

WORKING PAPERS

**QUESTIONS
ON STRUCTURAL ADJUSTMENT POLICIES**

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This paper is based upon work bearing upon "adjustment assistance" developed in 1972.[16] Lengthy discussions with two colleagues, Dr. T.G. Parry and Mr. Bruce Ross, over the past three years are gratefully acknowledged. Helpful comments on an earlier draft were provided by Professors I.F. Pearce and C.G.F. Simkin, and Dr. A.J. Phipps.

QUESTIONS ON STRUCTURAL ADJUSTMENT POLICIES

1 Introduction

Discussion of structural adjustment for the Australian economy has persisted for many years. The purposes of this paper are to examine the meaning of the term and its significance for the Australian situation, as well as to analyse the possible choices for policy in this sphere, should they exist. While the main issues are applicable to any appraisal of structural adjustment themes, the emphasis is on the Australian situation.

Questions about policies on structural adjustment must be treated separately from the general discussion of structural change in an economy. Characteristic of economic performance is shifts in the relative contributions of different activities to gross domestic product. A recent study undertaken by the Economic Commission for Europe has drawn attention to this changing pattern in the centrally directed economies of Eastern Europe as in the mixed market economies of Western Europe, North America and Japan.[9] Adjustment is commonplace in the experience of expanding economies. What is at issue is whether or not specific policies to sustain structural adjustment are necessary.

During the past decade the relative contributions of different sectors in the Australian economy have shifted; the experience is summarised in Table 1. Activities associated with the production of goods have declined sharply over the past decade, an exception being mining. Estimates in row 5 record the sharp fall in the share of goods production during the past two decades; the estimates understate the decline because of non-comparability of the first two years recorded in Table 1 with later years. A comparison of the changing relative contributions between goods production and tertiary activities is shown in the final row; the shift is striking.

Structural adjustment policies should be considered in terms of whether or not the potential or realisable gains in efficiency and economic welfare from structural change would be more readily attained if government were to adopt measures which would aid the adaptation. Such an approach does not necessarily call for an assessment of government's capacity to judge future prospects better than the private sector. For example, measures could be adopted which encourage greater mobility of the work force and increased adaptability of firms. But many specific proposals, such as re-training of the work force, reflect views about future requirements

TABLE 1

Gross Domestic Product at Factor Cost, By Industry
(selected years, percentage shares)

	1953- 54	1956- 57	1959- 60	1963- 64	1966- 67	1969- 70	1972- 73	1975- 76
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. AGRICULTURE, FORESTRY, FISHING, ETC.	18.6	16.6	13.6	13.7	11.5	8.1	8.0	5.7
2. MANUFACTURING	27.1	27.6	29.4	26.2	26.1	25.8	23.6	21.6
3. ELECTRICITY, GAS, WATER	2.2	2.6	3.1	3.4	3.6	3.5	3.5	3.2
4. CONSTRUCTION	7.1	7.6	7.6	7.6	8.1	8.1	8.0	8.2
5. SUB-TOTAL 1 to 4	55.0	54.3	53.7	50.9	49.3	45.5	43.1	38.7
6. MINING	2.1	2.1	1.9	1.9	2.2	3.4	3.7	4.1
7. WHOLESALE, RETAIL	15.7	15.4	15.2	16.4	15.6	15.6	15.0	15.1
8. TRANSPORT, STORAGE, COMMUNICATION	7.8	7.8	8.0	8.0	8.0	8.3	7.8	7.8
9. FINANCE, ETC. & BUSINESS SERVICES (a)	2.5	2.6	4.9	7.3	7.9	8.9	10.1	10.5
10. PUBLIC ADMINISTRATION & DEFENCE	4.2	4.1	3.6	3.3	3.8	4.1	4.5	5.1
11. COMMUNITY & PERSONAL SERVICES (a)	9.6	10.1	11.0	9.3	10.3	11.0	12.4	15.0
12. SUB-TOTAL 7 to 11	39.8	40.0	42.7	44.3	45.6	47.9	49.8	53.5
13. OWNERSHIP OF DWELLINGS	3.2	3.6	4.0	5.1	5.2	5.7	6.4	6.6
14. TOTAL (5, 6, 12, 13)	100.0	100.0	102.2	102.2	102.3	102.5	102.9	103.0
15. LESS IMPUTED BANK CHARGES	n.a.	n.a.	2.2	2.2	2.3	2.5	2.9	3.0
16. TOTAL G.D.P.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
17. Ratio: Row 5 to Row 12 (%)	138.2	135.7	125.8	114.9	108.1	95.0	86.5	72.3

Notes: n.a. = not available; 1953-4 and 1956-7 not comparable with subsequent years so percentage shares of industry groups are understated against estimates of later years. (a) = FINANCE & PROPERTY only in the first 3 columns; business services included in row 11. Sources: C.B.C.S. (Ref.7.4), 23.2.68 for columns 1-2; C.B.C.S. (Ref.7.4), 8.3.73 for column 3; A.B.S. (Ref.7.4), 2.5.75 for column 4; A.B.S. (Ref.5203.0), 6.3.78 for columns 5 to 8.

for skills and productive capacity.

Recent discussions on structural change in Australia have been linked closely with the past growth and prospective developments in the mining industry. It is well to note that some of the issues were well recognised fifteen years ago[2]. The thrust of the argument is that increased productivity and export earnings associated with mining could change the balance of payments situation as well as accelerate the growth of real output.[12] Further gains in the relative contribution of the mining industry to gross domestic product now seem likely in the early eighties. This resurgence of activity would allow a greater flow of imports to Australia so offsetting the expanded export surplus. Alternatively, and possibly in conjunction with this switch, there could be an appreciation of the Australian dollar. Whatever the outcome, import competing activities within Australia would be subject to further competitive pressures. This prospect, along with current problems for manufacturing activity, provides the circumstances in which specific structural adjustment policies might be appropriate. A major issue is the implications for employment of structural change favouring capital intensive activities while labour intensive industries face an increasingly competitive environment.[8] Moreover, the spelling out of the issues in broad terms hints at some of the problems in handling such policies; so much of what is proposed relates to the timing and speed of adjustment to economic structures.[25]

The significance of these developments is to be found in the problems of sustaining employment for the domestic work force and the implications for the level and structure of immigration to Australia. The employment questions are complex because of the diversity and geographical spread of the work force. Nevertheless, the main worry is with the employment prospects for the unskilled and inexperienced, especially new entrants. The impact of the structural changes associated with mining expansion are exacerbated by present and prospective developments in the application of new technologies based upon electronic devices in manufacturing and service activities.

The immigration question is more complicated than would appear from any appraisal based upon the likely impact of structural change. All too often the outcome is to treat migration as an instrument of policies for national economic development. Doubts about the validity of such a premise exist for two most important reasons: firstly, throughout the postwar decades immigration was very much an independent influence on

the economy; and, secondly, contemporary migration arrangements reflect only in part criteria of an economic nature. On the latter point it is well to note four aspects of immigration policy: the provision of economic skills not available in Australia, family reunion, refugee and humanitarian arrangements, and free entry of New Zealand residents. Migrants coming within the family reunion and refugee categories do not reflect the job opportunities available in Australia. Hence their presence may add to the strains associated with generating employment opportunities for the unskilled.

The concern with structural adjustment in Australia has been closely linked to the general discussion of tariffs and other forms of protection. This is evident from the analysis of structural change and related problems provided by the Industries Assistance Commission.[19,20,21] A dominant concern of the Commission is the resistance to structural change offered by a protection system. But these commentaries provide little insight as to what should be analysed; only the final publication spells out some of the problems which may call for structural adjustment measures [21, pp.16-27].

2 Structural Adjustment

The problems generally referred to as coming within "structural adjustment" create difficulties for analysis and prescription of appropriate policies. Most themes reflect an analysis based upon gains from a freer trade position with respect to allocative efficiency and consumption possibilities. Little attention has been paid to the repercussions of domestic disturbances generated by rapid changes in technology. Yet these approaches fail to clarify what is the feature which brings out the need for special treatment based upon "structural adjustment" claims. In as much as economies have adjusted to structural change in remarkable ways during the past twenty years or more, this would suggest that most market influences and signals have been effective in providing guidance to governments, firms and members of the work force.

What should be clarified are those circumstances which make for something different; in short, the justification for particular policies in situations akin to "market failure". These would appear to be

- (a) an inability to finance capital requirements for changing economic activities thus hampering adaptation of the capital stock;
- (b) a decline in demand for a locally produced good or service *which is sustained*;

- (c) widening gaps in the cost structure for products compared with those in other countries for similar goods or reasonably close substitutes produced domestically or abroad (this refers not only to labour costs);
- (d) the immobility of factors of production and the inflexibility of pricing arrangements, including performance in the labour market;
- (e) access to new techniques of production reflecting problems of commanding access to research and development skills.

These five points would suggest need for care when clarifying the influences of domestic recession on the profitability and performance of firms - a shorter term phenomenon - compared with longer-term decline. The problems for clarifying these features are illustrated in Appendix A.

The points listed in the preceding paragraph do not abridge the general claims, so frequently advanced, for market outcomes offering welfare gains. What they draw attention to are the sorts of problems that may arise with attempts to adapt the economic structure. The "free trade case" does not, except in the most general context, reflect a view that some groups or regions will not be disadvantaged. Some of these features have been spelt out by Johnson.[4,foreword] In short, problems can arise; most importantly in the discussions about factor mobility and price inflexibility. While the arguments are most frequently couched in terms of foreign trade, the same issues bear upon regional and structural changes within one economy. Hence, while the analysis which follows refers mainly to the trade situation, it is in no way intended to convey the judgement that discussions about structural adjustment policies should be confined to interactions with the foreign sector.

However, some features, subject to empirical verification, do curtail the free trade outcome. These are the cases where factor immobility and price inflexibility are complete. In the former instance, productive factors do not shift with changes in price relativities; the resources are unemployed or underutilised as a result, because of location or lack of substitution possibilities. In the latter case, factor and product prices do not respond to worsening price relativities; an example is to be found in national wage determinations not accounting for regional or industrial variations. This type of circumstance provides the basis for claiming sustained protection of economic activities or help in timing the process of adaptation. Apart from these situations, the results of intervention in markets are held, in conventional broad terms, to mean that protection or increased protection will reduce the economic welfare of domestic consumers

or limit the potential for gain. Export subsidies or increases in them will increase the economic welfare of foreign consumers.

The significance of structural adjustment policies appears to be in the speed with which adaptation takes place in certain specified situations. Structural adjustment policies should, therefore, be directed to measures which would

- (a) control the speed with which adaptation occurs so as to ease the transfer of resources to stable and expanding activities;
- (b) provide for increasing factor mobility by devices to sustain firms' liquidity and increase skills and opportunities for the work force;
- (c) permit a greater flexibility in the pricing of labour and goods to ensure the maximum utilisation of resources.

The weakness in this specification is the handling of regional decline. Structural adjustment procedures only offer exodus. In this circumstance the discussion blends into a more general argument about sustained protection to compensate for regional disabilities.

Yet a further complication arises with the basis of exchange rate adjustments for signalling change in relative prices between countries for goods and services. The contemporary world is one of "floating" currencies between major industrial economies with varying degrees of managed intervention by authorities in foreign exchange markets. But the foreign sector, or the balance of payments, involves two separable features:

- (i) One relates to the flow of goods and services where price relativities are of dominant concern qualified in some measure by technological change and its transmission. Direct foreign investment would come within this grouping.
- (ii) The other refers to the flows of financial assets and liabilities with influences related to interest rates, expectations and uncertainty.

The speeds of response of these two elements, the current and capital accounts, have shown marked disparity in the seventies; the capital account being much more variable and quicker to change. The evidence for this conclusion is clear for any number of countries. The country showing the greatest sustained divergence would be Switzerland; this is a special case even by the standards of recent experiences. But the potential for divergence between the two accounts raises questions about the appropriate foreign/domestic price relativities to be incorporated in production and investment decisions bearing upon structural adjustment issues. What this suggests is caution in treating the foreign sector as just another industry,

a feature suggested all too frequently in the literature about industrial performance. The foreign sector exhibits distinctive features and influences not to be found within an industry group. Moreover, domestic capital accumulation is not necessarily independent of foreign capital transfers.

3 The Freer Trade Evidence and Issues

A reasonable question is the extent of the gains from freer trade. There are doubts about the strength of claims about the gains in efficiency and economic welfare generated by freer trade. The attention given to the evidence against the potential for sizable additions to economic welfare appears to have been slight. In a study some twenty years ago, Tibor Scitovsky estimated the net "loss" from tariffs misallocating resources within the European Economic Community as 0.05 per cent of national product in 1952.[31] A later investigation by Wemelsfelder for the Federal Republic of Germany put the net loss as 0.18 per cent in 1958.[33] Janssen's work for Italy in 1960 shows about 0.1 per cent.[22] Johnson provided a higher estimate at 1.0 per cent for the United Kingdom in 1970 at the time of the debates about Britain joining the European Economic Community.[24]

These calculations and others would seem to indicate that the potential gains are not worth the worry. The measures of potential gain appear to be trivial. Estimates provided by Harberger for Chile would appear to contradict the other investigations but the methods used in the analysis are not rigorous with respect to use of data so they must be viewed with caution.[15] In short the Australian material should be explored for a systematic appraisal of potential gains. It is possible but unlikely that gains would be large.

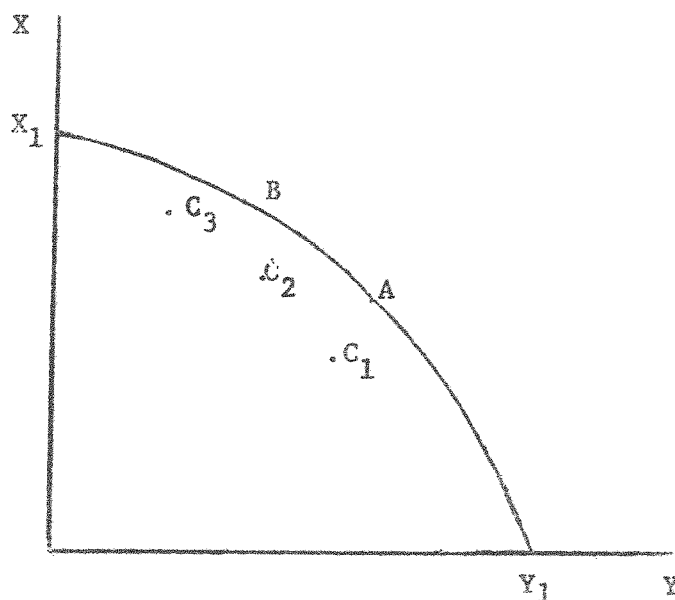
What is the Australian evidence? David Evans estimated the likely gains from free trade compared with protection arrangements in 1958-59 as being a gain of between 0.8 and 1.8 per cent in real consumption after ten years.[10] But this development would be associated with decreased demand for female labour and increased demand for skilled labour. So these results tend to confirm the results of studies for other economies. But these estimates have been challenged. Studies associated with the "IMPACT" project suggest that, under certain conditions, the gains may be much larger.[7] The favourable possibilities were associated with a highly differentiated tariff characteristic of the Australian position, strong substitution possibilities between goods, and the scope for obtaining economies of scale. The last item will be taken up in a later section.

One of the major problems for interpreting results of empirical studies is the determining of just what is being measured and over what time period. With these features go questions about market behaviour including access to international markets.

The significance of real gains from reduced protection affecting consumption and allocative efficiencies for the better looks, on balance, to be small. In this situation there is little point in worrying about reduced protection, *especially as a unilateral trade policy measure*. This feature has not been examined by one of the main proponents of the 25 per cent tariff cut of July 1973.[13] Yet the "IMPACT" study dwelt upon reciprocal access to market.[7,pp.6-10,43]

But the current Australian arguments against protection and on structural adjustment do not end with allocative efficiency. There is the proposition about gains in X-efficiencies with lowered protection; the pioneering work by Harvey Leibenstein is the basis for some of these interpretations.[28] The X-efficiency (or X-inefficiency) theme is that firms do not operate equally as well with the same production possibilities. The difference between allocative efficiency and X-efficiency is illustrated in the simplest way in Figure 1. There are two goods, X and Y, associated with which there is a production possibility curve, X_1 to Y_1 . Allocative efficiency is concerned with shifts along the production possibility curve, say from A to B. These shifts would be in response to changes in relative prices for X and Y. It is these types of shift which have concerned analyses of gains from free trade; a theme which will be developed in the next section. X-inefficiencies are illustrated by positions C_1 , C_2 and C_3 .

FIGURE 1



Thus gains in real output, and hence economic welfare, could be achieved by improved individual plant, managerial and other efficiencies. The positions C_1 , C_2 and C_3 represent losses through X-inefficiency which could be relieved if the means could be found for shifting to the production possibility frontier at positions akin to A and B. X-inefficiencies bear upon the failure to achieve output feasible with existing equipment and inputs. They relate to problems of managerial and production behaviour as well as performance by the work force.

What then are the possibilities of freer trade inducing gains in X-efficiency? It would have to be shown that protection restricts managerial motivation through providing "monopoly-type" environments, and labour motivation by allowing restrictive practices and so on. In short, heightened competition from foreign supplies would determine attitudes towards efficiency, effort and firms' objectives. There are implications here for national wage determinations which ignore regional disparities and productivity links. The same applies to conditions of work. For the protection issue to dominate X-inefficiencies, the view could be that domestic arrangements, such as competition policies, are of slight impact or worse. But the international evidence is that size and ownership are most important to gains in X-efficiency. However, one recent study links protection to monopoly and X-inefficiencies. This work by Joel Bergsman contrasted allocative inefficiencies linked to protection with the monopoly returns and X-inefficiencies from the same source.[1] Nevertheless, the statistical basis for the conclusion is not strong while the explanation of causality is limited.

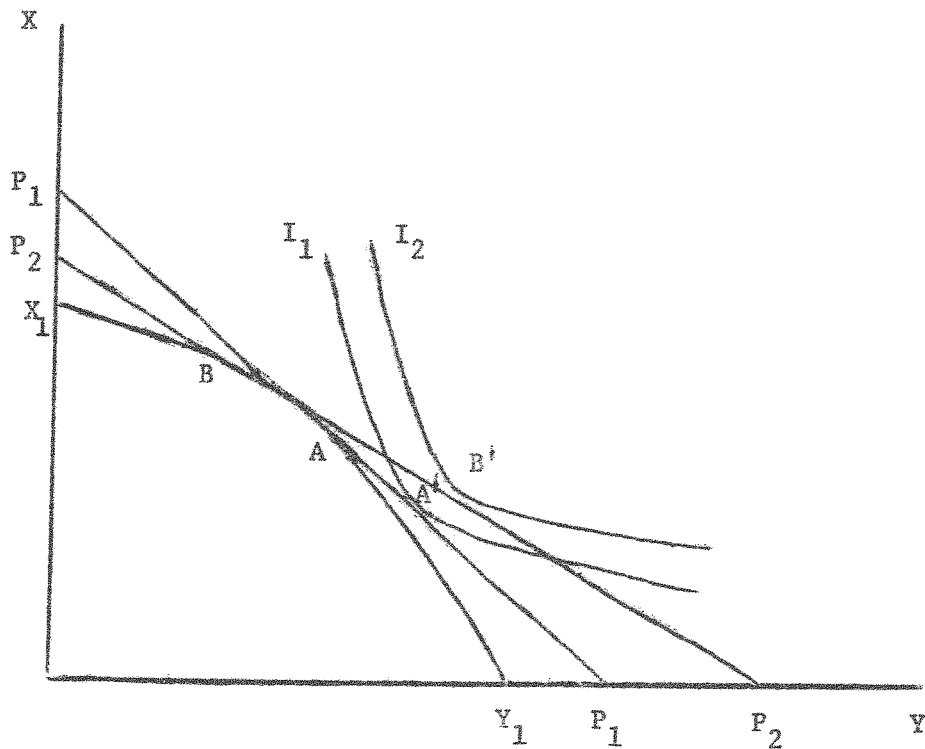
On balance the argument about reducing X-inefficiencies through lowering protection is inconclusive. In effect, domestic policies on competition could offer equal or greater scope for these gains. But these gains would also apply to *non-traded* goods and services; activities relevant to structural adaptation. So competition policies cannot be divorced from structural adjustment issues; the important themes relate to merger and entry rather than relatively trivial pricing matters, most often short term in influence.

4 Adjustment

While the evidence for the gains from reduced protection is slender and limited, there are other topics of considerable importance. These revolve around the difficulties with so much of the analysis which pays scant heed to the pattern of the adjustment *path*; attention has tended to

focus on changes from one equilibrium position to another. The situation is best illustrated by referring to the simple material presented in Figure 1. Again in Figure 2 there is a production possibility curve. But as a result of a change in protection the relative prices for X and Y change; there are the price lines P_1 and P_2 showing the relative shift. These are linked to indifference curves showing the consumer preferences for X and Y; I_2 represents a higher position (or superior economic welfare) than I_1 . Figure 2 illustrates the conventional case for gains from freer trade familiar to most work in this sphere.¹ The changed prices after lowering protection with the shift from A to B on the production possibility frontier give rise to gains in economic welfare, I_1 to I_2 .

FIGURE 2



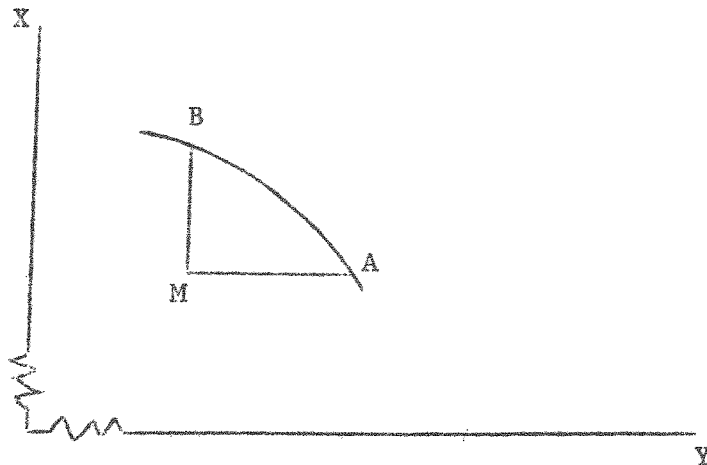
But this argument depends crucially upon the movement along X_1Y_1 from A to B; this is the concept of a smooth transition. This is the realm of price flexibility and mobility of factors of production; there are no restraints on adjustment or adaptation. There is no structural adjustment problem! A further important assumption underlying the analysis is that conditions of full employment apply in the economy.

Yet suppose the adaptation is not smooth and time is required for the shift. Firstly, it may take time to expand production of X while

production of Y may continue at reduced profits or simply covering variable costs. This circumstance would be producing an output performance inside the production frontier. An interpretation of the limits to the adjustment path is shown in Figure 3. Thus the area contained within AMB will cover the possibilities for the location of the actual path unless there is an over-reaction to withdrawing inputs for good Y. Secondly, there is no convincing basis for establishing that shifts along a production frontier are possible; the continuity assumption implicit in the figures used is a demanding one. In these circumstances there is no certainty of economic welfare being immediately improved and there is a real possibility of it worsening initially, and for some period.

The matters raised in the preceding paragraph show how quickly any applied analysis starts to take on the characteristics of the X-inefficiency case. Firms, in seeking to adapt factor and output mixes, may exhibit these features. In circumstances of rapidly changing relative prices, firms will be striving to adapt to actual and potential price shifts. This has implications for access to capital for plant and equipment when there are domestic monetary and financial repercussions from foreign capital flows.²

FIGURE 3
(A segment of Figure 2)

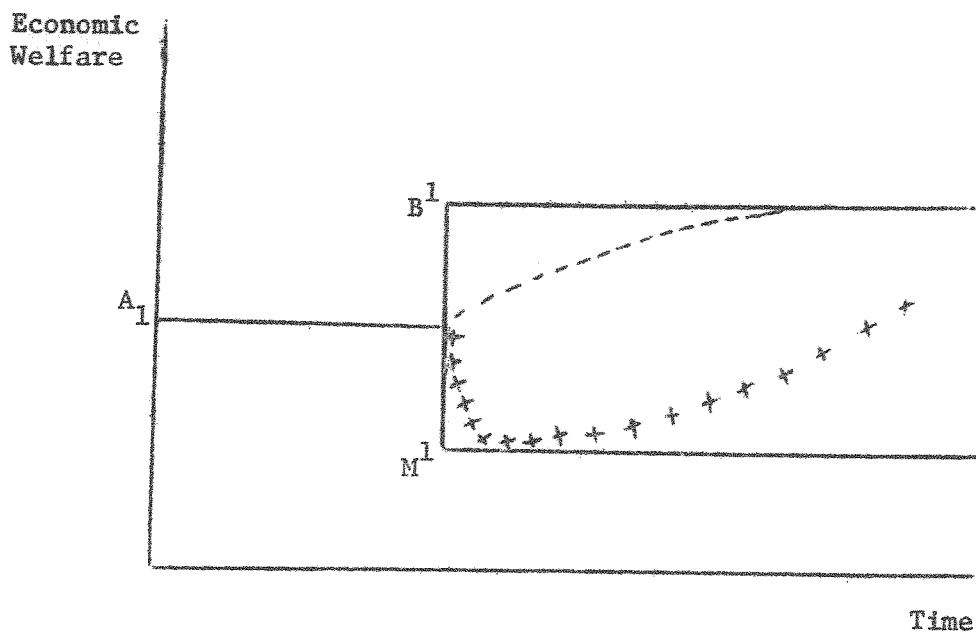


There is one further matter bearing upon arguments of the preceding paragraph. Where regional shifts are involved, resources may have to be committed to the development of infrastructure to allow the expansion of output in good X. The adjustment process would be further delayed; the time taken looms all the more onerous.

5 Adjustments over Time

The possibilities for the time adjustment path are shown in Figure 4. In this case the smooth transition is represented by the upward step from A^1 to B^1 . But anything less than this means some initial loss of potential economic welfare and possibilities of reduced economic welfare not speedily relieved. The dash line illustrates a position of relatively smooth transition while the cross line illustrates the slow adaptation case where resources are persistently underutilised for a long period. The paths from B^1 to M^1 illustrate the limiting cases of smooth instant transition and chronic inflexibility and immobility; the basis of the diagram in Figure 4 is found in Figure 2. The points A^1 and B^1 are the points of tangency of the price lines with the indifference curves in Figure 2. The point M^1 is derived from Figure 2 in that a price line parallel to P_2 from the point M would meet an indifference curve lower than I_1 in Figure 2. What structural adjustment is about is all those cases other than instantaneous transition - the limiting position of B^1 .

FIGURE 4



However, the basis of the analysis developed so far has strained the scope of the devices used. Attention should turn to problems of adjustment through time when resources, including the work force, are not fully utilised. It is well to recall the assumptions of the preceding analysis setting this aside. It is a necessary recognition for adjustment gains and losses to be expressed in terms of net present value. Hence approaches to a structural adjustment policy, as with other concerns about

structural change, must reflect an analysis based upon appraising the possibilities for different projects and investment opportunities. The discussion comes back to social and private measures of costs and benefits evident in any investment decision.[30] Recent discussions point to the complexity of the factors bearing upon structural change and the devising of appropriate policies.[27] Certainly the recent experiences with this analysis suggest that the gains by careful specification of the factors can be exaggerated.[17, pp.16-19]

There is little basis for establishing the empirical evidence in relation to this section. But the limited information on factor immobility, such as unwillingness of employees to shift location, suggests a significant restraint. Moreover, where households have more than one income earner, there are further restraints on gaining the limits of potential economic welfare. The problem of price inflexibility is central to any appraisal of the methods of setting wages. Hence, the problems of structural adjustment cannot ignore the question of whether or not the wage structure adds to the difficulties of adapting. For example, declining regions would offer few alternative employment possibilities at national wage levels even if the regional opportunity cost of labour dictated a need for a lower wage rate. An alternative measure would be for the offering of wage subsidies in specific areas. Such a measure would have to be treated within fiscal constraints. Investment grants in specified regions do not treat this problem.

But inflexibility and immobility is also a feature of firms' behaviour. The recent study of the "white goods industry" helps to explain the diversity amongst firms as to how adaptation might be achieved.[5] The differences between firms involve the scope for mergers and the capacity to sustain viability during the adjustment period.

6 Sectoral Adaptation

The main points about sectoral adaptation in Australia have arisen with the growth of the mining industry during the past fifteen years and the prospects for further relative gains in contributions to gross domestic product during the coming decade. This is seen as having a number of important repercussions on output and employment possibilities, as well as requiring changes in the allocation of funds between various investment activities. With these features go added complications about increased regional disparities owing to the uneven distribution of mineral resources nationally.

In some respects the sense of the Australian debate has changed. Whereas until the past year the usual arguments were in terms of gains in foreign trade reflected in growing foreign exchange reserves, the present discussions are about trade gains restoring stability in the current account so relieving the Federal Government from heavy foreign borrowings to support existing exchange rates and reserves.

Confusions arise over the gains from productive efficiency and how they might be distributed. This arises with the apparent judgement or faulty analysis linking inextricably production decisions and performance with distributional outcomes. In effect, efficiency themes cannot be divorced from income distribution. Max Corden has, very rightly, drawn attention to the difficulties of treating income distribution in relation to protection and similar arrangements.[27, pp.51-91] But earlier work by P. Diamond and J. Mirrlees, in another context, has shown that for many purposes there can be separability of production and income distribution outcomes.[6, pp.367-373] What their work shows is that productive efficiency is obtainable in a whole variety of situations without incurring problems about income distribution, especially notions dealing with an optimal outcome.

Hence a distributional outcome is susceptible to public intervention *without* necessarily curtailing gains in national efficiency. From this viewpoint, quite clear in analytical terms, it is possible to extract some of the gains in value added to finance adjustment costs. Moreover, in an open economy, the gains in national productivity can be shifted as between foreign and domestic transfers of value added in production. One tax measure, the resources rent tax, has attractions for the Australian situation where extractive industries are seen as central to developments over the next decade. But this tax device is not a simple measure and requires a careful design to ensure that it is not prohibitive of new exploration and development. But misunderstandings of this tax are commonplace. Thus arguments about such a tax device being inappropriate to marginal fields or leases misses the point of the tax measure; if marginal, the project would not attract such a tax!

The main feature of this type of tax is the setting of a rate of return net of company tax which a project may earn before attracting a rent tax. Then the setting of a rate for the rent tax determines the share accruing to government from the "above normal" profits. But the setting of the threshold return before the rent tax is applicable is not straightforward;

for many development projects the situation may require "tailor-made" schemes with all the risks of discriminatory treatment and related abuses. Other problems arise from international ramifications of rent tax arrangements. The tax has the effect of not sharing the risks of loss on a project while taking away a high proportion of gains from a very rewarding project. Where a company has choices of potential projects in different countries, then the existence of a rent tax in one and not in others may mean a re-ordering of the priorities for proceeding because of changes in the relative risk of each project. Another issue is the method of allocating leases for exploration and development as a desirable procedure would be to offer them under specific rent tax arrangements. But the divisions of responsibilities between federal and state authorities in Australia provide almost insurmountable barriers to effective co-operation.

7 Technology

Transmission and application of technology has much to do with the problems of structural adjustment. The problem is not just one of failure to apply recent techniques. Rather it is one associated with the size of the market and the accelerating pace of international transmissions. The extent of foreign ownership may bear upon the scope for originating new products and processes in the economy. Failures to adapt may nonetheless be a reflection of X-inefficiencies.[29]

The implications of a quickening in the pace of transmission needs careful appraisal. Conventional interpretations in Australia have been that domestic economic activity should concentrate on more advanced processes and products while whittling down labour intensive activities based upon established processes. The theme is familiar in the context of the international product cycle and its variants; see the well known contributions by R. Vernon.[32] But what is characteristic of events of possibilities during the past ten or fifteen years is the rapid extension of facilities for transmitting and applying new technology; a feature making for a speeding up of transmission itself. The outcome was hinted at in the most recent Annual Report of the Industries Assistance Commission indicating a capacity for using advanced technologies in some neighbouring developing economies.[18] This should be no surprise because automatic processes with numerical control depend upon a few skilled engineers and technicians, so avoiding "losses" where processes require application in production of skills. Thus the gains from access to cheaper labour in construction and production (as machine minders) appear the more quickly accessible with fully automatic processes.³ These

recent process developments appear to have speeded up the product cycle. Unfortunately a recent test of the product cycle/technology theme is confined to product changes and only hints at the importance of processes.[11]

These changed circumstances bear upon the Australian position in the product cycle/technology transfers situation. Because the economy is at best medium sized, it is not an attractive place for initiating commercial applications in the bulk of manufacturing activities. Market size combined with fragmentation of that market not unrelated to geographical dispersion, restrict gains in efficiency from economies of scale. New developments are mostly applied first in the largest markets. With the change in pace of transmission, new developments are likely to face matching international competition soon after application in Australia.

Market and firm size bear upon capacity to develop and apply advanced technology. *Unit costs* of supporting research and development are high when production scale is less than elsewhere, say in the United States, Europe and Japan. This works against local initiatives. Two distinct difficulties exist: firstly, the relatively high cost of operating major programmes in Australia; and, secondly, the limitations on spreading these costs across relatively low levels of production. There are separable issues arising here; problems associated with scale and fragmentation in a relatively small economy as distinct from measures for stimulating technological adaptation. The first of these is taken up in the next section.

The second formed the basis for examining the possibilities for managing a staged transfer of some Australian manufacturing abroad. This theme was developed in 1972.[16] In this way, unit costs of research and development would have been spread across Australian and foreign production. At the same time Australian firms would have maintained a greater involvement in a range of production, so being able to meet broad market requirements, always a problem for local firms confined to Australian activity. But a parliamentary committee reviewing the proposal saw it as opening a "Pandora's Box" of immense complexity for policy.[26] Other measures to support research and development bear upon the provision of grants to firms or the provision of tax allowances; both have clear fiscal implications. All measures reflect the judgement that private returns from research and development understate the social returns from that expenditure. Yet further measures could be assessed. These come into the broad notion of contracting out research and development undertaken by government departments and agencies. In this way, there would be a greater concentration of activities by firms thus spreading overhead costs of research groups.

8 Investment: Scale and Fragmentation

Central to any discussion of industrial policy, of which structural adjustment is a part, is the investment decision. In the Australian context this is onerous for many activities because of the relatively small size of the national market and its geographical spread. Free entry always confers some measure of instability. A firm established for some years may be reaching full utilisation of capacity, only to have new entrants enter into production; the "infant industry" argument in Australia has been persistently confused by this situation. The infant firm growing to maturity reverts because of new "infant" entrants. The critics of protection arrangements have been quick to suggest that this outcome stems from the closing of domestic markets to much foreign competition. Yet this is too easy an explanation for a complex situation, not accounting for the interconnections of firms and plants at different stages of production. For example, the installation of new refineries attracts firms to use various components of the product stream for the making of intermediate products. A proliferation of refineries carries implications for the expansion in the number of plants making intermediate products.

Some scale illustrations are seen in the chemical industry; these approximate estimates are shown in Table 2. But other industries should provide additional illustrations. This is not to say that all industries exhibit the same characteristics. Some items are much less scale-sensitive in terms of unit costs of production than others; vinyl chloride monomer being one example.

TABLE 2

Chemical Plant Sizes: Annual Capacities (ratios of foreign to local plants)

Products	Australia	Overseas	
		New	Average
Ethylene	1	2.9	1.4
Carbon	1	1.75	n.a.
Vinyl Chloride	1	n.a.	1.7
Styrene	1	6.4	4.3
Polyethylene	1	4.0	2.0

There are two policy choices: there can be restraints on entry so as to ensure capacity utilisation and plant expansion for scale gains rather than new plants, or the protection system can be designed to reduce the level of protection as plants work up to full capacity. But this could only be a longer term policy; shorter term variations in international market conditions might play havoc with the programme. Comparisons might be made between the availability of import supplies and their prices in 1971-73 and the position during the past three years.

The confusions with scale, fragmentation and excess capacity have to be accepted as part of the Australian scene. Firms have to make investment decisions well in advance of possible circumstances at start-up. What is required is that the Industries Assistance Commission should look upon firms' investment decisions and how they were made, when appraising tariff levels. The reason is that the effective protective rate analysis is simply one version, admittedly somewhat restricted, of general project appraisal techniques. A tariff/protection review should be treated in part as a post-investment audit; a comparison between expectations and outcomes is appropriate. Only in this way could the protection arrangements be geared to "infant industry" themes.

This approach might then be linked to the theoretical topics dealt with in earlier sections; for example the issues considered in earlier paragraphs. Private investment decisions have to be seen in the impact on social benefits and costs. But shifts in this direction might call for fiscal changes and measures other than established protection devices.

9 Competition Policy

Arguments about scale and fragmentation advanced earlier have been used to question the appropriateness of trade practices requirements on competition. Suggestions have been for the favouring rather than restraining of mergers. These propositions should be treated with caution, especially in light of the discussion on X-efficiency rather than allocative efficiency mentioned earlier. Restraints of scale leading to one or a few firms must be reconciled with the competition. A major task is to ensure that "protected" firms do not extract monopoly rents by reason of limited domestic or foreign competition; a reflection of conventional analysis.[14] Alternatively a "protected" position may permit the development of X-inefficiencies. This latter possibility was one of the main points raised in the protection argument in earlier sections; this is the case of protection in conjunction with monopoly.[1]

In this circumstance there is no real basis for thinking that the abridging of trade practices provisions has a role in structural adjustment. The analysis suggests something to the contrary. The requirements of structural adjustment direct attention to the preserving of entry possibilities to ensure the maximum flexibility in the use of resources. But what may be of importance is the relative importance attached to various aspects of trade practices; a concern with the minutiae of pricing behaviour seems less important than merger. The reasons are

- (a) investment is critical to any adjustment programme because this determines future output;
- (b) merger debars all further examination of behaviour within the expanded firm and the added market power may limit entry;
- (c) entry limitations should be minimised for any adjustment programme to ensure rapid and extensive expansion into new areas.

Hence merger and collusion to restrain entry are the important aspects of trade practices.

The basis for intervening in potential merger when consolidation appears to be justified would remain a special case. The justification for halting merger reviews would be scale in relation to exports or import competing activities. But this has nothing to do with any questions on non-traded goods and services. Even so, the encouragement of mergers should be treated cautiously; the evidence on successful outcomes is not strong. The United States evidence cannot be drawn upon as horizontal and vertical mergers have long been restrained. Most recent work relates to conglomerate merger which is the least interesting from many viewpoints in the Australian context, especially for structural adjustment.

Yet some of the major issues for competition policy are hardly touched by the workings of the Trade Practices Commission. This is most true of the arrangements bearing upon financial markets. In circumstances where one of the major problems is the provision of funds to support companies shifting the basis of their activities, the effectiveness of the capital market is at stake.[23] Inflexibilities in financial markets reflect the workings of public policy much more than restraints sought by participants. When the various restraints on the allocation are examined, they may be seen to limit the provision of risk capital and flexibility in the management of asset portfolios. The various devices affecting the use of funds, such as the 30/20 rule affecting insurance companies and the 40 per cent rule for savings banks, mean an indirect subsidy and priority for raising

government and semi-government loans. State stamp duties limit the scope for expanding secondary financial markets, while penal duties on financial transactions involving high interest rates are ill-suited to market efficiency at a time of relatively high inflation. Moreover, the supervision and guidance of markets for funds has probably generated X-inefficiencies; for example, the quiet life for investment portfolio management when strength of competition is restrained. Apart from details of changes in procedures, such as the 30/20 rule, the main argument relevant to structural adjustment is *to point the directions to be taken* for ensuring the ready supply of risk funds within Australia.

10 Some Choices

The main thrust of this paper is to show the complexities of arguments bearing upon structural adjustment. Certainly the task could be left to market determination within the confines of existing economic policies. But the quest for specific structural adjustment *policies* shows how something further is needed to forestall at least shorter term disabilities arising from structural change. Yet the effectiveness of public intervention is not clear.[17] The Jackson Committee was very cautious about the speed with which change could be absorbed.[3] Furthermore, the requirements of structural adjustment call for the abandoning of some measures accepted as necessary for existing economic policy.⁴ The complications of policy choice are well beyond the familiar arguments on protection.

Fiscal restraints associated with the level and rate of growth of real government spending, as well as the size of deficits, limit scope for direct involvement of government. Financing of structural adjustment measures depends upon the capacity to generate revenues from sources where gains in efficiency have been recorded; this is the context for implementing a resources rent tax in the Australian setting where gains are associated with the expansion of mining and similar extractive industries. Programmes to be considered for support would include

- (a) regional labour subsidies referred to earlier; but the fiscal problems arising with the mechanics of the procedure may be insurmountable;
- (b) grants to firms to cover the costs of abandoning plant, equipment, and buildings; this amounts to the re-financing of firms' capital when assets are "locked in" and not readily saleable;
- (c) depreciation provisions for buildings as well as plant and equipment;

- (d) payments to firms to cover part or whole of any claims for redundancy, or the provision of financial support to cover re-location costs including housing provisions;
- (e) training costs for the displaced work force;
- (f) the provision of amendments to tax legislation allowing firms to include additions to forward commitments, such as long service leave, in current year tax calculations.

A serious difficulty with some of the proposals is the determining of eligibility. Hence measures having general applicability are the more appealing for effective implementation.

Tariffs and related measures such as quota and licensing arrangements have only limited possibilities for structural adjustment policies. Given the serious doubts about the extent of gains from lowering tariffs, the dominant concerns of this branch of policy should be to minimise uncertainty of future tariff administration. Initially this would suggest the adopting of stable tariff levels for lengthy periods; the role of the temporary assistance procedure might be questioned. But stability runs counter to the attempts to solve questions associated with infant industry claims and fragmentation. Thus there are grounds for investigating the role for a steadily declining tariff in cases of large scale capital intensive industry. Nonetheless, there is need to review the connections between tariffs and expected earnings.

There remain questions about competition and research and development policies. The preserving of access to markets is essential to structural adjustment despite the misgivings about fragmentation and relative size. Less clear is the appropriate means for expanding research and development. Direct subsidies to firms risk the achieving of a genuine increment to activity; projects attractive for support may be the very ones firms would have financed anyway.

The overwhelming impression is the complexity of the problem of determining appropriate measures for structural adjustment. This is hardly surprising, in view of the pervasive features of the problem. One final example may help illustrate the interconnections potentially present for any policy. Quota arrangements exist for certain imports such as textiles, footwear and motor vehicles. These quotas have the potential for giving holders a quasi-rent over the returns enjoyed from domestically produced goods similar in purpose and quality. Arguments can be advanced for auctioning these quotas or, as recently introduced, the imposing of an

additional tariff to skim a proportion of the quasi-rent to national revenues. But a much different approach might be the more appropriate were quotas to be integrated within the framework of structural adjustment policies. Quotas might be allocated to manufacturers so ensuring a cash flow to firms making adjustments and so cushioning adaptation problems. Nonetheless quotas have a role in controlling the speed and scale of adjustment.

Whatever else may be treated as relevant to structural adjustment, the application of national wages policies imposes handicaps on regional and specific industry adaptation.

APPENDIX A

The Behaviour of Production Indices

Estimates shown in Table A1 are taken from the Index of Industrial Production provided by the Australia and New Zealand Bank. The purpose of this table is to illustrate the complexities of assessing what are declining activities appropriate for "structural adjustment". The table contains the major sub-categories in the Index for which seasonally adjusted estimates are available. Each of these is measured as a ratio with the estimate for all groups excluding power. The purpose of this comparison is to see how much the industry group is moving with the overall performance.

Some of these calculations are affected by such measures as import quotas and temporary assistance. But the estimates in Table A1 highlight the difficulty of determining what is a declining industry. Changes in output have been dominated by the overall economic performance. Only in some branches of textiles(3a), transport equipment(2b) and metals(2a) are there indications of something different.

Sources for Table A1

Source for 1974, 1975, 1976 : ANZ Bank business indicators
 issues : 1974 : Feb. 76, No 93
 June 76, No 97
 1975 : Sept.76, No 100
 March76, No 104
 1976 : Sept.77, No 109 (contains both June and December figures)

Source for 1977 : ANZ Quarterly Survey, various issues

Source for the annual figures 1972-3 to 1975-6 : ANZ Quarterly Survey,
 various issues.

TABLE A1: A.N.Z. BANK INDEX OF FACTORY PRODUCTION, RELATIVE SHIFTS
(INDEX: 1963-64 = 100)

Seasonally Corrected

Industry Groups		1972-3		1973-4		1974-5		1975-6		1974		1975		1976		1977	
										June		Dec.		June		Dec.	
1. All Groups, excluding Power	: Actual	153	167	156	158	158	151	142	150	151	142	150	151	154	148	149	
2. Durable Goods	: Ratio to 1	140	153	139	141	141	142	136	141	143	136	141	143	143	136	128	
a. Metals, Machinery & Apparatus	: Actual	.915	.916	.891	.892	.891	.940	.958	.940	.947	.958	.940	.947	.929	.919	.859	
b. Transport Equipment	: Ratio to 1	126	136	129	126	129	133	124	124	129	124	124	129	121	122	116	
c. Building & Construction Materials:	: Actual	.824	.814	.827	.797	.827	.881	.873	.827	.854	.873	.827	.854	.786	.824	.779	
d. Furniture & Household Goods	: Ratio to 1	126	132	180	131	180	131	129	133	132	129	133	132	133	119	111	
3. Non-Durable Goods	: Actual	.824	.790	1.154	.829	1.154	.853	.908	.887	.874	.908	.887	.874	.864	.804	.745	
a. Textiles, Clothing, Footwear	: Ratio to 1	149	170	150	148	150	154	140	142	153	140	142	153	160	158	158	
b. Food, Drink, Tobacco	: Actual	.974	1.018	.962	.937	.962	1.074	.986	.947	1.013	.986	.947	1.013	1.039	1.068	1.060	
c. Chemicals & Allied Industries	: Ratio to 1	185	208	166	186	166	196	177	202	177	177	202	177	187	161	149	
d. Miscellaneous Industries	: Actual	1.209	1.246	1.064	1.177	1.064	1.202	1.246	1.347	1.172	1.246	1.347	1.172	1.214	1.088	1.000	
	: Ratio to 1	158	175	160	162	160	177	152	162	166	152	162	166	170	170	167	
	: Actual	1.033	1.048	1.026	1.025	1.026	1.096	1.070	1.080	1.099	1.070	1.080	1.099	1.104	1.149	1.121	
	: Ratio to 1	134	144	116	132	116	140	116	140	129	116	140	129	130	119	118	
	: Actual	.876	.862	.744	.835	.744	.859	.817	.933	.854	.817	.933	.854	.844	.804	.792	
	: Ratio to 1	142	149	155	151	155	156	154	152	147	154	152	147	157	156	153	
	: Actual	.928	.892	.994	.956	.994	.957	1.085	1.013	.974	1.085	1.013	.974	1.019	1.054	1.027	
	: Ratio to 1	228	269	237	242	237	274	211	244	255	211	244	255	262	271	279	
	: Actual	1.490	1.611	1.519	1.532	1.519	1.681	1.486	1.627	1.669	1.486	1.627	1.669	1.701	1.831	1.872	
	: Ratio to 1	164	188	166	161	166	181	179	159	178	179	159	178	176	179	173	
	: Actual	1.072	1.126	1.064	1.019	1.064	1.110	1.063	1.020	1.179	1.063	1.020	1.179	1.143	1.209	1.161	
	: Ratio to 1																

FOOTNOTES

- 1 The representations in Figure 2 attempt to convey the main theme of relative gains and shifts in resource use. They do not attempt to deal with questions associated with changes in the real terms of trade. Conventional analyses using "offer curves" would serve to illustrate the possibilities of tariffs providing a means for gains in economic welfare; a feature set aside in most Australian discussions by assuming fixed real terms of trade.
- 2 Further complications arise when distinctions are drawn between tradable and non-tradable goods and services. There would be differential impacts depending upon the elasticities of demand and supply and shifts in the relative risks of different activities. Again, the analysis is further complicated once account is taken of intermediate and final products.
- 3 The implications of lower wage costs on construction costs are hardly ever discussed in Australia. In Hong Kong, Singapore, Taiwan and South Korea this means that plant costs are about 80 per cent of those for similar plants in Australia. For this, and other reasons, tax provisions on depreciation of buildings as well as plant and equipment are important to rapid structural adaptation.
- 4 Idiosyncracies abound in policy arrangements. Attitudes reflecting a quest for less protection in manufacturing are often combined with quite restrictive approaches on entry, participation and the development of new techniques and instruments in financial markets. Witness the restrictions on entry of new trading banks.

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