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DISCUSSION PAPERS

HOW DO WE MAKE A RESOURCES POLICY

P.J. Lloyd
Discussion Paper No. 26
May 1981

P.O. Box 4, Canberra 2600, Australia
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* This paper was presented at the Ninth National Conference of the Australian Institute of International Affairs, Melbourne, 27-29 March 1981. I am indebted to Craig Emerson for many helpful comments on an earlier draft, and to officers of The Treasury and the Departments of Immigration and Ethnic Affairs, National Development and Energy, and Trade and Resources for information which they kindly supplied.

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EXTRACTS FROM:

HOW DO WE MAKE A RESOURCES POLICY?

On the minerals sector in general:

1. ...the economic importance of these resources (natural and especially mineral) is frequently overrated.

2. Within the minerals sector itself the skill with which Australians utilise these resources is at least as important as the natural endowments... This is why a natural and human resources policy for minerals is so important.

3. This combination of public ownership of the resources and private ownership of the companies which exploit them creates a situation in which conflict between the governments and private companies is inherent and omnipresent. The central issue in Australian mineral policy is the division of the incomes which accrue in the form of rents earned on the scarce mineral resources between governments on the one hand and the private developers on the other.

On mineral rent:

4. The key element in this discussion is the economist's concept of mineral rent.

5. ...there are four principal alternative instruments which the state may employ to capture rents earned on mineral production - state production, leases, commodity taxes, and taxes on mining rents.

6. The most important proposal for the taxation of rents in Australia is the Resource Rent Tax... The Resource Rent Tax is, in essence... a tax on natural endowments. While it is profit-based, it is misleading to call it a tax on supernormal profits as it is designed to tax the rent component. It is likely to have some non-neutral features.

7. The optimal form of taxing rents is not a tax based purely on profits but a leasing arrangement which has the government share some of the exploration and development risks...

8. The first concern with mineral rents is to ensure that they do not accrue to the foreign buyers of the mineral products when these are sold overseas.

9. The failure of the royalty system to capture much of the mineral rent has made the taxation of company income and foreign investment guidelines more important as instruments of mineral policy.

On infrastructure:

10. If a project is not viable to a private company when the prices of electricity and other services fully recover all costs it should not be undertaken... The nation loses if the project is encouraged to proceed by offering infrastructure services at subsidized prices.

11. If the project is sufficiently profitable so that it would proceed if full cost pricing were used but nevertheless the State provides some services at subsidized rates there is a transfer of income from residents of the state to the project owners. When these owners are residents of other countries there is a clear loss to the nation and State.

/...
Extracts

On processing:

12. It has been observed that Australia is a low-cost supplier to world markets of both raw materials and energy products... This establishes a prima facie case that Australia should have comparative advantage in producing products that use intensively inputs of both raw materials and energy... Yet these observations do not justify a policy of government support for processing. The best means of deciding what commodities we can produce and sell competitively on world markets is to leave the operation of the market place unimpeded.

On skilled labour shortages:

13. The first priority in improving labour markets should be the development of better policies to manage the Australian resources of manpower, including greater relative wage flexibility, more thorough searching of labour markets, and assistance to increase labour mobility and labour training. Immigration should be a last resort when these policies fail, though some immigration may be desirable while these policies are being developed.

On who makes the policy:

14. In every area we see that more than one Commonwealth Department or advisory body gives advice to the Commonwealth Government.

15. ...there is no body which oversees all of these areas and tries to shape a consistent overall policy. This is demonstrated if we consider the major instruments which are actually used to effect the policies...... All of these are decided independently of each other, upon the advice of different groups with different considerations in mind. There is no body which carefully looks at all of the costs and benefits of a major project...

16. The second major problem of policy-making for the mineral resources sector is the co-existence of State and Commonwealth policies.

17. I am forced to conclude that we do not have in Australia a consistent set of mineral policies which are all pursuing the same set of objectives.
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HOW DO WE MAKE A RESOURCE POLICY?

Several Queries Proposed to the Consideration of the Public

...Whether a discovery of the richest gold mine that ever was, in the heart of the kingdom, would be a real advantage to us?

Whether it would not tempt foreigners to prey upon us?

Whether it would not render us a lazy, proud, and dastardly people?

Bishop George Berkeley, 1735

In formulating the programme for this Conference the AAIA asked myself and others to examine aspects of "resource policy". It was understood that this meant natural resources and especially mineral resources. Yet, this tacit understanding allows me to make the basic point that the economic importance of these resources is frequently overrated. For the world as a whole this point was made by Theodore Schultz in his Nobel Lecture (Schultz, 1960) but it applies even in a very resource-rich country such as Australia. In Australia the contribution of the Mining Industries to national income in 1977-78 was approximately 4.3 per cent. If we consider the growth of national income, which is the primary focus of policy, then over the ten years 1966-67 to 1976-77 the Mining industries contributed 6 per cent of the total growth of income to residents of Australia. And these estimates exaggerate the net contribution since if there had been zero minerals production the domestic resources of capital and labour used in its current production would have been used to produce other commodities. Several studies in the US and other countries and Australia (Robertson, 1978) have shown that the principal determinant of growth rates is not the increase in the stocks of capital, labour and natural resources but the increase in the productivity with which these resources are used and especially the growth of human capital; that is, human resources. Within the minerals sector itself the skill with which Australians utilise these resources is at least as important as the natural endowments in my firm opinion. This is why a natural and human resources policy for minerals is so important.
I. A Basic Profile of the Minerals Sector

To identify the main policy problems of the minerals sector, it is useful to note the following characteristics which differentiate these industries from industries in the Manufacturing and Services and Agricultural sectors. Production activities in this sector are:

1. Users of natural endowments of scarce non-renewable mineral products
2. Privately owned whereas the natural resources are publicly owned
3. High risk
4. Capital-intensive and large-scale
5. Foreign-controlled and foreign-owned
6. Export-oriented
7. Pollution-intensive

The first feature is the fundamental characteristic of all mineral production activities which defines the sector and distinguishes it from all other production activities. The non-renewable nature of mineral resources distinguishes them from farming and fisheries and other uses of "land" where the endowed resources are not necessarily used up in the production process. The other characteristics with some exceptions apply to all mineral activities.

In Australia mineral rights are vested in the Crown (but surface rights are owned predominantly by private land-owners, farmers, etc.). This is unlike the situation in some other countries such as the United States where the land-owners own the mineral rights. However, the State and Commonwealth governments which hold these rights have refrained from exploration and mineral production activities. (The exceptions to both state ownership of mineral rights to and private exploration and ownership of production facilities are minor.) This combination of public ownership of the resources and private ownership of the companies which exploit them creates a situation in which conflict between the governments and private companies is inherent and omnipresent. The central issue in Australian mineral policy is the division of the incomes which accrue in the form of rents earned on the scarce mineral resources between the governments on the one hand and the private developers on the other.
This conflict is exacerbated by the other features. The high riskiness of most minerals production derives in the first place from the fact that the quantities of mineral resources are unknown and their discovery by exploration entails large costs with a high probability of failure. There are some significant exceptions to this deposit riskiness such as black coal. The prices of mineral products on world markets are also considerably more variable than that of most other internationally tradeable commodities (for example, see Steele, 1967, p.342 and Coppock, 1977) and the risks are further increased because of the long lead time in bringing most capital-intensive mines into production after discovery and the decision to produce. Capital-intensity is commonly proxied by value added per employee.¹ In 1977-78 the average value added per employee in the Mining Industry was $58,671 compared to $17,657 for the whole Manufacturing Sector.

Another consequence of this high capital-intensity is that a higher proportion of total value added accrues in the form of profits and other non-labour income and, given the large scale of enterprises in this sector, the absolute size of profits earned by many companies is much larger than that of almost any non-mineral companies. Total profits should be related to a company's shareholders' investments. Two surveys have shown that mining companies on the average do not earn higher rates of return than non-mining companies. The FA survey of Australian companies' profitability showed that in 1976-77 mineral companies had a median rate of return on the shareholders funds of 7.4 per cent before tax. This was lower in that year than the rates for all other groups in the Manufacturing, Primary and Service sectors with the exception of that for the group of utilities (Banbrick, 1979, pp. 5-6). Ball and Brown (1980) estimate the average return on all Sydney investments in mining over the period 1958 to 1979 to be 11.9 per cent per year which is similar to the average return on all equity investments. These results do not imply that no mineral companies earn very high profits. The profits of these companies are highly variable from year to year and from company to company. In cases where the rates of return are higher than the national average the mineral companies commonly argue that they are not excessive in relation to the greater riskiness of mineral exploration and production projects. On the other hand economists argue that rents earned from the extraction of resources endowed by nature should accrue in large part at least to the residents of the country on whose behalf the state owns the mineral rights.
In these circumstances foreign investment becomes a matter of concern as it determines the distribution of rents and profit income between Australian and non-Australian residents. The only data on foreign ownership which allows us to make comparisons across sectors is very dated. For 1972-73 the ABS data shows that the Manufacturing industries in Australia were 31.2 per cent foreign-owned whereas the Mining industries were 50.4 per cent foreign-owned. In 1974-5 the Mining industries were 51.6 per cent foreign-owned but it may be less than 50 per cent now (see footnote 8). The ABS has also produced a series of foreign control of different industries. (It is quite deplorable that these basic series had to be discontinued by the ABS in 1978 because of lower staff ceilings.) The last data collected show that for Mining, Mineral exploration and Petroleum exploration in the mid-seventies the percentages of foreign controlled were 59.0, 54.4 and 74.4 respectively (ABS, 1980, p.694) despite past restrictions on foreign investment. Almost all of the major Mining projects in the Department of Industry and Commerce list of projects which are under way in Australia involve substantial foreign ownership and foreign control (Department of Industry and Commerce, 1980).

Foreign ownership and control is closely related to the export-oriented characteristic. Table 1 gives some data for the major mine products. The percentage of production which is exported varies greatly. However, if one excludes the mining of various construction materials, which is a quite different industry producing for local and regional construction needs, it is clear the industry is predominantly export-oriented. By comparison the average exports in Manufacturing production in 1977-78 was a mere 12 per cent (IAC, 1980, p. 66). (The total export content of mines production is higher because one should include the indirect exports of downstream products such as alumina and aluminium and pig iron which are processed from these mine products and exported in this form. One should, of course, also add indirect exports for manufactures.)

The world trade orientation of the mineral industries has a number of significant implications. For those mine products or processed mine products which are not consumed substantially in Australia it means that the economic effects of the industry can be considered in terms of the
income flows. By contrast, in the Petroleum products much of the debate concerns domestic pricing policies which might encourage conservation of petrol and other products for the long-term but reduce consumer welfare currently. Exporting also means that the products are sold in competitive foreign markets where prices cannot be raised if the production is unprofitable, with some exceptions such as alumina.

The last characteristic of pollution-intensity is not characteristic of all mineral production activities, and in some where it is the potential pollution is reduced by pollution controls. There are no indices of pollution-intensity in Australia but no one, I think, will deny that some mining activities such as coal loading and aluminium smelting can yield harmful pollutants if not regulated. Other negative externalities may occur from some mining operations, such as the destruction of habitat with sand mining.

This combination of characteristics of the Minerals Sector contains a large number with an unusually high emotional content to the public at large. Any group of industries which simultaneously involved foreign investment and multinational corporations, large profits and risks, environmental issues, resource depletion, uranium, and Aborigines would be bound to stir up much public controversy. Public controversy has clouded many of the issues and make it imperative to consider carefully the economic aspects of these activities.

In order to reach conclusions I have narrowed the scope. Uranium has been excluded because it involves issues of the disposal of nuclear waste and international proliferation of atomic weapons which are quite distinct. Petroleum products have also been excluded because they involve the problems of depletion and domestic pricing of consumer products to a much greater degree than other major mineral products. (These have also been relatively much studied by economists in Australia; see the recent survey of Cuen and Hillman, 1981). Problems associated with negative externalities and Aborigines have been excluded because these arise in non-mineral activities also. This leaves me with the economic aspects of income flows from minerals production, an interrelated set of questions which include foreign investment, taxation, raw materials processing, electricity pricing and supply of infrastructure. These are central to all mining policies.
### TABLE 1

**A BASIC PROFILE OF THE MINERAL INDUSTRIES, 1978**

<table>
<thead>
<tr>
<th>Mine Product</th>
<th>Value of Production (fm)</th>
<th>Percentage of mine production processed in Australia</th>
<th>Percentage of mine production exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal - black</td>
<td>1,562</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>brown</td>
<td>82</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Iron ore</td>
<td>758</td>
<td>12</td>
<td>90</td>
</tr>
<tr>
<td>Bauxite</td>
<td>n.av.</td>
<td>77</td>
<td>23</td>
</tr>
<tr>
<td>Petroleum - crude oil</td>
<td>474</td>
<td>+100</td>
<td>0</td>
</tr>
<tr>
<td>natural gas</td>
<td>101</td>
<td>n.av.</td>
<td>n.av.</td>
</tr>
<tr>
<td>Construction materials</td>
<td>313</td>
<td>+100</td>
<td>0</td>
</tr>
<tr>
<td>Lead ores and cons</td>
<td>222</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Copper ores and cons</td>
<td>197</td>
<td>81</td>
<td>45</td>
</tr>
<tr>
<td>Tin cons</td>
<td>119</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>Zinc ores and cons</td>
<td>113</td>
<td>68</td>
<td>97</td>
</tr>
<tr>
<td>Gold bullion, etc.</td>
<td>90</td>
<td>+100</td>
<td>n.app.</td>
</tr>
<tr>
<td>Total - all products</td>
<td>4,982</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** These figures have been taken from or calculated from BMR, *Australian Mineral Industry Review, 1978*, Tables 8, 11 and 12.

**Notes:**
- n.av. = not available;
- n.app. = not applicable;
- +0 = close to zero.
II. Mineral Rents - To Whom Should They and to Whom Do They Accrue?

Most of the public debate in Australia about the mineral sector (other than liquid fuels and uranium) concerns income flows: allegations that some companies, especially multinationals, earn excessive profits, and questions of wage relativities, subsidies on electricity and infrastructure services provided by the States. These are all interrelated since, once a project is committed and given that prices on world markets are determined by world-wide conditions of demand and supply, they concern the division of income between the various groups of recipients.

Of the value added in the mining sector only a little over 25 per cent consists of wage and salary income. To this should be added the indirect labour incomes which result from the labour component of the capital equipment used in mineral production. Since a large part of the specialised earth-moving, construction and mining equipment is imported this addition to national income is likely to be small. Because of the predominance of foreign ownership much of the profits go abroad. In fact much mineral production in Australia has the characteristics of a foreign enclave in the domestic economy.

The key element in this discussion is the economist’s concept of mineral rent. Economic rent derives from the first stated characteristic of the minerals industry - that all mineral production activities use as an essential input scarce natural endowments of non-renewable resources. The rent in a mining activity is the income in excess of the minimum which is necessary to attract capital and other factors into employment in this activity.

The rents accrue in the main to four parties in Australia

1. Commonwealth government
2. State governments
3. Australian residents who own equity in mineral companies
4. Foreign residents who own equity in mineral companies.

It is necessary to recognise that the state in Australia comprises both the Commonwealth and State governments, each of whom represents different
groups of resident populations. Similarly, it is necessary to divide the private owners of the mining rights into Australian and non-Australian residents. Actually this list is not exhaustive. Groups in Australia who supply inputs to mineral producers may have monopoly powers which enables them to extract wages and prices above the true minimum supply price. Given the capital-intensity of the production activities this wage effect is relatively minor. Rents may also accrue to non-equity holders of interest in mining operations (see KNE, 1980, Chapter 6). When the mine product or the processed product is sold overseas at a price less than the world market price part of the rent accrues to the foreign buying company. This occurs with transfer pricing or when the negotiated contract price is below the prevailing market price.

To whom should the rents accrue? The first aspect of this important question is the division between the public and private sectors. I shall spare the audience a lecture on the economics of rent and merely state the major principles. This excursion into rent theory yields certain insights which we cannot get otherwise. The most important proposal for the taxation of rents in Australia is the Resource Rent Tax proposed by Garnaut and Clonies Ross (1975, 1979) which was supported by the IAC (1976 a and b) and later adopted as part of its platform by the ALP. The Resource Rent Tax is, in essence, a Henry-George type tax on natural endowments. While it is profit-based it is misleading to call it a tax on supernormal profits as it is designed to tax the rent component. Mineral companies who would have to pay this tax regard it as an anathema. To them it is the nestiest type of tax. It is tailored so that it reduces the average after-tax rate of return and prohibits high rates of return by comparison with the status quo and yet does so in such a way that production remains marginally worthwhile. By its definition this tax cannot be passed on. Here, the analogy with taxes on land rent assists all to appreciate that the intention of this tax is the same as that of proposals to tax unearned capital gains such as the increase in land values on the urban fringes of cities. (These land values are the capitalised value of future annual rentals.) Thus it is the unearned income and not mining profits or mining per se which are the target of the tax. Moreover, we see that some rent can be
appropriated in several other ways - by leases, or by excise taxes, or in some circumstances by export taxes. In this light we see that the Australian proposals for taxation of resource rents are not the product of a government which is particularly revenue greedy. Similar proposals for resource rent taxes have been discussed in many developing (see Palmer, 1980) and enacted in several, including Papua New Guinea. And other countries have proxied the rent taxes by combinations of export levies and sales to domestic users at administered prices below world export parity prices; for example, Canada in 1973 has done the latter in the case of oil. Indeed, many mineral-producing Developing Countries have gone much further. Some have appropriated foreign-owned mines, often without compensation. For example, OPEC really began with the Saudi Arabian demands for sharing with foreign-owned oil companies and progressed to 100 per cent. sharing via appropriation and finally to a world-wide cartel to increase these profits. (I trust no one will construe these facts as advocacy by me of such actions!) The primary issue is how much of these rents should accrue to the state.

The technical economics literature has reached the following general conclusions on resource rent taxation.

(a) There can be no tax based on profits which is neutral in all cases. For example, the Resource Rent Tax of the type proposed by Garnaut and Clunies Ross is likely to have some non-neutral features. Such a tax would have to be mine-specific and it must set interest and discount rates for the purpose of the tax at the levels which are set by the investors for the mine. Given limited information of companies’ behaviour to the taxing authority and political constraints on its ability to discriminate in this way some disincentive effects will result unless the tax rates are low and little tax is collected. Moreover, the treatment of risk in this tax is based on a theory of risk-taking which does not hold generally. Any tax on rent poses similar problems.

(b) The marginal rate of taxation of rents should be less than 100 per cent. This is necessary to avoid a disincentive to produce at least cost, and to avoid reducing the expected profitability to a level which does not compensate for the risks.
(c) The optimal form of taxing rents is not a tax based purely on profits but a leasing arrangement which has the government share some of the exploration and development risks by making some payments conditional on the actual profitability of the lease. The lease payment would consist of two parts, one of which is a lump-sum bid payment made before the lease is granted and the other a payment varying with the present value of the project in a way which depends on the risk aversion of both the government and the lease-holder (see Leland, 1978). Bidding should be open to all comers and bids should be sealed. This system might not be operable if there were only one or a very small number of bidders who could collude.

Now I must say a little about the division of the public receipts between the Commonwealth and State governments who compete for the public share. The legal answer to this question derives from the Australian Constitution. This gives rights to mines located within States to the respective State government. Royalty payments are a condition of the mining leases granted by the States and yield some of the rents to the State governments. However, in the Territories of the Commonwealth, which include the mineral-rich Northern Territory of course, these rights are held by the Commonwealth Government. In the case of off-shore production of petroleum they are also held by the Commonwealth which has agreed to share them with the States generally on a 60:40 basis. Table 2 below shows that 90 per cent of the total royalties received by the state in Australia went to the States and the remaining 10 per cent to the Commonwealth.
But the Constitutional question does not end with royalties.
Under the same Constitution it is the Commonwealth government which has
the responsibility for and powers to control "trade and commerce" matters.
Under these powers the Commonwealth has collected a levy on exports of
coal. And under the Constitution the Commonwealth has power to levy
income taxes and some of the receipts from these taxes are returned
to the States under an agreed tax-sharing formula. Now in the case of
the taxable incomes of mineral companies part of this taxable
income is rent. No one, as far as I am aware, has questioned the right
of the Commonwealth Government to the receipt of this part of the rents
or the manner of its distribution to the different States. This tax
revenue is determined by the Commonwealth's treatment of income as taxable
income and by the company tax rates, the latter in particular being
determined with no regard to mineral rent policy.

The moral answer to the question of rent distribution is equally
unclear to me. The principle of national sovereignty excludes all aliens
from the rights to minerals located within states borders. Within the
borders the vesting of these rights in the Crown denies these rights to
private citizens who happen to own the surface rights. This was based,
I presume (perhaps presumptuously!), on the view that landowners should
not gain from the fortuitous location of minerals. By extension, this
second principle, together with that of national sovereignty, seems almost
to imply that the gains from mineral development should accrue to all
residents of the nation as the location in a State is as fortuitous as
the location in a private property.

The political situation reflects this Constitutional and moral ambivalence.
Currently the State governments are defending their rights to collect royalties
on mining within the States. The Prime Minister has asserted on several
occasions that the development of Australian resources should benefit all
Australians. In his 1968 Australia Day speech he said: "I express tonight
the firmest determination to see that the prosperity flowing from these great
ventures will lift the living standard of every Australian family not just of
those immediately involved." Aside from benefits to the domestic labour and
capital employed, this benefit must accrue in the form of rents. I expect
Mr. Lawson will have discussed these matters at much greater length.
My emphasis has been to show that the concept of rent income extends the matter greatly beyond the question of royalties and the squabbling between the Commonwealth and State governments on this issue is not basically a matter of bloodindedness on the part of Premier Court or Premier Bjelke-Petersen but is inherent in Constitutional and moral ambiguities.

To whom do the rents accrue? Table 2 shows the receipts of taxation from the mineral companies by the Commonwealth government, its receipts from the coal export levy and the receipts of royalties by the Commonwealth and State Governments. These are the major components of rent paid to the governments. Very roughly one may regard Commonwealth tax receipts as a part of rent. (Ideally, for this purpose, one should add to the base of this tax, taxable income, the value of tax concessions to the industry and one should add, because of the double taxation of dividends received by Australian residents, taxes paid on dividend incomes. On the other hand, one should deduct from the tax base that income which is a return to the Commonwealth's own investment in mineral exploration and that which is a return to the resources of capital and risk-taking supplied by the company. One should not include the income taxes paid by employees of mining companies since these are a return to labour, except so far as they contain a monopoly element which captures part of the rent.) The table shows that the receipts of the Commonwealth government from income taxes were considerably larger than its receipts from royalties and also larger than the total royalty payments received by all States combined.

The estimation of the remaining rents accruing to mineral companies is even more troublesome. Company income/tax understates these considerably when company income concessions reduce the base of the tax and also when there is transfer pricing by multinational companies. On the other hand company income overstates rent because it includes a return to capital and risk-taking. Total mining company income, as assessed for company income tax purposes, after tax was $693 million in 1976-77.

The second feature of rent receipts which I wish to consider is the extent to which the royalties paid under present leasing arrangements diverge from the optimal pattern discussed above. In Australia mining leases are granted by the appropriate State upon application. They are not auctioned or tendered. (The recent experiment by Queensland in tendering the lease for the Winchester South coal deposit is the sole exception.) The terms of the leases granted specify the
<table>
<thead>
<tr>
<th></th>
<th>1976-77</th>
<th>1977-78</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To States</td>
<td>186.7</td>
<td>212.2</td>
</tr>
<tr>
<td>To Commonwealth</td>
<td>13.8</td>
<td>23.0</td>
</tr>
<tr>
<td>Total</td>
<td>200.5</td>
<td>235.1</td>
</tr>
<tr>
<td>Income Tax paid by</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining Companies</td>
<td>575.3</td>
<td>n.a.</td>
</tr>
<tr>
<td>Coal Export Duty</td>
<td>121.3</td>
<td>100.2</td>
</tr>
</tbody>
</table>


*Excluding excise duty on oil and natural gas production.*
conditions of the lease including the term and royalty. There are major differences among States in the conditions of a lease (see Lang and Crommelin, 1979, chapter 9, esp. pp. 134-136), and the royalties and other conditions vary within a State from mineral to mineral.

Table 3 gives the statistics of royalties received by States for the latest year readily available. Among the producer States the average rates paid on all mine production in the States varied from 0.7 per cent of the value of mine production in Tasmania to 4.5 per cent in Queensland. These average rates are low by international comparisons. Royalties which are charged in Australia should not be fixed by seeking to charge "as much royalty as other countries" or any such strategy but the joint facts that our royalty rates are low on the average and our costs of producing the major minerals such as coal, iron ore, and bauxite are also low establish as a fact that the state in Australia is recovering a relatively small proportion of mineral rents via royalties.

One needs also to look at the individual mineral commodities in all States. (The rates as at 31 December 1978 are set out in AMS, 1980, Appendix 2.) In detail the pattern is complex. All major minerals are subject to royalties in every State but there are no lump-sum bid payments. The most common practice is for a State to specify a royalty for a mineral which applies to all output in the State. Royalties may be specified as a fixed payment per unit of output (tonne, cubic metre, etc) or as a percentage of the value of production at the mine or, sometimes on a mixed basis. The first are called specific rates and the second are ad valorem rates. Where the royalty rates are specified as ad valorem rates the rates vary widely from mineral to mineral and State to State. These rates ranged from 1 to 10 per cent. As an example of a specific rate, consider the pattern across States for the mineral coal. If it was mined in New South Wales the miner paid a royalty of $1.00 per tonne for either black or brown coal. If it was mined in Victoria he paid a royalty of only six cents per tonne for black coal and four cents for brown coal. If it was mined in Queensland and not consumed in that State, the rate was five per cent of the value of production for open-cut coal and four per cent for underground coal. Furthermore, royalty rates do not allow the mine costs of production as a deduction and they cannot therefore differentiate between mines so as to charge a higher rate for low-cost mines which yield higher rents to the
## TABLE 3

ROYALTY PAYMENTS IN AUSTRALIA, 1977-78

<table>
<thead>
<tr>
<th>State</th>
<th>Royalties Received $ million</th>
<th>Value of Mine Production $ million</th>
<th>Royalties as a percentage of Value of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>49.1</td>
<td>1,267.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Victoria</td>
<td>48.4</td>
<td>91.7</td>
<td>n.a.</td>
</tr>
<tr>
<td>Queensland</td>
<td>53.7</td>
<td>1,202.6</td>
<td>4.5</td>
</tr>
<tr>
<td>South Australia</td>
<td>4.1</td>
<td>165.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Western Australia</td>
<td>54.5</td>
<td>1,721.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Tasmania</td>
<td>2.1</td>
<td>300.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>0.3</td>
<td>204.8</td>
<td>0.1</td>
</tr>
<tr>
<td>Commonwealth</td>
<td>23.0</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>235.2</td>
<td>4,954.8</td>
<td></td>
</tr>
</tbody>
</table>


Note: The value of mine production excludes petroleum and construction materials in the State of Victoria.
producer. However, in some cases the royalty rates for a mineral mined in a State are agreed between the State government and the individual lease-holder and therefore vary from lease agreement to lease agreement. Two major areas of the last practice are the iron ore development agreements in West Australia and the coal development agreements in Queensland. Some of these agreements do differentiate partially according to the cost of the mine. Overall the methods of granting leases entail several departures from the rent-capturing system which would involve systematic differentiation by mine-specific agreements for all leases and equal treatment across States in terms of each mineral and lump-sum payments.

Two other features of royalty agreements are relevant to these issues. Most specific royalty rates are adjusted only irregularly during the life of the lease which may be 10 or more years. With an upward long-term trend in mineral prices this means that these royalty rates decline with time. Second, Queensland and Tasmania also differentiate between mine output which is consumed or used in the State and that which is exported; that is, exported to other States or the Rest of the World; In the case of Queensland, coal, for example which was to be consumed in that State paid a royalty of only five cents a tonne and bauxite consumed in that State paid a royalty only half that of bauxite not consumed in the State. In the case of Tasmania, there was a blanket provision which reduced the royalty of any mineral output used for the recovery of a metal in that State to 8/10 of the royalty otherwise. This feature provides an incentive to process minerals in the State.

The failure of the royalty system to capture much of the mineral rent has made the taxation of company income and foreign investment guidelines more important as instruments of mineral policy.

III. Capturing the Rents and Foreign Investment Policy

The distribution of rents among Australian groups raises important issues of equity but the division between residents of Australia and of other countries is more basic. Rents received by residents of other countries cannot increase the incomes of any Australians. The debate about foreign investment in the mineral industry is mainly an aspect of rent appropriation and that is how I shall regard it.
The first concern with mineral rents is to ensure that they do not accrue to the foreign buyers of the mineral products when these are sold overseas. For this purpose the former Labor Government extended the export controls to all minerals. In October 1978, a time when the Japanese steel mills were seeking reductions in prices and the removal of price escalation clauses in the coal sales contracts, the Minister for Trade and Resources, Mr Anthony, announced in Parliament that private mineral negotiations would henceforth have to be conducted within certain parameters set by the Government. This was intended to secure acceptable prices when the different companies were engaging in price cutting in order to secure contracts for the limited tonnage of coal and iron ore. After strong criticism by the West Australian and Queensland Premiers the government has retreated from this position. There is a genuine economic concern here when the sales are in effect made to a sole buyer, the coordinated purchases of the Japanese steel mills. (Note too the Japanese MITI frequently “co-ordinates” the sales of Japanese exporters when there is a threat of their undercutting one another.) The practical difficulties are to know when to intervene and the right intervention price.

A similar loss of rent may occur through transfer pricing. This involves the sale of outputs or (purchase of inputs) by a foreign-owned company in Australia to or from an associated company overseas at a below-market price in order to avoid company income tax in Australia. There is concern over this problem in the aluminium smelting industry (FIMB, 1980, p.18). One response is to audit all non-arms-length transactions but in a controversial decision in August 1980 the High Court disallowed an action by the Commissioner of Taxation to adjust the taxable income of the Commonwealth Aluminium Corporation, a wholly-owned subsidiary of Comalco, because of transfer pricing. The Commonwealth Government is currently examining Sections 136 and 360 of the Income Tax Assessment Act in an attempt to close this loophole. However, tax adjustments cannot recover that part of the rent which would have accrued to domestic equity holders after tax if there were no transfer pricing.

Assuming the rents accrue to producers in Australia, there are four principal alternative instruments which the state may employ to capture the rents earned on mineral production - state production, leases, commodity taxes, and taxes on mining rents. Of these the most direct method is for the state itself to undertake the exploration and mineral production activities
by means of state corporations or enterprises. In Australia, outside the Territories and the continental shelf, this means the State Governments. With relatively minor exceptions the Australian States have not followed this course, probably because of the enormous capital outlays and specialised expertise required. Similarly, we have seen that the States have not adopted competitive bidding for mineral leases. There is no obstacle to the Commonwealth instituting differentiated excise taxes on mineral products and indeed it has done this with petroleum but the coal export levy was reduced in the 1976 and 1977 Budgets and the present Coalition government has promised not to increase this commodity tax. It also promised, during the run up to the 1980 elections, not to introduce a Resource Rent Tax. For the Commonwealth government this leaves two remaining proxy instruments, company taxation and foreign investment controls. Company taxes can at best collect less than 50 per cent of the rents accruing to foreign equity-holders, given the company tax rate of 46 per cent. Thus, by default, we come to foreign investment controls as a second-best proxy for the state to capture that part of the rents which would otherwise accrue to foreigners.7

The Foreign Investment Review Board (FIRB) was established in April 1976. Its main activity is to examine proposals for new businesses or company acquisitions which entail foreign investments and to recommend to the Treasurer whether they be approved. Proposals on all areas of the economy come within the purview of the FIRB. The basic concern is the "national interest". There are special guidelines applying to Mining (other than Uranium), Agriculture, Pastoral, Fishing and Forestry and to Uranium and to Mineral Exploration (See Treasury, 1981). For the Mining sector a proposal for a new business or project involving a total investment of $5 million or more will, as a general rule, be allowed to proceed only if it has a minimum 50 per cent Australian equity together with at least 50 per cent of the voting strength on the board or controlling body held by Australian interests. There is a set-out provision under which a project may be allowed to proceed with less than 50 per cent domestic equity "if the Government judges that the unavailability of sufficient Australian equity capital on reasonable terms and conditions would unduly delay the development of Australia's natural resources." In 1978 a provision was also made for the "naturalisation" of foreign companies
which means that a company currently having an Australian equity of more than 25 per cent and less than 50 per cent but intending to reach 51 per cent may, for the purpose of the guideline, be given prior credit for the 51 per cent Australian ownership. While these two provisions would permit the government to relax its 50 per cent Australian equity it appears that, at least in 1980, the government has adhered to this target generally. In the Mineral Exploration sector it is not mandatory for foreign interests to seek Australian participation but this is encouraged.

The Treasurer acting on the advice of the FIRB does consider a number of criteria of national benefits, including the expected effects of the project on competition and efficiency, the introduction of new technology and access to new export markets. However, no assessments of these benefits is made by means of cost-benefit analyses and it appears that the supposed benefits are not monitored carefully if at all. In practice the effect of foreign investment guidelines so far as the Mining sector (other than Uranium which raises other issues) is concerned, has been to increase Australian equity in the production of all minerals without deterring any major projects. The main device used by the Treasurer has been to attach equity conditions to approval of mining projects. In some cases a timetable of Australian equity targets has been set and in others the targets have been linked to some event such as the start of mine production. While there are no comprehensive figures of foreign ownership which are comparable with the ABS series of foreign ownership in 1974-75, the effect of these conditional approvals appears to have been to increase the Australian ownership of mining projects overall to more than 50 per cent. Not all of this increase is attributable to the foreign investment guidelines policy.

In 1980 in particular there was a marked increase in the supply of investible funds from Australian institutions such as the life assurance companies available for investment in mineral projects, especially as joint venture partners. This in turn probably reflects the greater attractiveness of mineral projects as world prices for energy materials remain high. Nevertheless, some of the FIRB/Treasurer decisions on equity have rankled the State governments. For example, the Commonwealth Government’s insistence that the partners in the Oaky Creek coal project lift the Australian equity to 50 per cent provoked the Queensland Premier to declare that “They [the FIRB and Treasurer] should keep their sticky fingers out of Queensland’s affairs”.
These foreign investment guidelines exhibit the basic deficiencies of all second-best policies. As a surrogate for other more direct policies of capturing rent it is imperfect. It reduces but does not eliminate the rent accruing to foreign owners of mining operation. It introduces a risk that viable projects may not proceed if there is insufficient matching equity from Australian sources, though to date this had not been a major problem. More importantly perhaps, it primarily redirects the rents from foreign to domestic equity-holders with a fixed part returning to the state via the taxation of taxable company and personal incomes. The preferable policy would be to relax the guidelines, leaving a reserve surveillance power with government, and to substitute a leasing policy which returned the bulk of the rents to the state. The bugbear is, again, that the optimal policy requires a uniform practice among the States. The experience with other companies legislation indicates that this would be exceedingly difficult to obtain from States-rights conscious States.

IV. Infrastructure

Mining projects are infrastructure-intensive as well as being capital intensive in the ordinary sense. In fact, a survey of mining projects during the period of the Sixties by the Australian Mining Industry Council showed that, for this sample, the cost of infrastructure was almost double the total capital cost of the mine developments (see Brambrick, 1979, p.149). Most infrastructure services are provided by State Government authorities. However, the method of providing these services has varied greatly from State to State and within States - for example, West Australian iron ore mining companies have constructed and operated their own private railway lines, while in Queensland coal mining companies have provided the finance for some State railway lines and in New South Wales and Victoria the State railways have financed and provided rail freight services themselves. In the earlier resources boom of the Sixties the private companies provided most of the infrastructure themselves but since the mid-Seventies the States have begun large infrastructure programmes. As a consequence, in June 1978 the Loans Council adopted new guidelines for the consideration by it of proposals from the State governments for "special additions" to the State authorities' ordinary borrowing programmes. This programme covers borrowings for services provided by Government or public utilities which have "special significance for development", cannot be reasonably accommodated within
resources normally available, and require outlays within a relatively short-time. Loans totalling $479 and $694 million were approved in 1979-80 and 1980-81 respectively. More than one half of this is for electricity generation and most of the loans have been raised overseas (AGPS, 1980, pp.33-56).

The provision of infrastructure to service mining projects raises two key economic problems for the State governments - who should finance the enormous outlays and what prices should be paid for the services they provide? One needs to distinguish between "social" infrastructure such as school and hospitals and what might be called "production" infrastructure. The latter provide transport, electricity, port and other facilities, which are used by mining companies as inputs in the mining production activities. The former are provided direct to households and have traditionally been regarded as the full responsibility of State governments, even when the location of a mining project has entailed the construction in remote locations of more school rooms and hospital beds, etc than would have been necessary otherwise.

With regard to production infrastructure, the fundamental principle which economists insist upon is the user-payer principle. This means that the user should pay the full economic cost of providing any services it consumes. If this principle is followed the method of finance is unimportant as the costs are all borne ultimately by the user. For example, suppose an infrastructural service such as a power plant or railway spur line is provided to a mine for its exclusive use during the life of the mine. Then the whole cost should be regarded as an integral part of the mining project and borne fully by it. It is then immaterial whether the private mining company builds and operates it itself or whether the State government builds it and charges the company for the services so that it completely recovers all capital and operating costs. Suppose, instead, the service provided to a mine is also used by other users, either during the life of the mine or after the mine has closed. In such cases it is logical for the State to provide these services and to price them so that all operating and capital costs are recovered from all users in proportion to the services used.
Given that six State governments and the Commonwealth government and numerous semi-autonomous state authorities are involved in the provision of these services, it is highly likely that there have been many departures from the user-payer principle. When the price of iron ores and other minerals fell in the mid-seventies the companies argued increasingly that these services must be provided by the State governments at "reasonable" prices if the projects were to be viable. Aluminium smelting companies in particular have tried to bolster this argument by indicating that the price of electricity provided to smelters in some other countries is lower than that currently offered by the State in which the project is or may be located.

State government have been susceptible to this argument because of their immediate preoccupation with problems of unemployment and development. The economist's judgement of these arguments is quite definite. International comparisons showing that the price of some particular input services is lower or higher than a price here are irrelevant to the policies which the State should follow. The State should consider only the cost of these services here. If a project is not viable to a private company when the prices of electricity and other services fully recover all costs it should not be undertaken since the value of the resources it uses cannot be recovered from the sale of its output. The nation loses if the project is encouraged to proceed by offering infrastructure services at subsidised prices. Input subsidies impose other costs too. If the project is sufficiently profitable so that it would proceed if full cost pricing were used but nevertheless the State provides some services at subsidised prices there is a transfer of income from residents of the State to the project owners. When these owners are residents of other countries there is a clear loss to the nation and State.

The extent of the subsidies provided to mining or mineral processing companies via subsidised input is extremely difficult to gauge. They are a State responsibility. The only Commonwealth involvement is as a member of the Loans Council. Under the 1978 guidelines each proposal is supposed to be subject to careful examination but approval is made by a simple majority of the State and Commonwealth members.
In 1980 controversy flared over the pricing of electricity to aluminium smelters. These are very electricity-intensive, more so than other metal smelting and refining processes (Australian Trade Development Council, 1980, p. 163). With the exception of Victoria the State electricity supply authorities do not reveal prices which they negotiate directly with large users and, in addition, it is especially difficult to estimate costs in this industry as the cost of supplying a kilowatt hour unit of electricity varies among users depending on the distance transmitted, voltage, load distribution and other factors. Two economists have made estimates of the subsidy element of current electricity agreements. As part of his submission to the Senate Standing Committee on Natural Resources in February 1981, Dick estimated that subsidies on electricity alone to the three smelters in the Hunter Valley (Alcan, Alumax and Pechiney) when they are operating at full capacity after 1985 will be at least $60 million per year (at 1981 prices). Swan (1981) estimated that the subsidy on electricity to be supplied by the Victorian SEC to Alcan's aluminium smelter at Portland arising from the use of too low a rate of return on capital will be somewhere between $23 and $35 million per year (at 1980 prices) at Stage 1 of the project and $47-94 million at Stage 4. His estimate of the annual cross subsidy from other electricity buyers is as high as $53 million at Stage 4.

How is it that State governments have negotiated agreements with large aluminium companies which have resulted in householders and other users of electricity in the same State paying higher prices and in lost revenues to the State? Part of the explanation is that they have sometimes underestimated costs. After the initial NSW offers of electricity to Alumax and Pechiney in the Hunter Valley, the NSW government had later in 1980 to ask the companies to agree to a $25 million increase in charges due to unanticipated rises in interest rates and wages. Part of the subsidies are due to costing procedures which do not charge the opportunity cost of capital and coal. The cost of capital is the more important of these two because of the high capital intensity of electricity generation. The Commission's costing procedures have charged much of the capital costs to other electricity consumers rather than to the smelting companies whose demands have necessitated the expansion of generating capacity. Moreover, these capital costs have been annualised at a nominal interest rate which is well below the rates at which the Commissions borrow, say, 13 per cent, and far below the opportunity cost of capital. Coal supplied by the mines has been charged at the average cost of mining instead of at the export parity price which is the true measure of its value to the State.
The main factor which ultimately explains these concessions to large aluminium smelting companies is competition in the industry. Aluminium smelting is a locationally mobile activity which is attracted to the location where the costs of production are lowest. New South Wales, Victoria, Queensland and West Australia have all been bidding for smelter projects, in some cases against each other, via the setting of charges for State electricity.

Except for electricity the question of the appropriate pricing of infrastructure services such as road transport and port development has received little attention. Large subsidies might be involved in some of these services.

On the other hand the Queensland government is now charging a price for rail freight in excess of the costs of production as a form of supplementary tax on resource rents. According to estimates made by one of the companies most affected, Utah, the tax element implicit in the rail freight charges is paid in the year ended December, 1981 was $53.9 million (Australian Financial Review, 1981). By way of comparison this was greater than the $42.3 million paid by the same company to the Commonwealth government in the form of the coal export levy. While such charges do increase the rent accruing to the State government they apply only to the users of that service within the one State and are a poor substitute for a consistent policy of capturing rents on all mineral projects throughout Australia.

V. Raw Materials Processing

A related aspect of mineral production which has recently been gaining more attention is that of the processing of the raw materials produced by mines. Less than 25 per cent of Australia's mines output of major minerals is processed locally. (MNR, 1980). Black coal and iron ore, our two largest exports of mine products in terms of value of output, and some other mineral products such as iron sands are essentially exported in the form of the product which is dug up from the mine. Moreover, the degree of processing of that part of the mine output which is processed is in many cases rudimentary. Processing of mines products goes through many
stages before it is incorporated into the final product consumed or used for capital formation; for example, the iron ore is converted into pig iron which in turn is converted into iron sheets or steel which are converted into angles and bars, etc which in turn are used by the construction or automobile industries. Most of the discussion in Australia has concentrated on the first-stage refining and smelting of the mineral ores but the more general issue is that of the optimal degree of processing within Australia.

"It is Commonwealth Government policy to encourage processing of basic raw materials in Australia to the extent that it is economically feasible and consistent with sound industrial development." (Department of National Development and Energy, 1980, p.1). To this end the Government has taken a number of initiatives in relation to raw materials processing. The major initiative, in conjunction with the States, was the establishment of the Commonwealth-State Joint Study Group on Raw Materials Processing (CSJSG). (This Study Group is concerned with agricultural raw materials such as wool as well as mines products.) Other initiatives were the establishment of further bilateral study groups, the Australia-Japan and Australia-Korea Joint Study Groups on raw materials processing, and the profiles of selected commodities and industries which sought to identify sectors or projects where further processing opportunities exist.

Should the State and Commonwealth governments encourage increased processing? Processing of raw materials is by itself no economic virtue. What matters is the effect of processing on the aggregate real national income and its distribution. It has been observed that Australia is a low-cost supplier to world markets of both raw materials and energy products such as brown and black coal and natural gas. This establishes a prima facie case that Australia should have a comparative advantage in producing products that use intensively inputs of both raw materials and energy. This is borne out by the statistics of exports as a percentage of turnover which show that, within the Manufacturing Sector as usually defined, the group "Basic Metal Products" (basic iron and steel and non-ferrous products) in 1977-78 exported 33 per cent of its output compared with the average of only 12 per cent for the whole sector (IAC, 1980b, p.115). The production of goods in which the nation has a comparative advantage increases the real
national income. Yet, these observations do not justify a policy of
government support for processing. The best means of deciding what
commodities we can produce and sell competitively on world markets is
to leave the operation of the marketplace unimpeded.

The justification for any government assistance must lie in some
market failure, perhaps an impediment to realising the potential for
processing (at whatever stage) at competitive prices. To date the
activities of the CENSG and bilateral Study Groups have been mainly
confined to gathering and exchanging between State and Commonwealth and
foreign governments information concerning individual projects and
industries and aspects such as the availability of electricity. They
are also investigating the complex administration of these processing
production activities by State and Commonwealth Governments. This
complexity is a disincentive to invest, in addition to the costs of
compliance with the conditions laid down by the regulating agencies of
these governments. These efforts to improve information and decision-
making procedures are desirable.

The Commonwealth government assists the mineral processing industry
first by means of tariffs and protection from imports. This assistance
should be compared to assistance to producers in all industries. The IAC
estimates show that indeed all mineral processing industries other than
the more highly processed "Fabricated Metal Products" group received less
than the average assistance from the Commonwealth Government (IAC, 1980a,
Table 1.1.1). The latter compete with mineral processors for scarce
skilled labour and raise the costs of production of processing. In some
instances these costs of protection are a substantial impediment. Such
inter-industry discrimination can be reduced by either raising the rates
of assistance for mineral processing industries towards those of the more
highly assisted industries or by lowering the rates of assistance of the
latter group. The Study Group has opted for the former choice. This is
a form of "tariff compensation" for mineral processors. Most economists
would opt for the latter as the alternative which is more likely to reduce
the costs of discriminatory industry assistance (see, Lloyd, 1975 and
Warr, 1979).
The Commonwealth government also assists the mineral processing industries and other industries by means of industry-specific company income tax concessions. It has been suggested that these tax concessions to the mineral industries are relatively more generous than those to other manufacturing industries (National Times, 1981b). The Australian Trade Development Council (1980, p.3) concluded that "Australia's tax regime on processing appears to be pitched relatively favourably compared with most of the developed countries examined. However, the regime is significantly more strict than the tax regimes of South Africa and Canada, two of Australia's major competitors in attracting processing investment". They were sympathetic to further tax concessions. Again one must note that such international comparisons are irrelevant. Australia must decide which tax policies are best in the light of circumstances here.

For the State governments the policy choices are more complex. All States pursue policies of assistance to various industries in order to promote the industrial development of the State or decentralisation within the State boundaries. The incentives are provided through many different instruments, including loans at concessional rates and loan guarantees for capital expenditures, assistance with housing of company personnel, development of industrial land and/or buildings, payroll tax rebates, government purchasing preferences and freight concessions. These are provided to both mineral processing and to other developments. Of particular importance to mineral processors are the costs of infrastructure. We noted above that aluminium smelting has been a major beneficiary of State electricity subsidies. We noted too that in Queensland bauxite (and some other minerals) used in the State pay a lower royalty. This proliferation of State instruments no doubt creates many distortions of production activities. It discriminates among producers of the same commodity in different States; it competes away some of the benefits which should accrue to Australians rather than to foreign owners in those industries where the potential production can be located in more than one State; it distorts the location within States and raises unnecessarily the costs of production.
I shall illustrate the desirable way of choosing the instrument of assistance with one example. States have assisted particular mineral processing projects in particular locations on the grounds of decentralisation; for example, the Alcoa aluminium smelter at Portland in Victoria. Assuming that decentralisation is a worthy objective (and many would question the value of this), assistance to mineral processing projects is an inefficient instrument for this purpose. If the relocation of activities and production in non-urban areas is desirable it is desirable for all activities and the incentives should apply equally and to all economic activities which might relocate. If, on the other hand, the assistance to mineral developers is desirable (and I have questioned this), then it is desirable for all mineral processors, irrespective of whether they locate in urban or non-urban areas.

There is a very grave danger at this early stage of mineral processing in Australia that the false objective of mineral processing will be used to develop a complex and highly discriminatory quiltwork of industry assistance for the mineral industry similar to that which developed for the Manufacturing and Agricultural sectors at early stages of their development and that it will impose the same types of economic costs on the Australian economy.

VI. Skilled Labour Shortages and Immigration Policy

The growing shortage of skilled labour in the mineral sector is one of the well-recognised features of the current "resources boom". One of the ways in which such a shortage might be remedied is by the importation of suitably qualified labour. The Department of Immigration and Ethnic Affairs has actively promoted immigration of skilled workers as an important short and medium term means of complementing training and retraining arrangements in Australia as a means of meeting skilled worker requirements over the long term. In an interview earlier this year the Acting Deputy Secretary of this Department outlined the Department's current policy and stated that "If we know there is a shortage of the sought-after skill, we'll immediately go ahead and recruit overseas" (National Times, 1981).

Immigrants, skilled and otherwise, enter Australia under different categories. The main category for skilled migrants is the General Eligibility category who are screened at present by the Numerical Migrant
Assessment System (NUMAS). This includes applicants who apply individually and those who are nominated under the employment nomination scheme. The Department gives skilled workers top priority and has a list of more than 100 approved occupations. Some skilled workers are also admitted under the Family Reunion and Refugee categories. A major component of skilled immigrants enter from New Zealand under the Special Eligibility category but these have unrestricted right of entry and are not screened by the Department. It is rumoured that the Department plans to step up considerably the immigration of skilled labour, presumably under the General Eligibility category.

This policy of overcoming labour market shortages through immigration is dubious on several grounds. As the Department recognises, it is not easy to ensure that an approved immigrant does in fact have precisely the skills which are in demand in Australian labour markets. Immigrant labour frequently requires additional on-the-job training by the employer. Another deficiency of the scheme is that it encourages the employer to obtain labour from overseas in preference to Australia. Some of the skilled workers brought in are eligible for assisted passages and government grants. That is, some of the costs of moving these workers are not borne by the employer but these are real costs to the Australian economy. In the case of employer nominations, the company nominating the prospective migrant is supposed to have already searched the local labour market by using the CES or by direct advertising but there is a minimum period of search of only one month. Normally it takes from three to eight months from the date of lodging an application to the date of arrival of the immigrant worker. This is a search period which is generally longer than that for local labour. In the case of searching overseas the actual searching is done by and at the cost of the Department. With these subsidies it is not surprising that many employers are keen to use immigrant labour. While these subsidies may not be large on the average whatever bias there is in the placement of skilled labour should be in favour of filling job shortages from the Australian labour force. This is because the matching of Australian jobs with Australian job-seekers will, directly and indirectly, reduce unemployment and associated social problems in addition to the problems of the employer. Some immigrant labour does have real advantages over local labour. It takes longer to train new labour with required skills in many cases than to obtain it overseas when the latter has the required skills. The costs of training have also been borne by overseas employers or institutions. I doubt, however, whether these advantages compensate for the advantage of increasing the employment of Australian job-seekers.
Perhaps the main doubt concerning overseas sourcing of labour is that it is not certain that the immigrant labourer will contribute to the reduction of shortages of skilled labour even when his/her skills are those required in the job offered. A major reason why these vacancies exist is that the wage differentials are insufficient to encourage workers to move from other geographic areas or jobs and, in the longer term, to encourage workers to acquire more skills. The obvious policy is to raise the skill differentials but it is very difficult to change permanently differentials established in Australian labour markets. If the inadequate differentials persist after the arrival of immigrant labour, it is likely that better paid or more attractive jobs will attract away the immigrant labour as it has the Australian-trained labour.

The first priority in improving labour markets should be the development of better policies to manage the Australian resources of manpower, including greater relative wage flexibility, more thorough searching of labour markets and assistance to increase labour mobility and labour training. Immigration should be a last resort when these policies fail, though some immigration may be desirable while these policies are being developed.

VII. Who Makes Resource Policy?

With the discussion above of the major policy issues we can now look more closely at the policymakers. I shall consider only the bodies in which the Commonwealth Government is involved. There is a similar structure in every State which duplicates and overlaps with that of the Commonwealth Government.

Consider the Commonwealth Government Departments and statutory bodies which are significant contributors to minerals resource policy. The most direct approach is to list each body and to map their major responsibilities. This is done in Appendix Figure 1. The list there does not include legislative groups such as the Senate Standing Committee on Natural Resources. Nor does it include other bodies which have a significant input into the determination of some particular sub-industry; for example, the LPG Task Force, the Pipeline Authority, the National Energy Research Development and Demonstration Council. It should be noted that some of the bodies listed are linked in some way; for example, the secretariat of the Foreign Investment Review Board is provided by the Foreign Investment Section of the Treasury, and the Department of Industry and Commerce, Trade and Resources and National Development and Energy all have representatives on the Commonwealth State Joint Study Group.
Figure 1

A Mapping of Economic Policy Areas and Commonwealth Policy-Making Bodies

Minerals Exploration ———> (BMR
Treasury

Capital Formation and Infrastructure ———> (Treasury
Loans Council

Labour Supply ———> (Department of Immigration and Ethnic Affairs
Department of Employment and Youth Affairs
Department of Industrial Relations
Arbitration Commission

Output Pricing ———> (Treasury
Department of National Development and Energy
Department of Trade and Resources

Profit and Rent Income Flows ———> (Treasury
Foreign Investment Review Board
Department of Trade and Resources

Raw Materials Processing ———> (Department of National Development and Energy
Department of Industry and Commerce
CECS

Pollution ———> (Department of Home Affairs and Environment
Department of National Development and Energy
(Nuclear waste)

Aborigines ———> (Department of Aboriginal Affairs
Northern Land Council
It goes almost without saying that all of these bodies, with the exception of the Loans Council and Arbitration Commission, are advisory. The final decisions on many crucial matters such as approvals of applications for foreign investment are made by Ministers of Cabinet.

However, the more instructive approach is to consider the different areas of policy-making and to map the Government Departments and other bodies which contribute significantly to each area. This is what is called the "inverse mapping". For each of the major areas of economic policy-making this mapping tells us the major Departments and other bodies which determine policies (or recommended to Ministers and Cabinet). This mapping is provided in Figure 1. It has been obtained by regrouping the activities of Departments and other bodies and assigning these activities to the economic functions. The classification of economic function is somewhat arbitrary. They have been chosen according to the economic concepts relating to the generation of inflows in the economy and the processes of production. Thus they can be readily related to the text above.

In every area we see that more than one Commonwealth Department or advisory body gives advice to the Commonwealth Government. Moreover, the Treasury, the Department of National Development and Energy, and the Australian Mining Industry Council all have a broad responsibility for the sector as a whole so that their advice encompasses all of the areas listed separately.

While this map is a gross simplification of the complexities of the Commonwealth Government it nevertheless reveals the first major problem of resource policy-making in Australia—that with the partial exception of Treasury, there is no body which oversees all of these areas and tries to shape a consistent overall policy. This is demonstrated if we consider the major instruments which are actually used to effect the policies: the approvals of foreign investment decisions, export controls, the employment nomination immigration scheme, Loans Council decisions on infrastructure financing and company taxation. All of these are decided independently of each other, upon the advice of different groups and with different considerations in mind. There is no body which carefully looks at all of the costs and benefits of a major project and how it is affected by all
of these policies. This is important because it is the decision to go ahead with a mineral project or not which commit the resources of the economy. Indeed, the Foreign Investment Review Board is really the only one of the bodies listed which systematically considers major projects before they start. It does so only from the point of view of the percentage of foreign ownership and control and the only instrument of policy at its disposal is to recommend approval or non-approval or approval subject to certain conditions, given the other policies determined elsewhere.

The second major problem of policy-making for the mineral resources sector in Australia is the co-existence of State and Commonwealth policies. This derives from the Constitution which gives some functions such as the control of trade and commerce and income taxation to the Commonwealth (although the latter not exclusively) and some such as mineral leasing to the States. We have seen that this has led to many conflicts between the decisions of a State which seeks to promote some projects and the Commonwealth which seeks to regulate the prices or incomes which flow from the project.

I am forced to conclude that we do not have in Australia a consistent set of mineral policies which are all pursuing the same set of objectives.
### Appendix Figure 1

**A Mapping of Policy-Making Bodies and Their Main Responsibilities**

<table>
<thead>
<tr>
<th>Body</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I COMMONWEALTH</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Departments</td>
<td></td>
</tr>
<tr>
<td>Department of National Development and Energy</td>
<td>Mapping and geology (BMR), minerals exploration</td>
</tr>
<tr>
<td></td>
<td>National energy policy (esp. import parity, LPG, raw materials processing)</td>
</tr>
<tr>
<td></td>
<td>IEA</td>
</tr>
<tr>
<td>Department of Industry and Commerce</td>
<td>Secondary industry development, incl. raw materials processing</td>
</tr>
<tr>
<td>Department of Trade and Resources</td>
<td>Commercial development (incl. raw materials processing, infrastructure development)</td>
</tr>
<tr>
<td></td>
<td>Exporting, bilateral trade relations</td>
</tr>
<tr>
<td></td>
<td>Multinational commodity agreements</td>
</tr>
<tr>
<td></td>
<td>Study of Groups</td>
</tr>
<tr>
<td></td>
<td>Uranium</td>
</tr>
<tr>
<td>Treasury</td>
<td>Tax policies</td>
</tr>
<tr>
<td></td>
<td>Foreign investment</td>
</tr>
<tr>
<td></td>
<td>Pricing</td>
</tr>
<tr>
<td>Department of Immigration and Ethnic Affairs</td>
<td>Immigration</td>
</tr>
<tr>
<td>Department of Employment and Youth Affairs</td>
<td>Labour Supply and</td>
</tr>
<tr>
<td>Department of Industrial Relations</td>
<td>Labour market problems</td>
</tr>
<tr>
<td>(b) Arbitration Commission</td>
<td>Wages</td>
</tr>
<tr>
<td><strong>II COMMONWEALTH/STATE</strong></td>
<td></td>
</tr>
<tr>
<td>Australian Mining Industry Council</td>
<td>All areas</td>
</tr>
<tr>
<td>Loans Council</td>
<td>Infrastructure loans</td>
</tr>
<tr>
<td>Commonwealth-State Joint Study Group</td>
<td>Raw Materials Processing</td>
</tr>
</tbody>
</table>
III  MIXED DEPARTMENT/INDUSTRY/INDIVIDUAL

National Energy Advisory Committee → Energy Policy
Trade Development Council → Trade Policy
Australian Transport Advisory Council → Transport Policy
Joint Coal Board → Coal policy

(IV  STATES

Treasures, Mines Departments,
Electricity Commissions, etc)
FOOTNOTES

1. These figures have been calculated from the estimates of Gross National Product in constant prices (ABS, 1980a). The mining industries exclude mineral processing which has grown in relative importance in recent years. However, the inclusion of mineral processing industries would not change the result greatly. They include petroleum and natural gas production.

2. In the official Australian Standard Industrial Classification, which follows the Standard Classification of the UN, processed mineral products are classified as manufactured products. But for the purpose of analyzing the policy issues arising from mines production it is preferable to include processed mineral production in the minerals sector. Thus there are three sub-sectors - mineral exploration, mines production and mineral processing.

3. Private ownership of mineral rights holds only for land where these rights were granted before the Crown began to reserve mineral rights (see Lang and Crommelin, 1979). The only significant examples are some privately-owned coalfields in New South Wales.

Examples of state mines production are the production of brown coal by the Victorian government and black coal by the New South Wales government via their State Electricity Commissions. Neither the State nor the Commonwealth governments engage significantly in the processing of mineral products other than uranium.

4. Average value added per employee is a less satisfactory measure of capital intensity for mineral production activities as the value added includes the rent component as well as the profit and labour incomes.

5. The ABS defines foreign ownership as the percentage of the equity interest in the companies which is held directly by foreign companies or individuals and indirectly, insofar as it can be identified, by Australian companies which in turn are partly foreign-owned.

The ABS classifies a company as foreign-controlled if a foreign or foreign-controlled investor holds 25 per cent or more of the paid up value of its voting shares, provided there is no greater holding by an Australian or Australian-controlled investor.

6. One should add to the State receipts of rents from mining companies the payroll tax they pay since the cost of labour to these companies exceeds the supply price when there is a payroll tax, and the implicit tax when a State charges more for a service than it costs to provide. But, by the same token, one should subtract the subsidies provided by the States through their sales of State-provided services such as infrastructure, electricity at prices below cost (see text below.) These two factors offset each other.
7. This is largely how the FIRB itself sees the guidelines which it administers: "The economic rationale for the Australian equity guidelines for investment in the natural resource sector derives in part from the fact that projects in the sector may earn above-average profits, and that other policies may not always be adequate to ensure that the Australian community shares to an appropriate extent in the returns derived from the exploitation of natural resources, the ownership of which usually rests in the Crown. Such sharing is achieved to a degree through taxation of company profits and royalties paid to Governments. The equity participation guidelines ensure that Australians have an opportunity to invest in these projects and thereby to share directly in the returns derived from them" (FIRB, 1980, p.36).

8. The FIRB has estimated that the Australian black coal industry was 40.3 per cent foreign-owned in 1979 (FIRB, 1980, p.26). These figures are not strictly comparable with the ABS series but there can be little doubt that the percentage of foreign ownership has fallen. (See also FIRB, 1980, p.16.)

9. The rates for petroleum were generally higher than for other minerals, ranging up to 12 per cent. This is not including the Commonwealth levy.

10. These IAC estimates omitted the newly-discovered subsidies on the electricity inputs supplied by State Electricity Commission.

11. It would be most instructive to know how long labour which had been brought to Australia under these General Eligibility schemes had stayed in the occupation for which it had been selected.
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1980a.

1980b.


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  a. Report on Activities for Year Ended December 1979, AGPS, 1980,


____. "Pricing of Electricity to Alcoa at Portland, Victoria", Mimeo, Australian National University, March 1981.
