rate policy. This is due in no small part to considerable uncertainty about the inflationary consequences of substantially altering the exchange rate. Instead, the Government has in the past, opted for direct assistance to exporters either by raising the level of assistance under existing incentive schemes or by introducing new schemes to meet specific needs.

One thought which has run consistently through the development of the New Zealand incentives has been that of reducing the dependence of the domestic economy on foreign exchange earnings from the traditional sources of pastoral product exports. To this end the bulk of performance-related incentives have historically been directed towards the manufacturing sector. Since 1973-74 this emphasis has shifted towards the horticultural and fishing sectors.

There are basically 4 direct ways in which the central Government of a country can influence the level and nature of activity in the export sector of the economy. These are:

- (a) By reducing the relative cost of exporting through input subsidies, taxes on domestic sales of final goods, custom duty refunds, concessionary import licences and by providing low-cost finance.
- (b) By increasing the gross receipts from exporting, by paying taxable grants, exemptions from local sales taxes, and favourable exchange rate policies.
- (c) By raising the relative after-tax profitability of exporting by exemptions from all or part of local income taxes, or special deductions from assessable income.

- (d) By providing social capital such as roading, railways, port facilities, training of the labour force, information, scientific and technological services as well as by holding trade fairs and giving awards for export performance.

In practice the Government has used all four methods to stimulate and sustain the export sector.

In terms of the legislation which has been used to implement the New Zealand incentives, the schemes can be classified in four ways:

- (a) Schemes to directly stimulate the export performance.
- (b) Schemes to assist with the development of overseas markets or the promotion of New Zealand products.
- (c) Schemes to assist the development of productive capacity for export.
- (e) Schemes put in place on an ad hoc basis or to assist exporters to adjust to some change in their external economic environment.

The schemes falling under each of these four main headings will be discussed in turn.

EXPORT PERFORMANCE ASSISTANCE

There are four incentive schemes which fall under the general heading of export performance assistance:

- (i) Increased exports taxation incentive.
- (ii) Qualifying services export taxation incentive
- (iii) Qualifying overseas projects taxation incentive.
- (iv) New markets increased exports taxation incentive.

These schemes, with the exception of the Increased Exports Taxation Incentive and the New Markets Incentive will be replaced at the end of the 1979-80 income year with the Export Performance Taxation Incentive which was announced in the 1979 Budget. The Increased Exports Taxation Incentive will continue to be available to existing exporters of qualifying products as an alternative to the Export Performance Taxation Incentive for the 1980-81 year and the two succeeding income years.

- (i) Increased Exports Taxation Incentive

This scheme was first introduced in the 1973 Budget following submissions to the Government by the Manufacturers Federation and on the recommendation of the Monetary and Economic Council and the Export Development Conference called by the Trade Promotion Council. In its original form the scheme provided for a deduction from assessable income of the proportion that increased exports made up of net income, calculated on the basis of gross income. The increase in exports was measured by the difference between export sales in the current income year and the average of export sales in the first three of the immediately preceding four income years.

This formula was changed in 1966-67 to a deduction of 15 percent of the increased exports over the first three of the immediately preceding five income years. The deduction was changed again in 1967 when it was raised to 20 percent. In the following year it was lowered to 15 percent where it remained until 1972. In that year the deduction was raised once again to 20 percent before finally settling at 25 percent in 1975. In addition the Compensatory Allowance (see p.4.11) gave exporters of qualifying goods an additional deduction of 9 percent of one-third of qualifying exports in 1976-77 and 3 percent in the following year.

A notable feature of the Increased Exports Taxation Incentive has been the relative ease with which the manufacturers' lobby has managed to have the "increased" part relaxed. By the very nature of their production methods few industries will be able to sustain rapid growth for long periods, unless they are able, as has been the case with the electronics industry, to innovate and adapt rapidly to new technology. When one adds the vagaries of international demand for products from remote markets, the spectre of restricted entry for these products and a not insignificant proportion of marginal costing of exports, the likelihood of a diminishing rate of increase in the incentive for a given firm becomes quite high. With a constant level of exports, the level of assistance received by an individual taxpayer will diminish over time. The classic response to the "base period biting" has been for exporters to approach the Government to have this constraint relaxed. This has met with considerable success. At its inception the IETI provided for the deduction to be related to the increase in exports over the average of the first three of the previous four income years. In 1966-67 this was relaxed to the first three of the previous five years, extended to six years in 1972-73 and finally to seven in 1975-76, greatly increasing the level of assistance to the sector with each step. All throughout this, a provision has existed to adjust the base exports where they have been "unduly affected by unusual circumstances".

In 1973-74 a new set of criteria for admitting products to the IETI was introduced. Originally the Income Tax Act classified types of products which would not be eligible for the incentive and exceptions to this ruling. Products which were exempt from the exclusion were specified in a schedule to the Act, amended by Order in Council. The alternative criteria allowed for admission of goods where further domestic processing was uneconomic or impractical, and where there existed good prospects for the steady development of export markets with no consequential distortion of the domestic market or the structure of domestic industry. It was under these criteria that a number of "non-traditional" horticultural products were able to receive the incentive. In addition a number of "less preferred" species of fish became eligible for the incentive.

The scheme has a domestic processing criterion. While a product may qualify for the incentive under the conditions laid down in the Income Tax Act, it is required that a firm producing the product do so in such a way that the ratio of domestic processing to the landed value of the imported inputs (net of the NZ Customs duty) exceeds a certain figure. That figure was increased from 15 percent to 25 percent for the 1976-77 income tax year; raised to 30 percent for the 1977-78 income year and to 35 percent for the 1978-79 year onwards. This measure was aimed at increasing the level of domestic processing in New Zealand's exports. In practice it has kept only a few products out of the scheme and at the same time exemptions from the operation of the criteria have been made by Order in Council.

Associated with this scheme is a guarantee provision introduced in 1969. This ensures that the rate of incentive received by the exporter, per dollar of qualifying exports, will be no less in any one year than would have been received in the previous year had there been no guarantee. In the third year, that is after two years of the same nominal incentive, the exporter's minimum return is that which he would have received in the second year had there been no guarantee. This provision was introduced to relieve some of the uncertainty faced by the exporter whose sales are increasing slowly, and who wishes to take the incentive into account when setting prices for his products. (Table A.4.1. shows changes to the Increased Exports Taxation Incentive)

(ii) Qualifying Services Export Taxation Incentive

This scheme has been in operation since the 1975-76 income year and allows an incentive in the form of a deduction from assessable income of 5 percent of the gross fees (not increase thereof) from qualifying services performed overseas, subject to the net amount of the fees being remitted back through the New Zealand banking system. The list of qualifying services is not large. In fact more space is devoted in the Act to excluding certain types of services - for example;

"engineering (including contract supervision) services, not being services which consist of altering, extending, repairing, constructing, manufacturing, fabricating, demolishing, or removing any building, construction, goods, materials, substance or thing."

In practice, claims under this scheme have been small and the fiscal cost in recent years would amount to less than \$NZ0.1 million.

The scheme will be replaced in the 1980-81 income year by the Export Performance Taxation Incentive for Qualifying Services which pays a tax credit of 11.9 percent of net remittances from an expanded list of Qualifying Services.

(iii) Qualifying Overseas Projects Taxation Incentive

This scheme allows a 10 percent deduction of the net foreign exchange earnings in contrast to the services scheme (see (ii) above) and the provisions relating to the remission of earnings are different, to take account of arrangements peculiar to the contracting business. The differences basically revolve around the timing of receipts and payments in relation to income tax years.

The other essential difference between these two schemes is that the services variant has principally "advisory services" in its qualifying list whereas the projects relate more to "technical services" such as engineering and construction.

This scheme will be replaced in the 1980-81 income year with the Export Performance Taxation Incentive for Qualifying Overseas Projects, which allows a tax credit of 11.9 percent of net foreign currency earnings remitted to New Zealand in respect of the project.

TABLE A.4.1

CHANGES TO THE INCREASED EXPORTS TAXATION INCENTIVE

| | DEDUCTION % | BASE FIRST 3 OF PREVIOUS X YEARS | MINIMUM ADDED VALUE % | ELIGIBILITY CRITERIA | COMPANY RATE OF TAX |
|---------|-------------|----------------------------------|-----------------------|----------------------|---------------------|
| 1962-63 | - | - | - | | |
| 1963-64 | Net/gross | 4 | 15 | Tax Act | |
| 1964-65 | Net/gross | 4 | 15 | " | |
| 1965-66 | Net/gross | 4 | 15 | " | |
| 1966-67 | 15 | 5 | 15 | " | |
| 1967-68 | 20 | 5 | 15 | " | |
| 1968-69 | 15 | 5 | 15 | " | |
| 1969-70 | 15 | 5 | 15 | " | |
| 1970-71 | 15 | 5 | 15 | " | |
| 1971-72 | 15 | 5 | 15 | " | 45 |
| 1972-73 | 20 | 6 | 15 | " | 45 |
| 1973-74 | 20 | 6 | 15 | Alternative | 45 |
| 1974-75 | 20 | 6 | 15 | " | 45 |
| 1975-76 | 25 | 7 | 15 | " | 45 |
| 1976-77 | 25 | 7 | 15 | " | 45 |
| 1977-78 | 25 | 7 | 25 | " | 45 |
| 1978-79 | 25 | 7 | 30 | " | 45 |
| 1979-80 | 25 | 7 | 35 | " | |
| 1980-81 | 25 | 7 | 35 | " | |
| 1981-82 | 25 | 7 | 35 | " | |
| 1982-83 | 25 | 7 | 35 | " | |
| 1983-84 | | | | | |

TABLE A.4.2

EXPORT PERFORMANCE INCENTIVES CONVERTED TO EXCHANGE RATE CHANGE EQUIVALENT

| | QUALIFYING EXPORTS | DVA (1) | FISCAL COST PERFORMANCE INCENTIVES (2) | EQUIVALENT EXCHANGE RATE CHANGE (3) |
|---------|--------------------|---------|--|-------------------------------------|
| 1974-75 | 292.3 | 193.9 | 16.3 | 8.4 |
| 1975-76 | 423.3 | 280.8 | 16.6 | 5.9 |
| 1976-77 | 598.7 | 397.2 | 34.5 | 8.7 |
| 1977-78 | 671.7 | 445.6 | 60.3 | 13.5 |
| 1978-79 | 798.0 | 529.4 | 80.7 | 15.2 |
| 1979-80 | | | | 14.0 (4) |
| 1980-81 | | | | 14.0 (4) |
| 1981-82 | | | | 14.0 (4) |
| 1982-83 | | | | |

(1) Assumed average domestic value added of 66.34 percent based on 1971-72 Inter-Industry Study Data, Department of Statistics.

(2) Estimates based on "Export Incentives in New Zealand", University of Otago Discussion Paper No. 7803.

(3) Equivalent exchange rate change calculated as

$$\frac{\text{Total Tax Saving from Performance Incentives}}{\text{Total Exports of Domestic Value Added}} = \frac{(2)}{(1)}$$

(4) Rate paid per dollar of domestic value added in qualifying export goods under new EPTI.

(iv) New Market Increased Exports Taxation Incentive

To receive this incentive the exporter must already qualify for the Increased Export Taxation Incentive. A new market is defined as "a country or part of a country which the Secretary of Trade and Industry considers to be a distinct and separate market . . ." to which ". . . no more than token quantities were exported in the preceding three years prior to the new market sale". The NMIETI provides for an additional 15 percent deduction in respect of the value of exports to a "new market" in the first year. In the second year the deduction is 15 percent of the increase over the first year's sales.

In practice there has been much difficulty in deciding what constitutes a new market; the tanning industry for example was granted a blanket new market status for all its exports in 1976 and the scheme has, in some circumstances, led to exporters shifting their principal markets on a two-yearly cycle in order to maximise their individual tax savings.

Official figures on the fiscal cost of the scheme are not available but it is estimated to have cost around \$NZ1 million in 1975-76, \$NZ2 million in 1976-77, and \$NZ3 million in 1977-78. This scheme which became available in 1975-76 will be terminated at the end of 1979-80 although existing approvals will be allowed to run their course.

EXPORT PROMOTION INCENTIVES

The Export Promotion Incentives currently available to New Zealand exporters are:

- (i) Export Market Development Taxation Incentive
- (ii) Tourist Promotion Expenditure Taxation Incentive
- (iii) New Market Development Grant Scheme
- (iv) Services Export Development Grant Scheme

The first two schemes are taxation based whereas the other two pay non-taxable grants with consequential adjustments to individual tax liabilities.

The EMDTI was the first export incentive to be introduced in New Zealand. At its introduction the scheme provided "an additional deduction for certain classes of expenditure incurred in promoting exports . . ." of " . . . one and a half times the actual amount spent, subject to the proviso that in no case shall the tax saving exceed 15s for every £1 spent". (Hon. H. R. Lake, Hansard, 15 November 1962, page 2897; Clause 11, Land and Income Tax Amendment Bill (No. 2)). An editorial in the Dominion of 2 July 1962, quoted by the Member for Riccarton, Mr M. A. Connelly in the Hansard for December 1962 (page 3057) states, "What may be questioned is whether the Government is offering its reward at the right time and in the right place. Is it not, in subsidising trade promotion expenditure by as much as 15s in the £1, letting the donkey eat the carrot at once instead of dangling it in front of its nose?"

(i) Export Market Development Taxation Incentive

As described above, the EMDTI (Section 154 Income Tax Act 1976) allows a special additional deduction of 50 percent of certain "prescribed outgoings". The maximum tax saving is limited to 75 cents in the dollar which is obtained with a maximum marginal tax rate of 50 percent.

Prescribed outgoings or qualifying expenditure is restricted to that which:

- (a) is ordinarily tax deductible;
- (b) must have been incurred primarily or principally for the purpose of seeking opportunities or creating or increasing demand for the exports of goods or services from New Zealand. In this context the definition of "goods" is free from qualification but the definition of "services" is not;
- (c) in addition, the expenditure must fall within the definition of prescribed outgoings in the Income Tax Act.

In practice the administration of the scheme has been fraught with problems. Incorrect claims predominate over correct ones and it is difficult for the Inland Revenue Department to police the authenticity of expenditure incurred overseas. On the positive side this scheme has done much to encourage exporters to take a first step into overseas markets by reducing the initial set-up cost of a marketing effort. It is important, however, to note that this scheme is an input subsidy encouraging the use of foreign exchange which, in the New Zealand context, is already obtainable at less than equilibrium prices because of the over-valued exchange rate.

The fiscal cost of this scheme was NZ\$7.02 million in 1973-74 and is unofficially estimated to have doubled between then and 1977-78. From the 1980-81 income year, the incentive will be paid as a tax credit of 67.5 percent of prescribed outgoings; where the list of such outgoings has been reduced and tightened.

(ii) Tourist Promotion Taxation Incentive

This scheme is a variation on the EMDTI. It pays the same rate of incentive under similar conditions but applies to expenditure incurred in encouraging the development of the New Zealand Tourist industry.

(iii) New Market Development Grant Scheme

This scheme, introduced in 1976-77 provides a 40 percent non-taxable grant in respect of eligible expenditure incurred in the encouragement or the development of a new market for goods of a New Zealand origin overseas. The definition of a new market is the same as that used in the NMIETI and like that scheme, it is administered by the Department of Trade and Industry. As the expenditure not covered by the grant is deductible under the EMDTI, the total level of assistance to a company is:

| | \$ | |
|---|-------|-----|
| Eligible expenditure | 100.0 | |
| Non-taxable grant | 40.0 | (A) |
| Balance deductible at 150 percent | 60.0 | |
| Tax saving | 40.5 | (B) |
| Grant plus deduction (A + B) = Fiscal Cost | 80.5 | |

Expenditure on grants is appropriated on an annual basis so figures on the cost to the Government of the scheme are available.

TABLE A.4.3.

NEW MARKET DEVELOPMENT GRANTS

| | \$m | 1976-77 | 1977-78 | 1978-79 | Est. 1979-80 |
|-------------|------|---------|---------|---------|-----------------|
| Expenditure | .470 | 1.633 | 3.008 | 3.750 | |
| Grant | .188 | .653 | 1.203 | 1.500 | |
| Fiscal Cost | .378 | 1.315 | 2.421 | 3.019 | |

Services Export Development Grants

The grants paid under this scheme have the same value to the exporter as the New Market Grants described above. The services grants are made by the Minister of Overseas Trade on the recommendation of the Services Export Development Grants Advisory Committee (SEDGAC) which "in considering application for assistance will have regard to the eligibility criteria which will include the amount of New Zealand content involved, the probability of success, the proficiency of the applicant, and the prospects of follow-on business." For expenditure to be eligible for this grant it must already be eligible for the EMDTI.

As with the New Market Grant, the SEGs are appropriated annually and figures on the fiscal cost are available as follows:

TABLE A.4.4.

SERVICES EXPORT DEVELOPMENT GRANTS

| | \$m | 1976-77 | 1977-78 | 1978-79 | Est. 1979-80 |
|-------------|------|---------|---------|---------|-----------------|
| Expenditure | .810 | .110 | .525 | .875 | |
| SEG | .324 | .044 | .210 | .350 | |
| Fiscal Cost | .652 | .089 | .423 | .764 | |

In practice the administration of this scheme has allowed little leeway for applicants and many exporters of services have been vocal in their criticism of the SEDGAC. SEGs will be replaced from 1 April 1980 by the Export Programme Grants Scheme announced in the 1979 Budget.

EXPORT INVESTMENT INCENTIVES

Investment in productive capacity for export is encouraged by three schemes:

- (i) Export Investment Allowance
- (ii) Export Suspensory Loans
- (iii) Exemption of machinery used for export production from sales tax

(i) Export Investment Allowance

The special investment allowance for export manufacturing was introduced in the 1976 Budget. It is an input subsidy intended to stimulate investment in capacity to produce goods with an export potential. The scheme has two sets of eligibility criteria.

For manufacturers already engaged in export, the allowance is automatic and gives a special deduction over and above ordinary depreciation on the basis of twice the proportion that export production bears to domestic production, up to a maximum of 20 percent. In the case where the investment is greater than NZ\$0.5 million the taxpayer may be required to demonstrate that his performance in the succeeding three years is consistent with his past record.

Manufacturers with no history of exporting can also claim this incentive. They must submit for approval by the Development Finance Corporation detailed plans and forecasts of their future development, which must be substantially for export. The incentive is paid on the basis of one half of the projected share of total sales which will be for export. Again a maximum deduction of 20 percent is imposed. The interesting point about this incentive is the provision for suppliers of inputs to receive the additional deduction if the cost of the components they supply constitutes more than 25 percent of the fob value of the export goods.

A further point is that for some firms benefitting from the Export Investment Allowance, the Regional Development Allowance as well special first year depreciation allowance can, in some cases, depreciate 63 percent of the book value of new assets in the first year.

(ii) Export Suspensory Loans

This scheme, introduced in 1973, makes available a suspensory loan of up to 40 percent of the capital cost of plant and machinery to be used principally for the production of export goods. The loans are available for qualifying projects with a capital cost of NZ\$10,000 to NZ\$.1 million, with provision being made for some projects in excess of this figure to be approved. In essence the applicant for a loan must demonstrate that 40 percent of the

output of the project is exported within a specified period for the capital value of the loan to be converted to a grant and written off. Until such time as the loan is written off the recipient must pay interest on the principle at current market rates. The loan itself is ignored for taxation purposes until it is written off so that the ability of the taxpayer to receive investment allowances and to claim depreciation incentives is unaffected by the loan.

The loans are made by two Government agencies in accordance with the type of activity that the applicant is involved in. The Development Finance Corporation approves loans for the manufacturing sector and the Rural Banking and Finance Corporation handles applications from the agricultural and dairying sectors.

In addition to these loans there is another suspensory loan scheme for the purchase of fishing boats and plant and equipment associated with the processing of fish and fish products. This scheme was introduced in the 1978 Budget and was chiefly designed to help stimulate the exploitation of the 200 mile New Zealand exclusive economic zone declared in 1976, rather than to directly stimulate exports.

(iii) Exemption of Machinery from Sales Tax

Machinery and appliances used in the production of goods for export may be granted an exemption from New Zealand sales tax on the approval of the Collector of Customs.

SPECIFIC ADJUSTMENT AND AD HOC SCHEMES

These schemes have been introduced, usually for a limited period of time, to assist exporters with the adjustment to some change in their external economic environment. The principal schemes are:

- (i) Compensatory Allowance
- (ii) Export Incentive Licensing
- (iii) Electricity Price Increase Adjustment Assistance

(i) Compensatory Allowance

This scheme was introduced as a specific response to the devaluation of the Australian dollar at the end of 1976. Allowed for the income years 1976-77 and 1977-78, the scheme provided for a special deduction from assessable income of 9 percent of one third of qualifying exports in the 1976-77 income year and a flat additional 3 percent deduction in the 1977-78 year.

The reason for the curious arrangement of the additional deduction was related to the timing of the Australian devaluation which took place in November 1976. At the time the New Zealand manufacturing export sector was selling around 45 percent of its exports on the Australian market. The consequential

movement of the New Zealand dollar did not fully adjust for the Australian movement and the manufacturers' lobby queued up for some form of additional assistance from the Government.

Agreement was reached that a 9 percent adjustment would be sufficient to compensate for the relative depreciation of the New Zealand dollar which resulted from the Australian moves. Since the movements took place at the end of November, leaving only four months of the income year left, it was agreed that the adjustment would apply as 9 percent for one third of the exports of qualifying goods in the 1976-77 income year. In the next year the adjustment would decrease to a flat 3 percent additional deduction and be phased out at the end of the year.

(ii) Export Incentive Licensing

Briefly, this scheme makes provision for the issue of additional import licences to manufacturers who have exported or intended to export New Zealand made goods incorporating imported raw materials or components which are subject to import licensing. The licences are issued exclusively for export as it is not the intention of the scheme to provide a means whereby a manufacturer could manufacture a new product for sale on the domestic market.

Provision is made under the scheme for the issue of four types of incentive licence as follows:

- (a) replacement licence;
- (b) assistance licence;
- (c) bonus licence;
- (d) NAFTA licence

(a) Replacement Licences

Replacement licences are available to manufacturers who have used raw materials and components imported under licences issued to cover production for the domestic market for export production. The licences are issued for components and raw materials of the same kind and to the same value used in the export goods.

Applications must be supported by evidence of the export sales, or confirmed export orders and evidence of the imported content of the export goods.

(b) Assistance Licences

Assistance licences are made available to manufacturers who intend to manufacture goods for export, to assist them to meet firm export orders or to "produce goods with which to seek sales in overseas markets."

Assistance licenses were not normally issued for goods of a type produced in New Zealand, but the 1979 Budget announced a system of liberalised licences which would permit the import of goods "where it can be established that the prices of domestic manufactured raw materials, componentry, plant and equipment are manifestly excessive, or that their technology or quality is significantly deficient".

(c) Bonus Licences

Bonus licences are made available to manufacturers who have exported goods. Where the licence is approved, the raw materials and components imported under the licence may be used to manufacture goods for sale either on the domestic market or overseas.

(d) NAFTA Licences

Under Article 3.7 of NAFTA these licences may be issued to New Zealand manufacturers instead of Bonus Licences.

(iii) Electricity Price Increase Adjustment Assistance

In May 1979 the New Zealand Government announced a 60 percent increase in the bulk electricity tariff. Soon after this announcement, officials were directed to find a way of easing the impact of this price rise on larger exporters which were large users of electricity. The rationale given for this was that larger exporters would not be able to pass on the price rise as easily as those producing for the domestic market.

The scheme went through many stages of evolution. One early proposal was for the Department of Trade and Industry to assess the loss of profitability on individual export sales which had resulted from the price rise and to pay rebates accordingly. The final scheme is a classic example of ad hoc tinkering. Eligibility for the incentive is determined by the following formula.

$$(a) \quad \frac{\text{Exports}}{\text{Total sales}} \times \frac{100}{1} \times \frac{\text{Actual electricity Costs}}{\text{Total Costs}} > 300$$

This is calculated on an ex-works basis. If this criteria is met then a grant is payable, calculated as

$$(b) \quad \frac{1}{2} \times \frac{\text{Exports}}{\text{Total sales}} \times (\text{Current electricity costs} - \text{Costs net of price increase})$$

In practice the figure in brackets varies from about .45 to the full .6 of the current bill depending on whether the user pays the bulk tariff.

The grant is paid by the Department of Trade and Industry and is treated as assessable income for tax purposes, in the hands of the recipient. Funds have been appropriated for \$10m - \$12m in grants although the total fiscal cost of this scheme will depend on the tax claw-back which itself will be subject to individual company tax positions and the timing of balance dates. The scheme is designed to run for 11 months, terminating 31 March 1980.

THE NEW SYSTEM OF EXPORT INCENTIVES

The Government's intention to review the system of exports was first announced in the 1976 Budget. The Government had given an undertaking to look at export incentives in its election manifesto of the previous year as a result of pressure from both exporters and officials. The manufacturers were once again becoming concerned at the impact that base year exports were having on their level of incentive. The manufacturers' proposal, at the time, was simply to do away with the base period provision of the IETI and to allow a deduction from assessable income for every dollar of export sales. At the same time as announcing the review, the Government relaxed the base period constraint to the first three of the previous seven years.

Officials were concerned about these moves. On the one hand there was a danger that the fiscal cost of the export incentives could explode. On the other hand a number of commodities admitted to the scheme since the introduction of the alternative criteria in 1973-74 received more incentive than they added in value to the export goods. This was particularly the case with exports of semi-processed primary products such as wet-blue hides. In more than one case the total profitability of producing these commodities was the export incentive and the absence of strict controls on environmental pollution in New Zealand.

The review did two things:

- (a) it declared a moratorium on changes to the export incentive which would liberalise the existing scheme. This did not apply to new products being admitted to the list of qualifying export goods;
- (b) it gave officials a chance to change what, in their minds was a major anomaly in the scheme. This was that the payment of the incentive took no account, beyond the limited goods entry criterion, of the level of domestic processing in the export goods.

Investigations and consultations between officials and manufacturers followed. Enough progress was made to allow the Minister of Finance to announce in the 1977 Budget that "a new export incentive scheme which embodies the following two principles would have substantial advantages over the present system:

- * the incentive should be based on net foreign exchange earnings
- * the incentive should be applied to a firm's total exports rather than only to the increase in its exports."

The Government also undertook to consult with interested parties before finally deciding on a scheme of incentives.

A study of export incentives, in particular of incentives based on a value added concept was commissioned with the NZ Institute of Economic Research. The results were very encouraging and despite opposition from some private sector interests a decision was taken to base the measurement of net foreign exchange earnings on the share of domestic value added in a dollar of qualifying exports, valued at fob and net of the unprocessed value of any primary inputs. The original intention was to net out the fob value of any primary products that were themselves exported, in the form that they were most predominantly exported. While desirable, this was found impractical and the so-called "boundary" for primary products was drawn at the level of the first transaction between the primary sector and the next highest level of processing.

Since most primary products are themselves exported, paying an incentive on the basis of the primary value added as well as further processing would, not of itself, encourage further net foreign exchange earnings. In many instances primary processing only takes place on inferior grades and it is not clear that paying an incentive on the total domestic content would increase net foreign exchange earnings. A counter argument frequently used is that this exclusion would encourage the use of imported raw materials for further processing. The reply to this has two parts. If reprocessing of imported materials is cheaper and adds more value than processing domestic raw materials then the national benefit would be maximised by adopting this course; although care must be exercised in distinguishing a "cheaper" imported input from the result of the overvalued exchange rate. It can also be argued that in the face of lower priced imported inputs the market will exert pressure to lower domestic input costs to further processing either by forcing down input prices, causing pressure for institutional changes, or eliminating the domestic suppliers; depending on the nature of the excess domestic price. The final reason for the boundary adjustment is that the primary sectors of the New Zealand economy receive substantial input assistance from the central Government and it was the Government's wish to avoid double subsidisation of primary product based manufactures.

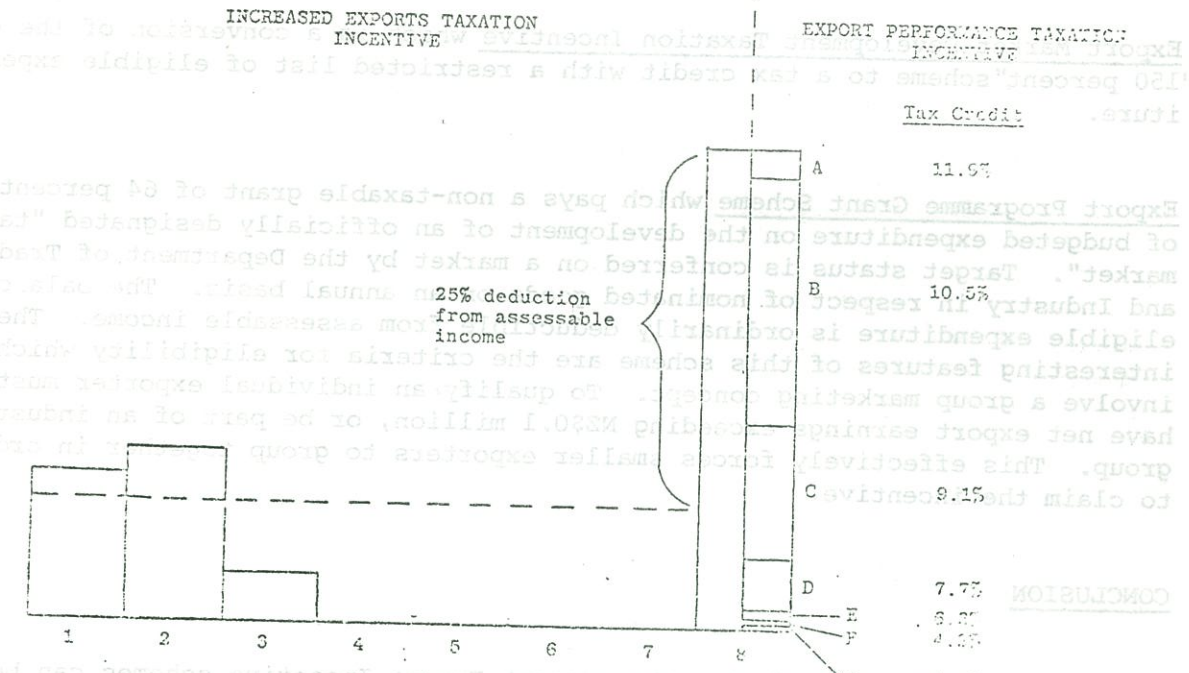
The payment of the incentive is to be made on the basis of a "banding" of a commodity according to its "post-boundary" domestic value added. Initially it was uncertain whether the banding would be best done on a commodity basis or by assessing the appropriate value added on a product by product or firm by firm basis. In the end both were in fact used. Whole industry figures were weighted up with input-output weights to determine the value added in individual commodities. An appeal procedure allows individual firms to alter their rate of incentive where their production process can be shown to differ from the industry average.

One of the principal failures of the review of export incentives is the retention of the market development schemes. At the outset of the review the intention to reward net foreign exchange earnings was made clear, however, the retention of these schemes is a major anomaly in an otherwise improved package of assistance. The EMDTI and the EPGS provide a subsidy on foreign exchange spending.

* The incentive should be based on net foreign exchange earnings rather than only on the increase in its exports.
 The Government also undertook to consult with interested parties before finally deciding on a scheme of incentives.

TABLE A.4.5.

CORRESPONDENCE BETWEEN INCREASED EXPORTS TAXATION INCENTIVE AND EXPORT PERFORMANCE TAXATION INCENTIVE



Notes:

- Letters A to G in EPTI refer to the value added bands to one of which each commodity exported from New Zealand has been assigned for the new incentive. Various sizes of the bands are indicative of the proportion of qualifying exports in that group.
- Diagram shows the correspondence between IETI and EPTI for a dollar's worth of qualifying exports.

The non-performance schemes at present in operation are basically labour subsidies and after the costs facing an exporter. Of particular concern are the investment allowances and the market development schemes which provide a direct subsidy on the consumption of foreign exchange; compounding the effect of the already over-valued exchange.

THE NEW INCENTIVES ARE:

Export Performance Taxation Incentive which takes effect from the 1980-81 income year and pays a tax credit of 14 percent of the domestic value added in exports of qualifying goods, valued at fob. The incentive is paid on the basis of an assessment of the DVA in each product exported from New Zealand, carried out by the Department of Trade and Industry using inter-industry study data. Export commodities are classified into one of seven bands according to their DVA and an appeal procedure is allowed for firms with a typical production processes.

Export Market Development Taxation Incentive which is a conversion of the old "150 percent" scheme to a tax credit with a restricted list of eligible expenditure.

Export Programme Grant Scheme which pays a non-taxable grant of 64 percent of budgeted expenditure on the development of an officially designated "target market". Target status is conferred on a market by the Department of Trade and Industry in respect of nominated goods on an annual basis. The balance of eligible expenditure is ordinarily deductible from assessable income. The interesting features of this scheme are the criteria for eligibility which involve a group marketing concept. To qualify, an individual exporter must have net export earnings exceeding NZ\$0.1 million, or be part of an industry group. This effectively forces smaller exporters to group together in order to claim the incentive.

CONCLUSION

From an economic point of view the present Export Incentive schemes can be faulted on a number of grounds. They do not achieve the objective of simulating a devaluation to compensate for the over-valued exchange rate; nor do they provide a level of assistance commensurate with the levels of import protection afforded to domestic industry. The schemes do, however, provide incentives for increased investment and production for export, but in a discriminatory and distortionary manner.

The existing incentives are all paid on a firm-specific basis - either by way of grants or through the tax system - rather than on a general product related basis (in several cases only products packed in a certain way qualify). This means that beyond the domestic processing criterion no account is taken of the level of imports in an export good. The criterion itself takes no account of indirect imports. In addition the base period provisions mean that two firms producing identical products with similar production methods can, because of their individual histories, receive vastly different levels of assistance. Furthermore some industries performing minimal processing on either primary sector products or imports can and do, receive levels of assistance manifestly in excess of that which an exchange rate change would give them. This latter point has in several instances, led to considerable distortions in the domestic economy.

The non-performance schemes at present in operation are basically input subsidies and alter the costs facing an exporter. Of particular concern are the investment allowances and the market development schemes which provide a direct subsidy on the consumption of foreign exchange; compounding the effect of the already over-valued exchange.

The new incentives which become available from 1 April 1980 do much to alleviate these problems. The performance incentive, while still paid through the tax system has a product-specific basis and the level of assistance takes account of both direct and indirect imports. There is no change in the incentive because of historical performance. The new scheme is far from perfect as it still retains the input subsidies, on investment in plant, machinery, marketing and more recently electricity consumption. It is not equivalent to a devaluation and lowering of protection.

APPENDIX 2

1. Between -0.1 and 0.1
 2. Average growth rate
 3. Divisionally
 4. Growth rates for
 Community, social and
 defence for which
 in various countries
 Calculated using data
 Data for non-eligible
 classification see text

TABLE A.5.1
 RATES OF GROWTH^a OF GROSS PRODUCT BY INDUSTRY:^b
 SELECTED COUNTRIES, 1963 to 1973 (PERCENT PER ANNUM)

| | New Zealand | Australia | Belgium | Canada | Denmark | Finland | Germany FR | Greece | Italy | Portugal | Sweden | United Kingdom | United States |
|---|-------------|-----------|---------|--------|---------|---------|------------|--------|-------|----------|--------|----------------|---------------|
| Rural | 1.5 | 1.9 | 0.8 | 1.0 | 0.5 | .. | 2.0 | 2.6 | 1.8 | 0.6 | 1.6 | 2.7 | 2.3 |
| Mining | 4.0 | 14.1 | -3.9 | 6.9 | -5.4 | 2.9 | -1.0 | 10.5 | 3.6 | 6.8 | 6.1 | -3.0 | 2.3 |
| Manufacturing | 6.4 | 5.1 | 6.8 | 6.1 | 5.3 | 7.2 | 5.7 | 11.8 | 6.3 | 10.1 | 5.3 | 3.6 | 4.6 |
| Services | | | | | | | | | | | | | |
| Electricity, gas & water | 8.2 | 7.9 | 10.7 | 8.3 | 9.4 | 8.5 | 7.0 | 14.3 | 8.2 | 10.2 | 7.2 | 5.5 | 6.6 |
| Construction | 3.3 | 5.4 | 4.4 | 4.9 | 5.3 | 3.8 | 4.2 | 8.8 | 1.3 | 9.3 | 3.1 | 2.6 | 1.4 |
| Transport, storage and communication | 3.0 | 6.6 | 4.5 | 6.9 | 4.9 | 5.1 | 4.4 | 9.7 | 5.4 | 9.1 | 4.3 | 3.7 | 5.8 |
| Wholesale and retail trade, restaurants, etc. | 2.9 | 4.4 | 5.3 | 5.5 | 4.5 | 5.8 | 3.8 | 9.2 | 5.9 | 5.6 | 3.0 | 3.0 | 4.5 |
| Finance, insurance, real estate & business services | 3.0 | 6.6 | 4.7 | 6.0 | 5.5 | 5.3 | 5.8 | 6.8 | 4.5 | 6.7 | 3.1 | 4.5 | 4.4 |
| Community, social and personal services | (2.4) | 6.3 | 4.6 | 6.3 | -3.7 | 5.1 | 3.9 | 6.9 | 5.3 | 5.0 | 4.1 | 2.4 | 3.0 |
| Public admin. & defence | 3.6 | 5.7 | 4.6 | 3.7 | 6.1 | 4.6 | 4.1 | 5.3 | 2.9 | 6.4 | 2.7 | 0.6 | 4.3 |
| Total Services | 3.9 | 5.5 | 5.0 | 5.9 | 4.9 | 5.2 | 4.3 | 7.9 | 4.4 | 6.9 | 3.6 | 3.1 | 4.3 |
| Gross domestic product | 3.9 | 5.5 | 5.2 | 5.7 | 4.5 | 5.0 | 4.7 | 7.6 | 4.7 | 7.0 | 3.8 | 3.0 | 4.3 |

Standard deviations of rates of growth

Non-manufacturing industries^c 1.5 2.6 2.6 2.1 2.2 3.0 1.5 3.5 2.2 3.6 1.3 1.8 1.6

All industries^{c,d} 2.3 2.2 2.9 1.9 2.3 2.6 2.0 4.0 2.2 4.2 2.2 1.7 1.6

.. Between -0.1 percent and 0.1 percent per annum

^a Average annual rates of growth from base year to final year

^b Divisions of the ISIC.

^c Growth rates for Finance, insurance, real estate and business services; Community, social and personal services; Public administration and defence, for which measurements of gross product is treated inconsistently in various countries, are omitted from the calculations of standard deviations

^d Calculated using data for the Manufacturing sector disaggregated into nine industries.

NOTE: Data for each country are compiled from national accounts statistics, for which difference methods of valuation and bases of classification are used. Consequently, industry rates of growth are not directly comparable between countries.

Sources: New Zealand, Table 28, "Real Gross Domestic Product", Monthly Abstract of Statistics (MAS) NZGP, and "Indexes of Production and Productivity" Supplement to the MAS. Other countries, Australian Industries Assistance Commission (AIAC), Structural Change in Australia, (1977, Table 2.1.3).

TABLE A.5.2

RATES OF GROWTH^a OF GROSS PRODUCT OF MANUFACTURING INDUSTRIES:^b
SELECTED COUNTRIES, 1963 to 1973 (PERCENT PER ANNUM)

| | New Zealand | Australia | Belgium | Canada | Denmark | Finland | Germany FR | Greece | Italy | Portugal | Sweden | United Kingdom | United States |
|---|-------------|--------------------|---------|--------|---------|---------|------------------|--------|------------------|----------|--------|----------------|---------------|
| Food, beverages & tobacco | 4.3 | 4.8 | 4.3 | 4.3 | 5.1 | 5.8 | 3.3 | 9.4 | 6.0 | 7.5 | 0.7 | 2.5 | 3.9 |
| Textiles, wearing apparel and leather | 7.2 | 3.6 ^c | 2.2 | 4.6 | 5.7 | 5.6 | 1.8 | 11.0 | 4.8 | 11.1 | 0.4 | 1.8 | 2.4 |
| Wood, wood products and furniture | 3.4 | 4.2 | 10.2 | 5.8 | 8.5 | 7.0 | d | 11.6 | 6.5 | 5.3 | 6.8 | 4.7 | 3.8 |
| Paper, paper products, printing and publishing | 6.3 | 6.2 | 4.7 | 4.3 | 5.0 | 5.0 | 5.4 ^d | 8.7 | e | 8.8 | 4.1 | 3.3 | 4.4 |
| Chemicals, petroleum, coal, rubber & plastic products | 6.9 | 7.8 ^f | 11.4 | 6.8 | 9.5 | 11.3 | 9.7 | 17.8 | 8.0 | 11.0 | 10.3 | 6.9 | 7.9 |
| Non-metallic mineral products | 4.9 | 6.1 | 5.8 | 5.4 | 9.2 | 10.1 | 5.6 | 11.9 | 5.7 | 9.9 | 4.4 | 4.5 | 2.9 |
| Basic metals | 19.8 | 6.0 | 8.8 | 5.3 | 4.1 | 9.4 | 4.1 | 28.3 | 7.5 | 9.5 | 6.7 | 1.3 | 3.3 |
| Fabricated metal products, machinery & equipment | 8.5 | 5.5 ^{c,f} | 7.7 | 8.1 | 6.7 | 8.2 | g | 11.2 | 6.1 ^e | 12.1 | 6.4 | 2.8 | 4.4 |
| Other manufacturing | 9.7 | 8.0 ^{c,f} | 12.7 | 7.9 | 9.8 | 14.0 | 6.2 ^g | 9.0 | 6.5 ^e | 9.3 | 6.0 | 5.6 | 5.8 |
| Total manufacturing | 6.4 | 5.1 | 6.8 | 6.1 | 5.3 | 7.2 | 5.7 | 11.8 | 6.3 | 10.1 | 5.3 | 3.6 | 4.6 |
| Gross domestic product | 3.9 | 5.4 | 5.2 | 5.7 | 4.5 | 5.0 | 4.7 | 7.6 | 4.7 | 7.0 | 3.8 | 3.0 | 4.3 |

Standard deviation of rates of growth of manufacturing industries

1.5 1.2 2.9 1.6 1.6 2.1 2.1 2.1 3.0 0.9 2.1 2.7 1.5 1.5

^a Average annual rates of growth from base year to final year.

^b Sub-divisions of the ISIC.

^c Leather and leather products included with Other manufacturing.

^d Wood, wood products and furniture included with Paper, paper products, printing and publishing.

^e Paper, paper products, printing and publishing included with Other manufacturing.

^f Rubber products and plastic and related products included with Other manufacturing.

^g Fabricated metal products, machinery and equipment included with Other manufacturing.

NOTE: Data for each country are compiled from national accounts statistics, for which different methods of valuation and bases of classification are used. Consequently, industry rates of growth are not directly comparable between countries.

SOURCES: New Zealand, derived from volume indexes of output in NZ Year Book, Manufacturing Chapter; Other Countries, AIAC, Structural Change in Australia, June 1977.

TABLE A.5.3

RATES OF GROWTH^a OF EMPLOYMENT^b BY INDUSTRY:^c
SELECTED COUNTRIES, 1963 to 1973 (PERCENT PER ANNUM)

| | New Zealand | Australia | Belgium | Canada | France | Germany FR | Italy | Japan | Netherlands | Norway | Portugal | Sweden | United Kingdom | United States |
|---|-------------|------------------|---------|------------------|--------|------------|------------------|-------|-------------|--------|----------|--------|----------------|---------------|
| Rural | (0.3 | -1.3 | -5.5 | -2.7 | -3.9 | -4.6 | -4.9 | -5.2 | -3.0 | -4.0 | -3.8 | -5.1 | -3.8 | -3.0 |
| Mining | (4.5 | 4.5 | -7.8 | 5.5 | -4.9 | -4.1 | 0.6 ^f | -8.9 | -13.1 | 2.3 | -7.6 | -2.5 | -6.0 | 0.1 |
| Manufacturing | 3.1 | 1.9 | -0.1 | 2.4 | 0.6 | 0.2 | 0.4 ^f | 2.6 | -0.7 | 1.0 | 0.8 | -1.5 | -0.6 | 1.7 |
| Services | | | | | | | | | | | | | | |
| Electricity, gas and water | 2.1 | 1.8 | 1.4 | 2.7 | 1.3 | -4.0 | f | 3.1 | 1.2 | 0.9 | 0.6 | -2.8 | -1.6 | 1.8 |
| Construction | 0.6 | 2.5 | 0.3 | 3.1 | 1.7 | -0.5 | -0.9 | 4.8 | 1.1 | 0.9 | 1.3 | -0.5 | 0.5 | 3.1 |
| Transport, storage & communication | 1.2 | 2.1 | 1.6 | 2.6 | 1.1 | 0.5 | 1.0 | 3.3 | 0.1 | -0.5 | 1.8 | 0.3 | -0.7 | 1.7 |
| Wholesale and retail trade, restaurants, etc. | 2.4 | 2.5 ^g | 1.3 | 3.5 ^g | 2.0 | 0.3 | 0.7 | h | 1.5 | 1.9 | 1.7 | -0.2 | -0.5 | 3.6 |
| Other services | 3.3 | 5.3 ^g | 3.0 | 5.4 ^g | 3.4 | 1.9 | 1.9 | 2.8 | 3.2 | 3.5 | 1.4 | 5.6 | 2.3 | 4.2 |
| Total Services | 2.3 | 3.5 | 1.9 | 4.3 | 2.4 | 0.8 | 0.8 | 3.1 | 2.0 | 1.9 | 1.5 | 2.0 | 1.0 | 3.7 |
| All industries | 2.2 | 2.8 | 0.6 | 3.2 | 0.8 | .. | -0.6 | 1.3 | 0.7 | 0.7 | -0.6 | 0.5 | 0.2 | 2.7 |

Standard deviation of rates of growth

All industriesⁱ

All industriesⁱ

1.2 1.9 2.5 2.4 2.5 1.9 2.6 3.7 2.5 2.5 2.5 2.5 3.3 1.9 2.0

1.5 2.0 2.7 2.5 2.7 2.2 2.8 3.8 3.0 2.8 2.8 2.8 n/a 1.9 2.0

^a Between -0.1 percent and 0.1 percent per annum.

^b Average annual rates of growth from base year to final year.

^c Total civilian employment

^d Divisions of the ISIC.

^e 1962/3 to 1972/3.

^f 1960 to 1970.

^g Electricity gas and water included with manufacturing.

^h Hotels and restaurants included with Other services.

ⁱ Wholesale and retail trade, restaurants etc. included with Other services.

Calculated using the wage earners and salaried employees data for the Manufacturing sector disaggregated into nine industries as in Table A.3.4.

SOURCES: New Zealand derived from "Estimated distribution of the Labour force", various Yearbooks, Department of Statistics, NZGP. Other countries: AIAC, Structural Change in Australia (1977, Table 2.1.7).

TABLE A.5.4

RATES OF GROWTH^a OF EMPLOYMENT^b IN MANUFACTURING INDUSTRIES^c:
SELECTED COUNTRIES, 1963 to 1973 (PERCENT PER ANNUM)

| | New Zealand | | Australia | | Belgium | | Canada | | Denmark | | Finland | | France | | Germany | | Greece | | Italy | | Japan | | Netherlands | | Norway | | USA | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 | 1962/63 - 1972/73 |
| Food, beverages and tobacco | 3.1 | 3.0 | -0.4 | 1.0 | 2.6 | 2.2 | 0.8 | -1.1 | 2.0 | 0.3 | 2.3 | -1.0 | 0.2 | -0.5 | -2 | | | | | | | | | | | | | |
| Textiles, wearing apparel & leather | 2.0 | 0.3 | -1.9 | 0.9 | -2.2 | 1.2 | -1.9 | -2.3 | 3.0 | -0.2 | -0.7 | -6.6 | -4.6 | -2.3 | 0.8 | | | | | | | | | | | | | |
| Wood, wood products & furniture | 0.6 | 2.0 | 1.6 | 2.8 | -0.4 | 1.7 | 0.6 | .. | 3.7 | 1.1 | 0.6 | -0.6 | 2.6 | 0.3 | 1.8 | | | | | | | | | | | | | |
| Paper, paper products, printing and publishing | 3.7 | 2.5 | 1.4 | 1.6 | 1.1 | 1.9 | 1.0 | 0.6 | 2.9 | d | 1.0 | 0.5 | 0.6 | -0.5 | 1.5 | | | | | | | | | | | | | |
| Chemicals, petroleum, coal rubber & plastic products | 2.3 | 2.6 | 1.7 | 3.0 | 1.1 | 4.9 | 2.6 | 1.9 | 6.2 | 2.3 | 1.1 | 2.8 | .. | 0.7 | 2.6 | | | | | | | | | | | | | |
| Non-metallic mineral products | 1.3 | 0.9 | -1.4 | 2.2 | 2.0 | 2.6 | 1.6 | -0.6 | 2.8 | -0.5 | 1.1 | -1.4 | 0.5 | -0.7 | 1.4 | | | | | | | | | | | | | |
| Basic metals | 12.0 | e | e | 2.4 | e | 6.6 | -0.7 | 0.6 | 11.6 | e | 1.0 | f | 0.9 | -1.5 | 1.2 | | | | | | | | | | | | | |
| Fabricated metal products, machinery & equipment | 5.3 | 2.6 ^e | 1.2 ^e | 3.3 | 1.0 ^e | 4.1 | 1.9 | 1.8 | 6.7 | 2.0 ^e | 3.2 | g | 3.7 | -0.3 | 2.4 | | | | | | | | | | | | | |
| Other manufacturing | 8.4 | -2.3 | 1.9 | 1.9 | .. | 5.2 | 1.8 | 0.7 | 4.1 | 1.3 ^d | -0.4 | -0.8 ^{f,g} | -0.6 | -0.6 | 1.5 | | | | | | | | | | | | | |
| Total manufacturing | 3.3 | 2.1 | 0.3 | 2.2 | 0.8 | 2.8 | 0.9 | 0.4 | 4.0 | 1.0 | 1.7 | -1.3 | 1.1 | -0.6 | 1.7 | | | | | | | | | | | | | |
| All sectors | 2.2 | 2.8 | 0.6 | 3.2 | 1.1 | 0.4 | 0.8 | .. | -0.9 | -0.6 | 1.3 | 0.7 | 0.7 | 0.2 | 2.7 | | | | | | | | | | | | | |

Standard deviation of rates of growth of manufacturing industries

1.9 1.2 1.4 1.0 1.4 1.4 1.6 1.4 2.1 1.1 1.4 2.7 2.6 0.9 0.9

a* Between -0.1 percent and 0.1 percent per annum.

b Average annual rates of growth from base year to final year.

c Wage-earners and salaried employees.

d Sub-divisions of the ISIC.

e Paper, paper products, printing and publishing included in Other manufacturing.

f Basic metals included with Fabricated metal products, machinery and equipment.

g Basic metals included with Other manufacturing.

h Fabricated metal products, machinery and equipment included with Other manufacturing.

SOURCES: New Zealand, as in Table A.3.3; other countries, Australian IAC, Structural Change in Australia, (1977, Table 2.1.8).

TABLE A.5.5

DISTRIBUTION OF GROSS PRODUCT BY INDUSTRY^a:
SELECTED COUNTRIES, 1963 and 1973 (At current prices) (Percent)

| COUNTRY | Rural | | Mining | | Manu- facturing | | Elec- tricity gas and water | | Con- struction | | Transport storage and comm- unication | | Services | | Total Services | | | |
|------------------------------|-------|------|--------|------|--------------------|------|--------------------------------------|------|-------------------|------|--|------|----------|------|-------------------|------|------|------|
| | | | | | | | | | | | | | | | | | | |
| | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | 1963 | 1973 | | |
| New Zealand | 16.3 | 14.4 | 0.8 | 0.5 | 22.6 | 23.6 | 2.6 | 2.5 | 7.7 | 6.1 | 7.7 | 8.1 | 17.9 | 19.8 | 24.4 | 24.9 | 60.3 | 61.5 |
| Australia ^{d,e} | 12.6 | 8.0 | 1.7 | 3.8 | 26.8 | 23.6 | 3.5 | 3.4 | 7.7 | 8.1 | 7.8 | 7.7 | 16.9 | 15.1 | 23.0 | 30.3 | 58.9 | 64.6 |
| Belgium ^f | 6.1 | 4.0 | 2.4 | 0.8 | 31.8 | 31.0 | 2.3 | 2.7 | 6.4 | 7.0 | 7.1 | 8.1 | 13.7 | 14.5 | 30.2 | 31.9 | 59.7 | 64.2 |
| Canada ^d | 6.8 | 5.3 | 4.0 | 4.2 | 26.4 | 23.1 | 2.7 | 2.6 | 5.6 | 6.3 | 9.3 | 9.1 | 12.5 | 12.0 | 32.7 | 37.4 | 62.8 | 67.4 |
| Denmark ^d | 12.7 | 8.2 | 0.1 | .. | 30.1 | 28.2 | 1.8 | 1.5 | 8.2 | 10.1 | 9.9 | 9.9 | 16.2 | 14.9 | 21.0 | 27.2 | 57.1 | 63.6 |
| Finland ^d | 18.3 | 12.0 | 0.6 | 0.7 | 25.9 | 30.2 | 3.0 | 3.0 | 9.4 | 10.2 | 7.2 | 7.0 | 11.6 | 11.5 | 24.0 | 25.4 | 55.2 | 57.1 |
| Germany FR ^f | 4.9 | 2.8 | 2.3 | 1.1 | 41.2 | 40.3 | 2.2 | 2.3 | 8.0 | 7.6 | 6.0 | 5.6 | 15.1 | 13.2 | 20.5 | 26.6 | 51.6 | 55.7 |
| Italy ^d | 13.9 | 10.0 | 0.8 | 0.6 | 27.6 | 28.7 | 2.5 | 2.3 | 8.0 | 7.6 | 7.0 | 7.1 | 13.4 | 13.6 | 26.8 | 30.1 | 57.7 | 60.7 |
| Japan ^f | 10.5 | 5.9 | 1.2 | 0.6 | 34.2 | 37.9 | 2.5 | 1.5 | 6.4 | 8.3 | 8.9 | 7.9 | 16.7 | 18.6 | 19.6 | 19.3 | 54.1 | 55.6 |
| Portugal ^d | 22.4 | 16.3 | 0.5 | 0.5 | 30.5 | 33.8 | 2.5 | 2.3 | 5.4 | 6.5 | 5.7 | 6.3 | 13.0 | 14.8 | 20.0 | 19.5 | 46.7 | 49.4 |
| Sweden ^d | 6.7 | 4.4 | 1.2 | 0.8 | 29.4 | 30.3 | 2.7 | 2.4 | 10.9 | 8.2 | 7.3 | 6.7 | 11.1 | 10.4 | 30.7 | 36.8 | 62.7 | 64.5 |
| United Kingdom ^d | 3.6 | 3.0 | 2.8 | 1.4 | 33.4 | 31.1 | 3.1 | 3.1 | 6.6 | 7.2 | 8.5 | 8.9 | 11.7 | 9.9 | 30.3 | 35.4 | 60.2 | 64.5 |
| United States ^{f,g} | 4.3 | 4.7 | 2.5 | 1.5 | 28.8 | 25.2 | 2.5 | 2.3 | 4.5 | 4.8 | 6.5 | 6.3 | 16.8 | 16.9 | 34.1 | 38.3 | 64.4 | 68.6 |

a Divisions of the ISIC

b Restaurants and hotels included with Other services for Australia, Belgium, Canada and the United Kingdom
c Includes Finance, insurance, real estate and business services; Community, social and personal services; Public administration and defence

d Gross product at factor cost

e Compiled on the basis of the ASIC for the period 1962-63 to 1972-73

f Gross product at factor cost plus indirect taxes on production, less subsidies

g Data compiled on the basis of a national classification for the period 1960 to 1973

TABLE A.5.6.

DISTRIBUTION OF EXPORTS BY INDUSTRY
NEW ZEALAND, 1962/3, 1972/3, 1975/6.

| Industry | 1962/3 | 1972/3 | 1975/6 |
|----------------|--------|--------|--------|
| 1 | 29.3 | 18.5 | 14.2 |
| 2 | 0.4 | 0.5 | 0.6 |
| 3 | 0.2 | 1.4 | 0.6 |
| 4 | 0.0 | 0.2 | 0.7 |
| 5 | 51.9 | 51.3 | 43.2 |
| 6 | 0.4 | 1.4 | 1.9 |
| 7 | 0.3 | 0.8 | 0.6 |
| 8 | 1.5 | 1.6 | 3.8 |
| 9 | 0.5 | 0.5 | 0.6 |
| 10 | 0.0 | 0.2 | 0.2 |
| 11 & 12 | 0.2 | 3.0 | 5.5 |
| 13 | 0.2 | 0.0 | 0.1 |
| 14 | 0.0 | 0.0 | 0.0 |
| 15 | 0.0 | 0.0 | 0.0 |
| 16 | 5.8 | 8.2 | 8.3 |
| 17 | 1.3 | 9.7 | 15.0 |
| 18 | 0.0 | 0.0 | 0.0 |
| 19 | 0.8 | 0.4 | 1.0 |
| 20 | 0.0 | 0.0 | 0.0 |
| 21 | 0.8 | 2.1 | 4.0 |
| 22, 23, 24, 25 | 0.0 | 0.0 | 0.0 |
| Rural | 29.9 | 20.4 | 15.4 |
| Mining | 0.0 | 0.2 | 0.7 |
| Manufacturing | 54.8 | 58.9 | 55.8 |
| Services | 13.7 | 20.4 | 28.0 |

SOURCE: As in Table 4.3

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