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SOME STRUCTURAL IMPLICATIONS OF A RESOURCES BOOM

by

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Introduction

To discuss the structural effects of a resources boom requires some prior assumptions. The first is that the boom will actually take place. I am making that assumption. The second concerns the genesis of the boom. Will it have come about because the stock of superior profit opportunities in Australia has expanded as the result of new profit prospects in minerals, or will it merely have been the result of a reordering of an essentially fixed total volume of opportunities in favour of mining? Or, to put it slightly differently, has mining development involving capital expenditures of $x billion caused some $y billion dollars of formerly contemplated projects in other areas to become uneconomic? If the answer is yes, and $x = y$, then there will have been no net addition to profit opportunities.

Suppose we were to assume that there has been no net increase in real profit opportunities ($x = y$). Even so, from the community's viewpoint the resources development may still have been desirable because, as a general rule, the pursuit of the projects

*Without implicating him in any errors, I would like to thank my colleague Peter B. Dixon for helpful discussions.

with the highest private yields will usually contribute most to national income (and, in a well managed economy, to national welfare). But the preferred situation will be one in which y (the volume of non-resource projects "crowded out") is zero; or, failing that, in which x is much larger than y (there having been a substantial net increase in opportunities for profitable investment). In this latter case, the resources boom is a factor making for an expansion in GNP and real living standards in addition to any gains to be had by virtue of a superior resource allocation. In this paper I am assuming that the latter situation pertains. The new profit opportunities (I assume) have come about as the results of earlier investments in prospecting and ore body assessments, of rises in the prices of energy, and of luck.

The magnitude of a resources boom is measured, to a good first approximation, by the net impact that it has on export income. The specific assumptions made below are for a mining boom in the 1980's of comparable magnitude to that of the latter half of the 1960's and first few years of the 1970's.

The plan of the rest of this paper is as follows. Sequentially in the next six sections I provide explanations, and evidence in favour of, each of the following assertions:

(i) A mining boom implies more imports.

(ii) A mining boom implies more consumption and/or investment.

(iii) Some 'problem' industries will actually gain from a mining boom.

(iv) A mining boom improves the macroeconomic trade-offs available.

(v) A mining boom makes a review of quota protection urgent.

(vi) A mining boom creates some scope for tariff reform.

In the final section I try to give an overall perspective based on these considerations.

A mining boom implies more imports

There seems to be fairly widespread agreement that mineral exports will increase substantially in the 1980's. A recent paper by the Director of the Bureau of Industry Economics provides an estimate of the magnitude of the extra foreign currency likely to be forthcoming.[1] Relative to a three-year base period centred on 1978, the additional net foreign exchange earnings in the late 1980's are projected to flow at an annual rate equivalent to about 5 per cent of GNP at the time.[2]

Much of the attention focussed on the prospective mining boom by the financial press and other commentators emphasises the adjustment problems involved in digesting so large an increase in exports. The basic argument is simple. If exports are to increase by the amounts projected, then Australia (like the members of OPEC) must use the additional foreign receipts either

(i) to purchase assets overseas, and/or

(ii) to purchase additional imports.[3]

Each option presents its own worries. If the first route were to be followed exclusively, it is not clear how the benefits would be distributed to Australians other than those purchasing the

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1. Brian Johns, "The Effects on Manufacturing Industry", paper read to the Symposium on Resources Development and the Future of Australian Society, Centre for Economic Policy Research, Australian National University, Canberra, 21st and 22nd August 1981.

2. Ibid., p.36.

3. The Secretary of the Treasury has drawn attention to the inevitability of increasing imports in the context of a resources boom -- see J.O. Stone, "Australia in a Competitive World -- Some Options", paper presented to the 21st General Management Conference, Australian Institute of Management, Sydney, November 1979 (mimeo).

foreign assets.[1] Further a reorientation away from our current thought modes would be necessary: the idea of capital inflow to support growth would have had its day. Irrespective of the mental adjustment required, it would only make sense for Australia to start exporting capital if the real rates of return available on foreign assets were higher than those to be had at home. It is not clear that this will be the case in the coming decade. Finally, option (i) is at best a forestalling of option (ii). Foreign investments generate additional foreign exchange. It is unthinkable that all of this income would be ploughed back indefinitely into the acquisition of additional foreign assets. That is to say, ultimately the additional income must be taken out in consumption, and therefore in imports (which from the viewpoint of the economy as a whole, are the only types of consumption purchasable with foreign income).

Not even the strictest adherence to parsimony would allow us to avoid additional imports. For even if all of the additional foreign currency income were to continue to be invested, it would be invested to obtain the best yield. After a sufficiently long period of capital exporting, a shortage of capital would develop at home. This would be signalled by prospective rates of return on domestic investments exceeding the yields available overseas. At this point the foreign income being earned would be switched to domestice investment. But of course, from the viewpoint of the economy as a whole,

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1. A resources tax, and/or other Federal Government revenues generated by mining investment, could, of course, be invested collectively overseas.

the only types of capital goods purchasable with foreign funds are imports. Thus ultimately there is no escape from option (ii): our imports must increase.[1]

Given the long-run inevitability of increasing imports, and the likelihood that, in any event, a considerable portion of the increase in export earnings in the short-run will go to pay for increases in imports, we might as well proceed with the conventional assumption that the mining boom will lead to a rise in imports. This is viewed by most commentators as the crunch facing the country. Jobs are seen (by managements and unions alike) to be threatened in those Australian industries which are particularly vulnerable to import competition.

A mining boom implies more consumption and/or investment

Before attempting to assess the validity of this fear in the case of particular industries, an often overlooked general point should be made: although a mining boom worsens the terms on which Australian industries compete with imports -- the 'Gregory effect[2] -- it also increases income, and therefore the size of the domestic market. Many industries will gain as much (or more) from the increased size of the cake as they lose by virtue of capturing a smaller slice of it.

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1. This is on the assumption that the mining export development actually goes ahead. As recently pointed out by the managing director of CRA, the boom could be aborted by attempts by organized labour to spend the income before it is generated. See the report in the "Age" newspaper, Melbourne, 2nd September 1981, p.21.

2. R.G. Gregory, "Some Implications of Growth in the Mining Sector," Australian Journal of Agricultural Economics, Vol.20, No.2 (August 1976), pp.71-91.

Nevertheless, there are problem industries (no prizes for guessing which ones). These fall into two groups. The first contains industries which, relative to manufacturing as a whole, are labour-intensive. This group would include substantial segments of the textile, clothing and footwear (TCF) industries. The second contains industries where the name of the game is scale economies, and where the small size of the domestic market plus the inward-looking sales strategies of the companies concerned puts the local product at a crippling disadvantage relative to the foreign-made product. Several industries in these two groups are correct in anticipating difficulties during the adjustment period. Some of them, however, have clearly overestimated the potentially unfavourable effects of the mining boom on their prospects. This is because they have underestimated the stimulus to the demand for their products which the increased income levels generated by the mining boom will entail.

Some 'problem' industries will gain from a mining boom

To take an example from some simulations carried out by the IMPACT Project for Sir John Crawford's Study Group on Structural Adjustment, a simulated mining boom (of roughly equal magnitude to the one projected for the 1980's by the Director of the Bureau of Industry Economics) led to a mild increase in profitability in the

following industries.[1]

Some 'Problem' Industries which Gain from A Mining Boom

ABS Input-Output Code	Industry
23.04	Wool & Worsted Yarns, etc.
23.05	Textile Finishing
23.06	Textile Floor Covering
24.01	Knitting Mills
24.02	Clothing

These projected gains in profitability were a direct consequence of the higher rates of demand by governments, consumers, and investors which were possible because of the extra income generated by the mining boom. That is to say, although the industries listed above suffered a decline in their simulated market share, the market as a whole grew sufficiently fast to ensure that some growth was possible for them.

It must be admitted, however, that not all of the industries in the TCF sector could count on improved prospects. In the IMPACT simulations referred to above, the following TCF industries were projected to experience mild to moderate downward pressure on profits as a consequence of the projected mining boom.

1. Source: Peter B. Dixon, Alan A. Powell and Brian R. Parmenter, Structural Adaptation in An Ailing Macroeconomy (Melbourne: Melbourne University Press, 1979), p.49.

Some 'Problem' Industries which Lose from A Mining Boom

ABS Input-Output Code	Industry
23.01	Prepared Fibres
23.02	Man-made Fibres, Yarns, etc.
23.03	Cotton, Silk, Flax, Yarns, etc.
23.07	Textile Products, n.e.c.
24.03	Footwear

In the above cases the increased import competition resulting from the lower relative price of imports occasioned by the simulated mining boom outweighed the favourable effects of the expanding market on demand for the locally made product.[1] The position of these TCF industries was far from exceptional, however. Another nineteen industries in the primary, secondary, and tertiary sectors faced adjustment pressures of similar (i.e., mild to moderate) magnitudes as the five TCF industries listed above.[2]

1. The mechanisms underlying the simulations reported in the text have been somewhat oversimplified. The ORANI model, from which the simulations come, takes into account the cost profiles and sales patterns of industries as revealed in the national input-output accounts. Part of the underlying explanation for the Clothing industry finding itself among the gainers from the mining boom is that this industry's costs are lowered by the downward pressure on the prices of several of its suppliers; in particular, those industries listed in the text as 'losers'.

2. For details, see Dixon, Powell and Parmenter, Structural Adaptation, op. cit., pp. 50-51.

A mining boom improves the macroeconomic trade-offs available

So far we have not considered how a resources boom might impinge upon macroeconomic management. This issue is easier to handle if we first introduce enough theory to allow us to discuss the twin goals of internal and external balance.

We will say that the economy is in 'internal balance' if a stated employment goal is being achieved. On the other hand, the economy will be said to be in a state of 'external balance' if our international payments are equilibrated in the sense that we are neither running down nor building up foreign reserve assets as a proportion of our GNP.

In the report of the IMPACT Project to the Crawford Committee referred to above, my colleagues and I addressed ourselves to the issue of stimulating employment demand without allowing the balance of trade to deteriorate.[1] As with the simulations reported above, our empirical analysis was based on a very detailed model of the Australian economy, ORANI. The essential ideas, however, can be understood with the help of a simple, and famous, diagram invented by Professor T.W. Swan.[2] In Figure 1 I present this

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1. Dixon, Powell and Parmenter, Structural Adaptation, op.cit., Ch.3.

2. T.W. Swan, "Long-Run Problems of the Balance of Payments", in H.W. Arndt and W.M. Corden, The Australian Economy: A Volume of Readings (Melbourne: Cheshire, 1963).

diagram in a slightly modified form.[1]

The origin in Figure 1 would represent the state of the economy during a typical year in the '80s provided

(i) no mining boom took place;

(ii) macroeconomic management stayed at its current setting in the sense that real aggregate demand continued to grow at about the rate recently experienced;

(iii) wages as a cost remained stationary in the sense that real wages grew at the same rate as real labour productivity.[2]

The horizontal axis represents various hypothetical growth rates in real aggregate demand. By the latter we here mean the percentage rates of change in real consumption, real investment, and in real government spending, on the assumption that all three grow at the same rate. Thus "3" on the horizontal axis corresponds to a future economy in which aggregate demand is growing three per cent faster in real terms than the current stance of macroeconomic policy would allow. The vertical axis represents the real wage situation

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1. N.W. Norman ("The IMPACT Macrofix: An Exposition", Australian Economic Papers, Vol. 20, No.36 (June 1981), pp. 183-185) suggests drawing the Swan diagram in terms of once-off percentage deviations from an initial equilibrium. Here the analysis is conducted in terms of deviations of growth rates about those on an initial equilibrium growth path.

2. The technically minded may find it helpful to think of the real wage axis as follows. Let the real marginal product of labour grow r per cent per annum faster than real productivity growth in the rest of the world, and let the rate of growth of real wages be w per cent per annum. Then the vertical axis is (r-w) x 100.

as seen by employers. Hence "5" on this axis represents a real wage cost per hour which, net of adjustments for productivity, is declining at five per cent per annum. The 5 percentage point cut in the growth rate of real wage costs could, for example, be achieved by labour productivity growth at the rate of 5 per cent per annum coupled with no change in the level of the real hourly wage payment; or by a two per cent per annum cut in real hourly wage payments coupled with a three per cent per annum increase in labour productivity.[1] Real wage costs must be reckoned inclusive of holiday pay, overtime loadings, payroll tax, as well as sickness and other staff benefits,

The unbroken line A-A in Figure 1 represents combinations of rates of expansions in aggregate demand and of real wage diminutions which leave our balance of trade position unchanged. The slope of the line A-A is such that for each one per cent increase in the growth rate of aggregate demand, a cut of about two per cent in the rate of growth of net real wage costs is necessary to maintain external balance. The latter cut in real costs would be achieved if, for example, real labour productivity grew at two per cent per annum while real hourly wage payments remained fixed.[2]

The economic mechanism at work is as follows. Increases in aggregate demand are inflationary. In the IMPACT simulations upon which Figure 1 is based, a one per cent increase in real aggregate demand at fixed real wages leads to a 1.7 per cent increase in consumer prices. This implies an equal increase in money wages (recall real wages are fixed) which then gets passed into materials

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1,2 The productivity growth referred to in the text must be over and above productivity growth in the economies of our trading partners.

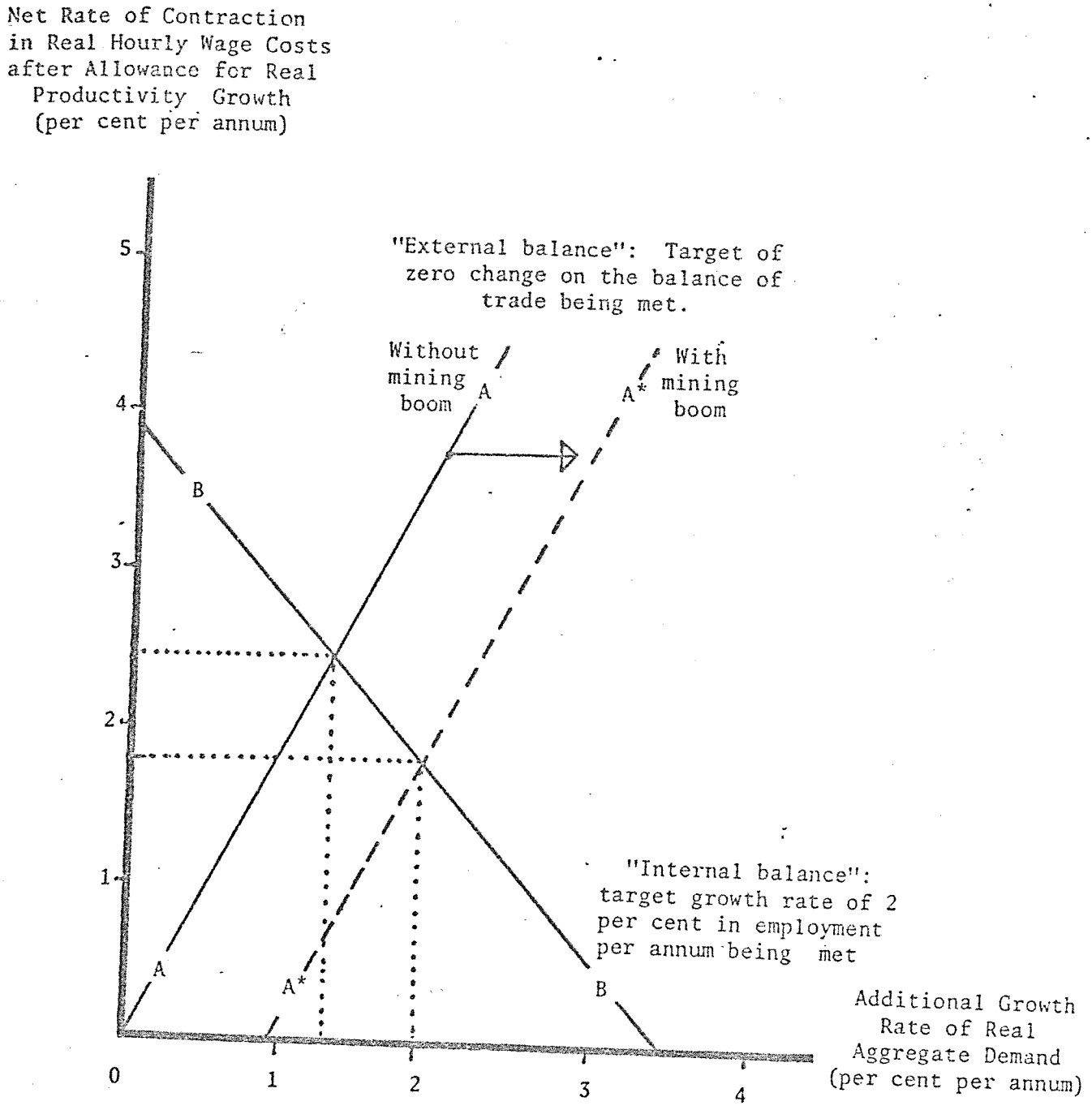

Figure 1 Modified Swan diagram showing improvement in macroeconomic trade-off due to mining boom

and other costs throughout the economy. The export sector is poorly placed to pass these costs on to its overseas customers. A cost/price squeeze on exporters results, so that the foreign currency value of our exports declines by 1.9 per cent. Australian industries facing import competition are similarly squeezed, but the decline in imports is less (1.8 per cent) than the decline in exports. Consequently the increase in aggregate demand leads to a deterioration on the balance of trade. This can be remedied by domestic cost-cutting, and in particular, by a squeeze on real wage costs. Such a squeeze on costs has the effect of making our exporters and import-competing industries more competitive with their overseas counterparts. According to the ORANI model, a one percent cut in real wage costs leads to a rise in the foreign currency value of exports of about 1.4 per cent, and to a decline in imports of about 0.6 per cent. Consequently, the trade balance is improved at any given level of real aggregate demand by cutting real wage costs. According to ORANI, a three per cent increase in real aggregate demand can be achieved without a deterioration on our external account if real wage costs can be cut by about six per cent. Similarly, an increase in real demand of five per cent would require a cut in real wage costs of about ten per cent if our trade balance is to remain unaffected.

The unbroken line B-B in Figure 1 represents combinations of rates of expansions in aggregate demand and of cuts in real wage costs which lead to a two per cent increase in employment demand per year. Because both increases in demand and real wage cuts favour increased employment, this line slopes downwards and to the right.

According to the ORANI model upon which the diagram is based, in any given year a squeeze on real wages of about four per cent would be needed to secure a two per cent increase in employment demand if aggregate real demand is allowed to grow at a rate which is consistent with current macroeconomic policy. On the other hand, a rate of increase of about three and a half per cent in real aggregate demand per annum (relative to the growth rate consistent with an unchanged macroeconomic policy) would be needed to secure a two per cent per annum expansion in employment demand if real wage costs grow at a rate which exactly offsets productivity gains. Other combinations on B-B similarly meet the "+2 per cent" per year employment target. For the rest of this discussion I will assume that the latter target defines our notion of 'internal balance'.

The role of the trade-off lines A-A and B-B can now be better understood. A-A shows positions of the economy consistent with external balance, while B-B shows positions consistent with internal balance. The point where they cross is the unique position where both goals are simultaneously attained. According to the ORANI model they cross at a rate of cut in real wage costs (after allowance for productivity gains) of about 2½ per cent per annum, and a rate of expansion in aggregate demand of about 1¼ per cent per annum.

How does a resources boom affect this story? The mining boom can be thought of as a shift to the right in the external balance trade-off, A-A. The shifted A-A line in Figure 1 is shown as the broken line A^{*} - A^{*}. The amount of shifting has been chosen

so as to be consistent with Dr. John's projection.[1] More specifically, I am assuming that the net additional foreign exchange earned over the decade of the eighties increases by one half of one per cent of GNP each year. That is to say, additional foreign exchange equivalent to one half of one per cent of GNP per year is assumed to come on stream in the current year, and to accelerate in equal increments so that an additional 5 per cent of GNP per year is available in additional foreign exchange at the end of the decade.

There are various ways of looking at the improvement in the macroeconomic climate brought about by the increased export income. The most obvious is to note that, in a typical year in the eighties, internal and external balance can be achieved without squeezing net real wage costs as much as would be required in the absence of the mining boom; fiscal and monetary policy, moreover, can be more relaxed, allowing real aggregate demand to grow at an annual rate of 0.6 per cent per annum faster than if there were no resources boom. The required squeeze on real wage costs also is 0.6 per cent per annum less, given the mining boom.

A mining boom makes a review of quota protection urgent[2]

We have seen above that a mining boom inexorably entails higher volumes of imports. If these imports are to replace, in part, home manufactured goods, then the obvious question is "which ones"?

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1. Brian Johns, "The Effects on Manufacturing Industry", op.cit.

2. In this section I am drawing on W.M. Corden's excellent article, "Exchange Rate Policy and the Resources Boom", Australian National University, Centre for Economic Policy Research, Discussion Paper No.23 (March 1981) (mimeo).

Economic (but apparently, not political) logic would dictate that those industries with lowest comparative advantages -- our "high cost" industries by world standards -- would contract most. Yet it is precisely these industries which maintain well organized and influential lobbies in Canberra, and which have been most successful in obtaining quota protection. When certain import competing industries are protected by quotas, the initial disequilibrium in our balance of payments brought about by a resources boom must be eliminated by higher import levels of products competing with other, non quota protected, import competing industries, or by the curtailment of our traditional exports. The burden of adjustment is not avoided; rather it is just redistributed within the import competing and exporting sectors. To absorb the additional imports in the non quota protected part of the sector, the relative price of imported goods must fall further relative to the home produced goods than would be the case if quotas were not operative. The cost of propping up internationally less efficient industries at the expense of more competitive industries ultimately must be borne by the community as a whole.

If the quotas remain in place, and are not enlarged as the boom proceeds, then the tariff equivalents of these quotas will automatically increase. To quote Corden in full,[1]

> "There can be little argument for actually allowing by default a rise in implicit rates of protection as a result of the resources boom -- unless it is a political argument resting on the greater strength and effectiveness of the interests benefitting from quota protection..."

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1. Ibid.

This automatic escalation in effective levels of protection for quota protected industries implies a squandering of the potential gains to Australia of the resources boom.

A mining boom creates some scope for tariff reform

The celebrated 'Gregory effect', plus the income effects, of the mining boom imply that changes must be made in the composition of the economy. These will involve changes in the relative sizes of industries, in the relative numbers employed in different occupations, and in the regional pattern of economic activity. As a general rule, economies which are experiencing at least moderate rates of growth will cope more easily with pressures for compositional changes. In a growth environment, all industries are to some extent insulated from the more painful effects of structural change in the economy. Industries which might have to be dismantled in a disruptive way in a no growth situation may be able to be phased out relatively painlessly in an overall growth situation since their required rates of contraction in the latter case may be less than the rates at which their physical capital depreciates. Other declining industries may simply have to face up to positive growth rates which are lower than that for the overall economy. Because the mining boom is a factor for growth, it will make the accommodation of all structural pressures easier.

One such structural pressure is that which would arise from a tariff reform. The case for tariff reform is, of course, essentially independent of the existence or otherwise of the mining boom: a better resource allocation will support a higher standard of living

irrespective of the base level of income. But the mining boom is indirectly relevant when it comes to the question of the timing of tariff reform. A substantial number of Australian business and community leaders now pay at least lip service to the idea that tariff reform would be a "good thing". The Crawford Report[1] expresses this sentiment. In tune with the leadership whose opinions it largely reflects, however, the Report recommends that tariff reform be deferred until unemployment levels are lower (specifically, lower than 5 per cent of the workforce).

Although a mining boom will entail some economically (though perhaps not politically) inevitable scaling down of some prominent import competing industries, simulations made with the ORANI model indicate that the import competing sector as a whole would gain. That is to say, although some redistribution of employment among import competing industries would be required, overall employment in the sector could be expected to rise. This is because the income effects of the mining boom are sufficiently large to outweigh the Gregory effect on the sector as a whole.

The additional employment demand created within the import competing sector by the resources boom creates some scope for general tariff reform. That is to say, the overall employment level in the sector as a whole could be kept stationary by the combination of the resources boom and a reduction in tariff levels. This is not to say

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1. Report of the Study Group on Structural Adjustment (Sir John Crawford, Chairman), Vol.1 (Canberra: Australian Government Publishing Service, 1979), p.10.29.

that the additional jobs in the import competing sector induced by the mining boom would be destroyed: the reduction of tariff levels in import competing would redistribute jobs towards the export and non-traded goods sectors. As I have argued elsewhere, there is no reason to believe that general levels of protection have anything to do with aggregate levels of employment.[1]

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1. Alan Powell, "The Case for Trade Liberalization: A Brief Statement", in Centre for Continuing Education, Australian National University, and the Freedom from Hunger Campaign, Canberra, Trade: To Whose Advantage?, Conference Proceedings, February 1980, pp. 99-112.

Overall perspective and concluding remarks

There is no way of taking advantage of export opportunities without ultimately also expanding imports. New export opportunities in the resources area thus imply adjustment elsewhere in the economy. If a flexible response to these structural pressures is forthcoming, then the community as a whole stands to gain through worthwhile increases in GNP. Failure to adjust by any one part of the community will increase the adjustment pressures faced by others.

The mining boom entails some objective improvement in the trade-offs available for macroeconomic management. Unfortunately, it seems likely that expectations have outstripped the modest improvements actually likely to occur. If the Director of the BIE's estimates are anywhere near the mark, then the mining boom of the eighties will be able to support an increase in the growth rate of real aggregate spending between two thirds of one per cent and one per cent per annum. Given adherence to a specific employment target, the mining boom will allow an increase in the growth rate of real expenditure of about two thirds of one per cent per annum and a rate of growth of real hourly wage payments to employees of two thirds of one per cent per annum faster than would be possible without the boom. These figures are very modest in relation to current wage claims which seem, in part, to be motivated by an excessively optimistic assessment of resources developments.

Developments in the minerals sector provide the motivation, scope and the necessity for some changes in our industrial structure.

Those industries which have successfully attracted special terms in the past -- especially textiles, clothing, footwear and motor vehicles -- can avoid adjustment only at rapidly escalating cost to the public and at the expense of higher adjustment pressures in the less sheltered sectors of the economy. Whilst in an obvious sense "now" is never the right time for tariff reform, it is never likely to be any better.