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PROTECTION POLICY: THE CHOICES FACING AUSTRALIA

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ABSTRACT

1. The purpose of this paper is to consider the choices now confronting Australia in relation to protection policy.

2. In order to clarify the theoretical issues, a three-sector diagrammatic technique is developed.

3. The technique is used initially to explain the historical logic of Australian protection as a method of increasing population without a fall in the real wage.

4. Current problems are first examined on the assumption that there will not be a new minerals boom. It is suggested that it would be better to maintain a low exchange rate for the dollar, in order to stimulate the growth of more competitive industries, than to start by cutting tariffs on the products of less competitive industries. Once the more competitive industries have begun to grow, it will be easier to reduce protection for the less competitive.

5. A new minerals boom could cause severe problems for all manufacturing industries, unless steps are taken to hold down the value of the dollar during the period of transition to a less protected economy. A stronger balance-of-payments position should be used to expand output and employment rather than to precipitate rapid de-industrialisation. But an essential condition for success is a firm wages policy.

6. An appendix contains brief notes on the application of the model to the situation in developing countries.
Protection Policy: The Choices Facing Australia

by Harold Lydall

Introduction

Among developed countries in the modern world, Australia has one of the highest levels of protection on imports of manufactures, with effective rates rising in some cases to more than half of value added. The conventional wisdom among Australian economists is that protection is a bad thing and ought generally to be eliminated. The same view is held by influential people in both major parties; and in 1973 the Whitlam government made an across-the-board proportionate reduction in tariff rates of 25 percent. This bold move, together with the accompanying upward valuation of the Australian dollar by about 20 percent and sharp increases in money wages, soon led to a large deficit in the current balance of payments. In 1974 the dollar was brought down again to approximately its original value and from that year onwards quotas were placed on imports of the more vulnerable products.

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starting with clothing and footwear and extending over subsequent years to motor vehicles and whitegoods.

During the past ten years Australia has experienced a boom in mineral exports (especially coal) and rapidly rising imports of manufactures. Since 1973-74 the current account has been heavily and increasingly in deficit, but this has been offset by large capital inflows. Wage and price inflation has continued at unprecedented rates, while unemployment has risen from less than 2 percent in 1973 to 10 percent in 1983.

The Tariff Board, and especially the Industries Assistance Commission since its establishment in 1974, have steadily advocated a reduction of protection for high-cost industries (not only in manufacturing). These recommendations, however, have had little effect in practice, and the present level of protection is about the same as it was in 1974. 1

In 1975 the Jackson Committee recommended that, for the sake of simplicity, tariffs on manufactures should be grouped into "benchmarks". Apparently, these benchmark tariffs would be lower than existing tariffs for some highly protected products, but they would be "long term" tariffs. It was recommended that the move from higher

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1. See Industries Assistance Commission (1980, Table 3.2) and (1982, Table A.1.3.1). The average effective assistance rate for manufacturing fell from 27 percent in 1973-74 (using 1971-72 production weights) to 26 percent in 1977-78 (using 1974-75 production weights), then rose from 29 percent in 1977-78 (using 1977-78 production weights) to 24 percent (with the same weights) in 1980-81.
tariffs to the lower benchmarks should be gradual, and "should be postponed whenever there is significant unemployment" (pp. 175-178). The report of the Crawford Study Group (1979) also favoured gradual reduction in protection of manufactures, but only after establishment of "positive measures" for development and adjustment assistance to industry, and not at all so long as unemployment exceeded 5 percent (pp. 10.32-10.35). Since then, very little has been done to set up the positive measures proposed by the Study Group, unemployment has risen well above 5 percent, and protectionist sentiment has grown in both major political parties. But, with increasing competition in the world manufactures market, especially from South and East Asia, and Australia's growing export potential in minerals and mineral-based products, the issue of protection will continue to occupy the attention of policy-makers.

In this paper I shall consider: (1) the historical role of Australian protection; (2) current options, in the absence of a minerals boom; and (3) the additional difficulties created by the minerals boom. A method of analysis will be developed which throws new light on these problems. The application of the model to developing countries is considered briefly in an appendix.
1. The Historical Role of Australian Protection

In 1900 the population of Australia (of about 3 3/4 million) enjoyed the highest average standard of living in the world. That population, or a slowly increasing number, might have continued to monopolise Australia's great natural resources. But there were two important arguments against such a policy. The first was the defence argument, and the second was the "infant economy" argument. A larger population would strengthen national security; it would also permit both internal and external economies of scale, especially in the production of non-tradeable goods and services.

There was, however, an over-riding constraint on the choice of methods of expanding the population; that the existing real wage should not fall. This ruled out a simple opening of the frontiers to immigration from Asia, which was, in any case, excluded on political grounds. Immigration would have to come from traditional sources, predominantly from the United Kingdom, and it would have to be arranged

2. Maddison (1992, Table C10) estimates that in 1900 Australian GDP per man-hour, measured in 1970 United States dollar prices, was 1.49, followed by 1.29 for the United States. In 1913 Australia was still slightly ahead of the United States on this criterion, and in 1930 ahead of all other countries except the United States. In terms of annual GDP per head of population (also in 1970 US dollars) the Australian figure in 1900 was 1,580, against 1,402 for the United States (see Tables A2, A3, A6 and B2 of ibid.).

3. This is, of course, an ex post rationalisation of the policy, i.e. an historical hypothesis. For the actual history of the tariff see Corden (1963, pp.154-9).
in such a way as to maintain the Australian standard of living. The answer was found in a policy of protection of manufacturing.

The logic of protection for this purpose was grasped intuitively in the Brigden Report (1929) and developed on 3x2x2 neoclassical assumptions by Stolper and Samuelson (1941). An alternative model is illustrated in Figure 1.

Assume that the economy consists of three sectors: primary production (Sector A), tradeable manufactures (Sector B), and non-tradeables (Sector C). All services are included (unrealistically) in Sector C, along with non-traded manufactures and construction. Each sector is assumed to use only primary factor inputs; there is no trade in intermediate inputs between sectors, and imports are used directly to satisfy final demand. All land is used by Sector A but capital and labour are used, in fixed proportions, in all sectors. Labour is homogeneous and receives the market wage. Normal profit per worker is a constant mark-up on the wage. The sum of wages and normal profit per worker is called cost per worker.

Australia is considered a "small economy", whose terms of trade are not affected by changes in Australian conditions or policies. Under given world market conditions, the relative prices of tradeable products (i.e., products of Sectors A and B) are predetermined, and any

4. This fruitful assumption goes back to Swan (1955, 1963), Salter (1959), and Pearce (1961). See also Arndt (1976).
tradeable product can be used as numéraire. Following Ricardo, we shall choose the commodity "corn" for this purpose.

In Figure 1 all outputs and costs are measured in corn. In Sectors A and B the corn value of output per worker is physical output times the world price, in terms of corn, divided by the number of workers employed. Cost per worker, also expressed in corn, is as defined above. In Sector C the value of output is equal to its cost of production, i.e. there are no rents or supernormal profits.

The line AB represents changes in the marginal value product of labour and capital as the number of Sector A workers increases. When cost per worker is OC the number of workers employed will be OE; and the total value of output will be OADE, of which OADE is paid for labour and capital and OAD is rent. In Sector B, actual and potential firms are ranked according to their average value of output per worker, with the highest at the left and the lowest at the right. The profile of these firm productivities is represented by the line FG. When cost per worker is OC, firms in Sector B employ HK workers. Their output has a value of HFJK, of which HLJK is the cost of labour and normal profit. The area LFK represents supernormal profit received by intra-marginal firms, a form of rent of superior entrepreneurial efficiency or technical knowledge. The value of output per worker in

FIGURE 1

FIGURE 2
other firms, at world prices, is less than the cost per worker. In Sector C, where it is assumed that output value is equal to cost, value of output per worker is horizontal and identical with cost per worker. Total output of this sector is determined by aggregate national income, the income elasticity of demand for non-tradeables, and the relative price of non-tradeables. When the value of output in Sector C is MNFO, the number of workers employed in that sector will be MQ.

Aggregate national output and employment are constrained by the balance-of-payments condition that output of tradeables must equal aggregate domestic demand for tradeables (less net foreign transfer receipts and capital inflows). If there is a deficit, in this sense, in the balance of payments, there will need to be a relative shift of resources from the non-tradeable sector to the tradeable sectors. It will be easier to make this shift if there is unemployment than if there is full employment to start with. One method of shifting resources is to increase the profitability of the tradeable sectors, either by reducing nominal wages per worker with an unchanged exchange rate, or by devaluation without an increase in nominal wages. In either case real cost per worker will be reduced in all sectors, and the real price of non-tradeables will fall in relation to the world-determined real price of tradeables. The relative profitability of producing tradeables is increased, but this will to some extent be offset by an increase in the domestic demand for non-tradeables, partly because of the expansion of output in the tradeable sectors and partly because of the fall in the relative price of non-tradeables.
Correction of the foreign deficit may nevertheless be achievable by this method, provided that there is sufficient unemployment to start with. If, however, there is already full employment, the expansion of demand in all sectors will raise nominal wages and hence negate the original fall in the real wage. In that case, adjustment can be achieved only by tightness of the money supply — whether automatic or government-controlled — or by fiscal policy, leading to a fall in domestic demand. The burden of adjustment is likely then to fall especially heavily on the construction component of the non-tradeable sector. But this can be only a temporary arrangement. Sooner or later resources will have to be shifted from the non-tradeable sector as a whole to the tradeable sectors.

Correction of a surplus in the balance of payments is a much easier task. If the exchange rate is raised with unchanged nominal wages, or nominal wages are increased with a constant exchange rate, the real wage will rise, output of the tradeable sectors will fall, and also the demand for non-tradeables. The resulting growth in unemployment can be offset by an expansion of the money supply or by fiscal policy.

The historical objective of increasing the Australian population could easily have been achieved by allowing free immigration. The real wage would have fallen, e.g. from $OC$ to $0C'$ in Figure 1, output and employment in the tradeable sectors would have risen, and output and employment in the non-tradeable sector would have increased accordingly. Total employment would have increased from $(OE + HK + MQ)$ to $(OE' + HK' + MQ')$. If, however, there is a constraint that the real
wage must not fall, an increase in population could be obtained by raising a tariff on manufactures. Figure 2 shows the effect of imposing a "made-to-measure" tariff on goods competing with the products of manufacturing firms in the range JS. This "ideal" tariff is just sufficient to increase sales revenue per worker in these firms to the level of domestic cost per worker, HL. With a perfectly adjusted tariff, no tariff revenue will be collected, but the production cost of the tariff is measured by the area JRS. This cost is borne by all consumers, so that the real wage is, in fact, lower than before. To offset this, the corn wage can be raised above its original level to a point where the real consumption wage is equal to its pre-tariff level. In that case, the full cost of the tariff is borne by the recipients of rents and supernormal profits. The tariff has the effect of increasing output and employment in Sectors B and C, but not in Sector A.

The dynamic effects of a tariff are less favourable than the effects

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6. Max Corden has suggested to me that, if the slopes of AB and FG were the same, any rise in employment in Sector B would be offset by a fall in employment in Sector A. This, I think, is not so. The problem can be examined geometrically by considering what rise in the corn wage would be sufficient to compensate for the higher corn cost of manufactures to workers. Since workers consume only part of domestically produced tradeable manufactures, the increase in total corn wages needs to be sufficient to cover only part of the area JRS, after its further expansion to allow for the higher tariff required to accompany the rise in the corn wage. From inspection of a number of diagrams it appears that only a small rise in the corn wage will normally be necessary. In the limiting case, where workers bought no domestically produced tradeable manufactures, no increase in the corn wage would be necessary.
of a policy of reducing the real wage by immigration. By the latter method rents and profits in Sectors A and B would be considerably increased, thus stimulating further investment in all sectors. The tariff method holds down rents and profits and increases reliance on foreign capital inflow for the finance of investment.
II. Current Options in the Absence of a Minerals Boom

Given that a rapid increase in population is no longer an objective of economic policy, and that there is now increasing international pressure on Australia—especially from Asian countries—to reduce its tariffs on manufactures, we may consider what methods can best be used to achieve this result. Various alternatives are illustrated in Figure 3.

Policy (1) would be to reduce, or eliminate, tariffs on the most highly protected items. If the tariff is strictly made-to-measure, it makes no great difference whether a tariff is appreciably reduced (say by an absolute 5 percent or more) or is eliminated. A five percent cut in sales revenue per unit is normally enough eventually to drive a marginal firm out of existence. Suppose, then, that tariffs protecting the least efficient firms, employing SR workers, are eliminated or appreciably reduced. Unless there is an unforeseen change in productivity in these firms, this quantity of employment in Sector B will now be at risk. In so far as the output of these firms is replaced by imports there will be a negative effect on the foreign balance, total employment will decline, and—if the income-velocity of money is greater than unity and the authorities refuse to allow an increase in the domestic money supply—there will be a shortage of money. One or more of the following changes must then occur: (a) an increase in capital inflow, (b) a fall in the nominal wage, (c) a fall in the value of the dollar, and (d) a (further) fall in real demand.
Change (a) provides a breathing space for adjustment but does nothing to restore the level of employment, and change (d) intensifies the employment problem.

Changes (b) or (c) provide a stimulus to output and employment in Sector A and in the profitable parts of Sector B, which may eventually lead to the re-employment of the resources released by the tariff cuts. But the transition will be painful for the individuals losing jobs or assets in the now unprotected firms, even if they receive partial compensation through policies of "adjustment assistance". Ultimately, however, the economy as a whole, and especially the manufacturing sector, will be more efficient and, when the loss of employment is made good, capable of producing a higher real income per capita. Because tariff cuts impose immediate losses on well-defined groups and confer, at a later date, benefits which are widely dispersed over the whole population, political resistance to tariff cuts is strong and usually successful. Although economists should rightly continue to explain the national advantages of free trade, they should also recognise that the political obstacles to progress towards free trade will not necessarily be overcome by a frontal assault on the tariff structure.
Policy (2) is an attempt to circumvent some of the political objections to policy (1) by the establishment of a uniform tariff. Suppose that this takes the form of a constant ad valorem tariff on all tradeable manufactures, and that this raises the sales value per worker in Sector B to the line WX. It is apparent that the new tariff will lead eventually to the closure of the firms employing VR workers, with similar consequences to those already discussed under policy (1). If, as before, the existing tariff is strictly made-to-measure and if, because of domestic competition, a higher tariff confers no additional benefits on already-protected firms, the effect of the uniform tariff will be no different from the elimination of tariffs on some highly protected products, i.e., it reduces to policy (1). As we shall see below, however, a uniform tariff may be a desirable element in a policy designed to cope with the effects of a minerals boom.

Policy (3) is to depreciate the dollar without immediately reducing the tariff. The depreciation must, of course, be a real depreciation, not offset by a rise in nominal wages. Its effect will then be to reduce real costs per worker and to raise rents in Sector A and profits in Sector B. The effect in Sector B is shown by the horizontal line BU, corresponding to a corn wage of HB. Firms employing BC workers are now more profitable and will be encouraged to expand. The firms employing

7. Corden (1958) was at one time an advocate of this policy, as a second-best. It still plays a part in official thinking, especially in the concept of "equal protection for everyone". For criticism of the uniform tariff see Lloyd (1972).
CD workers are no worse off than before and the cost of protecting them will have fallen to the area CDE (assuming that the "excess" tariff JRDC has no effect on domestic prices).

Clearly, there will be no objection to this policy from recipients of rents in Sector A or of profits in Sector B. But there may be objections from trade unions. Under present conditions of large-scale unemployment, however, it does not seem inconceivable that trade unions, or at least the electorate, could be convinced of the employment advantages of policy (3). Not only will the policy lead to an immediate increase in employment in Sectors A and C, but the dynamic effects of the increase in profitability of intra-marginal firms in Sector B will be favourable to future employment and economic growth. If the policy is allowed to be put into effect, i.e. if real wages are temporarily reduced, and the profitable firms in Sector B begin to expand employment, it will be easy to reduce tariffs on other Sector B products, at first to the area CDE, and eventually to zero. There will be little need for adjustment assistance, in the sense of compensation (which is an administrative quagmire), since resource transfers within Sector B will occur mainly through attraction into more profitable uses, not through loss of income in the less productive enterprises.
III. The Effects of a Minerals Boom

The first effect of a minerals boom, or of any large increase in productivity in the primary sector (or in relative prices of primary products other than corn), is to shift upwards the line AB in Figure 2. This will increase output and employment in Sector A as a whole (although it may reduce output and employment in the non-booming parts of that sector), and it will have a positive effect on the foreign balance. Unless the boom is accompanied by a fall in capital inflow (the tendency is more likely to be the opposite), the exchange rate will rise and so pull up the real wage. If the tariff rates in Sector B are nicely calculated to yield only normal profits to protected firms, a significant rise in the exchange rate will place all protected firms in jeopardy and employment in Sector B may fall precipitately, with a loss of all existing protected jobs and even more. This collapse of output in Sector B might more than offset the rise in output in Sector A, and thus lead to a reversal of the change in the exchange rate. Since output per worker in the firms which are closed in Sector B will be less than output per additional worker in Sector A, the net employment effect of a rise in the real wage in Sectors A and B

8. There is a growing literature on this topic. Key references include Gregory (1976), Snape (1977), Corden (1962) and Corden and Neary (1982).

9. This is a more disturbing interpretation of the "Gregory effect" (Gregory, 1976). A prior establishment of a uniform tariff would help to moderate the scope of the disaster.
will tend to be negative. This may lead to some fall in nominal wages, which will partly offset the reversal of the exchange rate.

It is clear that the situation is very unstable. A rise in the real wage will produce heavy unemployment in Sector B and probably a foreign deficit. This will lead to a fall in the exchange rate, a fall in the real wage, and a recovery of employment in Sector B. Something like this seems to have happened in 1973-74, except that the inflationary movement in nominal wages (and perhaps the 1973 cut in tariffs) more than offset the 1974 fall in the exchange rate, so that employment in Sector B did not recover. In 1981-82 an anticipated minerals boom led to an acceleration of nominal wage increases, which more than offset the slowly declining exchange rate and precipitated a further sharp rise in unemployment in Sectors B and C.

Although the Australian dollar was depreciated by 10 percent in March 1983, it has since recovered its trade-weighted value. Domestic inflation is slightly lower than in recent years, but still above the average level in competitor countries; and continued failure to hold down the value of the dollar will have a depressing effect on domestic production of tradeable manufactures. The situation will be made worse if the expected recovery in world demand leads to a new minerals boom.

10. Other factors which played a part in the 1974 recession were the sharp rise in women's wages (resulting from the equal pay decision) and the growing intensity of export competition from south and east Asia. Both factors had an especially heavy impact on the textile, clothing and footwear industries.
Unless the value of the dollar is held down, and even further depressed to offset any tendency for domestic nominal wage costs to rise faster than in competitor countries, unemployment in Australian manufacturing will continue to rise. This tendency could be checked by further 'temporary' measures of protection, mainly by quotas. But Australia's trading partners, especially in Asia, would be highly critical of a policy of imposing increasing import restrictions at a time of rising mineral exports.

Some people have suggested that the way out of this dilemma is for Australia to become a net capital exporter — to replace the assets taken from the soil by assets held abroad. Although this is theoretically possible, there are a number of practical difficulties, especially the fact that Australian mineral and manufacturing industries are still heavily dependent on foreign technology, and hence on foreign capital. In view of the currently high level of unemployment in Australia, a more satisfactory method of depressing the value of the dollar would be to expand domestic demand and lower domestic rates of interest. It would be essential, however, that this policy be supported by an effective incomes policy to prevent demand expansion flowing mainly into rises in nominal incomes — fundamentally by increases in nominal wages.

Thus the need for a wages policy is even further strengthened by the problems which will be generated by a new minerals boom. This is, of course, a paradox, since it might be expected that a windfall increase in national wealth could easily be spread around to the benefit of
everybody. There will be some scope for raising taxes on mineral resources or mineral exports and using the proceeds to finance social benefits and social services, thereby improving the chances of establishing an effective wages policy. But the principal initial benefit of a minerals boom would be to enable Australia to move more rapidly back to full employment. The major beneficiaries, apart from the shareholders and workers in mineral enterprises and their suppliers, would be the unemployed (and their families). If only this point could be clearly understood there would be less sense of paradox in asking for wage restraint in order to take full advantage of the mineral windfall.

In the long run, a sustained mineral (or other primary product) export boom would inevitably require a shrinkage and readjustment of the tradeable manufacturing sector. But the smooth way to this objective is to make more competitive manufacturing firms more profitable, not to concentrate on making the less competitive less profitable.
IV. Conclusions

With the help of a three-sector diagrammatic technique and a number of simplifying assumptions we have demonstrated:

1. The historical logic of protection as a method of increasing Australia’s population without reducing the real wage.

2. The effects of this policy on income distribution and the rate of growth.

3. The employment costs of cutting tariffs on the products of the least efficient firms, and equally of establishing a uniform tariff.

4. The advantages of depreciation (or keeping a low exchange rate) as a means of encouraging expansion of the more profitable manufacturing firms rather than concentrating on measures (such as tariff cuts and compensation) designed to squeeze out the less profitable.

5. The critical issues in trade and incomes policy which will arise if there is a new minerals boom.

6. A proposed solution: to use the balance-of-payments windfall in order to move the economy back towards full employment.
Appendix: Application of the Model to Developing Countries

Whereas Australia initiated an import-substitution policy as a method of increasing employment in non-primary sectors, starting from a high per capita income, many developing countries in recent years have tried to follow the same policy in quite different circumstances. Starting with an excessively large population - in relation to natural resources - and a very low per capita income, they have attempted to shift labour and capital into manufacturing by giving that sector heavy protection. Unfortunately, however, a large part of the income transferred to the favoured sector has been used to give the workers and investors in that sector privileged incomes. A typical result is illustrated in Figure 4.

Through the influence of government, businessmen and trade unions (often working in concert) wage and profit levels per worker in Sector B are maintained at three or four times their corresponding levels in Sector A. This difference in cost per worker is illustrated by the relative positions of lines CD and KL in Figure 4.

The effects of this policy are: (1) to create a wide gulf between wage incomes in the modern and traditional sectors, and hence also between urban and rural areas; (2) to stimulate rural-urban migration and the consequential growth in urban unemployment and slums; (3) to maintain high-cost protected industries at the expense of the peasants; (4) to hold back the growth of competitive industries, especially those which might be successful in the export market; (5) after an initial
Figure A

[Diagram showing a graph with the x-axis labeled 'Sector A' and the y-axis labeled 'Corn per Worker'. The graph contains two lines labeled 'A' and 'C' with points labeled 'D' and 'B'.]

[Another diagram showing a right triangle labeled 'Sector B' with points labeled 'F', 'J', 'L', 'H', 'M', 'P', 'N', and 'Q'. The triangle is labeled 'Labour'.]
period of import-substitution, to place increasing obstacles in the way of further economic growth; and (6) to make the economy more and more dependent on foreign aid.

If, instead, real cost per worker in manufacturing were maintained at, say, HM (which is sufficiently above OC to compensate for the higher cost of living and working in towns and in manufacturing industry), the internationally competitive part of manufacturing would increase from KJ to MP, profits in these firms would rise, and there would be both the incentive and the resources for them to expand, especially into the export market. Experience has shown that, in the not very long run, such an 'export-oriented' policy raises real incomes for the whole population much faster than the alternative protectionist policy; and that the rate of growth generates its own continuing

11. For a recent discussion of the problem see Krueger (1980).
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