7. IMPROVING EFFICIENCY

(In the late 1960s) the Treasury's attention became increasingly directed toward the question of rational economic behaviour and the means by which decision-making techniques, particularly in the public sector, could be improved so as to make better use of available resources. ...The Treasury emerged from the (early and mid 1960s) convinced that some pruning of the public sector, at least in relative terms, was essential and that much greater efforts needed to be made to emulate the profit-maximising activities of private sector enterprises. (Greg Whitwell)[1]

THE TREASURY LINE

7.1 Submissions by the Treasury and the Department of Finance were optimistic on the scope for improving the quality of public sector investment. In response to Professor Nevile's paper (Appendix 5), both departments again stressed the importance of improving public sector efficiency. The Treasury suggested that it must be asked:

> "...whether a careful allocation of a lower overall level of public investment might in fact make a greater contribution to Australia's economic adjustment than a higher overall level with some other, less appropriate allocation..."[2]

7.2 The Department of Finance went so far as to suggest that attention to efficiency at the level of each investment decision offered the best hope that overall investment levels would be appropriate:

> "Identification of the optimal level of public

investment expenditure is inexorably bound to the broader issue of resource allocation. The aggregate level of public investment expenditure comprises a myriad of smaller public sector investment projects - if resources are allocated efficiently with regard to each of those projects so that social welfare could not be increased by allocating more or fewer resources to any particular project, then the resulting level of aggregate investment could also be presumed to be optimal.

While it is difficult to judge whether six per cent, eight per cent or 10 per cent is the appropriate ratio of public investment to GDP in any particular year, and any such judgement would be highly subjective, economic theory can more usefully provide guidelines or criteria for determining whether any particular public sector activity has the capacity to add to (or detract from) social welfare. The more confident we can be that each investment proposal has been evaluated 'correctly', the more confident we can be that the aggregate level of investment reflects the best possible use of society's resources..."[3]

7.3 Efficiency is one of the few 'motherhood' concepts still revered in an increasingly sceptical age; possibly out-performing motherhood itself in this regard. The committee would not deny that it is very important that choices between competing uses for resources are made so as to direct investment in the best possible way. It is important that, after these choices are made, the resultant investments are managed as efficiently as possible. Efficiency in the allocation of resources and in their use will allow a wider range of the community's wants to be satisfied and will have other desirable economic results through positive effects on market expectations. Efficiency, therefore, is a good thing and the committee does not wish to suggest otherwise. The

committee does consider it necessary to be realistic about the scope for increased efficiency. In particular, there are doubts that efficiency improvements alone will be sufficient to meet Australia's infrastructure needs.

THE TREASURY/FINANCE APPROACH TO IMPROVED EFFICIENCY

7.4 The Treasury/Finance proposals for improved efficiency in public investment aims to achieve two types of efficiency. The objectives are allocative efficiency, in which resources are encouraged into the most productive uses in the economy as a whole, and operational efficiency, in which resources are put to the best possible use within each enterprise. There are two broad components to the approach. Existing and new public assets are to be required to produce agreed rates of return on the public investment in them and their managers are also to be subject to a range of direct controls on financial and non-financial activities. It has been widely noted that there is an inherent conflict between the two components of this approach; managers are to be held accountable for achieving outcomes while their freedom to seek the best way of doing so is restricted by the direct controls.

7.5 The Department of Finance explained the proposal for agreed rates of return on investment by public enterprises in the following terms:

> "The rationale for setting a financial performance target for each enterprise stems from the intention that, with suitable adjustment to reflect the cost of meeting agreed community service obligations, the rate of return earned on the funds invested in an enterprise should at least reflect the returns that could have been earned by investing those resources in alternative uses, in particular by the private sector in competitive markets. Thus, as well as recognising the need for

enterprises to achieve an adequate rate of return on the Commonwealth's investment in them, the financial target setting process seeks to promote efficiency of resource use, both internally by enterprises and from an economy-wide viewpoint..."[4]

7.6 The intent is clearly to ensure that investment is not made in any area of public responsibility when greater returns could be expected if the investment was made elsewhere in the public sector or in the private sector. Further, the target rate of return will encourage the managers of each enterprise to achieve and maintain levels of efficiency sufficient to meet their targets. Finance hopes that new investment will only be made if it is justified and existing investments will be managed in the best possible way.

7.7 For new public investment undertaken by Ministerial Departments rather than public enterprises, Finance proposes a parallel approach. The costs and benefits of each project should be rigorously evaluated and investment directed to the projects offering the best returns. Projects could be compared by discounting to present value the stream of benefits flowing from each project in the future using a discount rate which would reflect the benefits that could have been achieved had alternative investments been made by the private sector. As Finance explained it to the committee:

> "The main respect in which the guidelines for investment appraisal should reflect macroeconomic requirements is via the use of an appropriate discount rate for public sector investment appraisal; in the absence of market pressures and particularly those reflected via sensitivity to the level of interest rates, there is a need for investment decisions to reflect resulting investment foregone in the private sector.

> The Department of Finance supports the use of a discount rate for evaluating infrastructure investment based on the required rate of return on equivalent capital expenditure in the private sector; this represents the opportunity cost of the resources (financial and real) absorbed by the infrastructure investment and will vary with differing risk characteristics of the projects concerned..."[5]

7.8 Additional to these indirect financial targets, Treasury and Finance proposed a range of direct controls, both financial and non-financial. These included corporate and strategic planning, powers of ministerial direction over public authorities, control of public authority borrowing and the setting of non-financial performance indicators. The Treasury/Finance approach paralleled that of the 1986 Government discussion paper on proposed policy guidelines for statutory authorities and government business enterprises (later revised and published as a Policy Information Paper in October 1987).[6] A somewhat similar approach has been adopted in Victoria where State enterprises have been set a target rate of return but far fewer direct controls are applied. The Victorian Government's approach has been to require authorities to move towards a 4% rate of return on the written down current cost of the assets in service. Non-financial performance indicators appear to be confined to two groups; consumer service performance indicators and those which deal with efficiency are known as management performance indicators.[7]

7.9 Treasury and Finance stressed in their submissions to the committee that the proposed new controls replaced and consolidated existing controls, many of which are out of date. The Treasury submission argued that:

> "There are...a number of important limitations on the commerciality of government enterprises...
>
> . Government enterprises generally do not face the disciplines imposed on private sector firms by capital markets, including the threats of takeovers and liquidation.
>
> . Government ownership usually implies that enterprises face a lower cost of funds - an advantage that has been reduced somewhat by the Government's recent decision to levy a charge for explicit Commonwealth loan guarantees.
>
> . Government enterprises can be less sensitive to monetary conditions and interest rate levels.
>
> . Enterprises that are required to meet CSOs (Community Service Obligations) cannot operate in a fully commercial way.
>
> These limitations mean that there is a continuing need for governments to maintain oversight over the financial commitments and activities of their enterprises. It might be expected that the necessary controls for this purpose would be at least comparable to those exercised in the private sector by companies over wholly-owned subsidiaries..."[8]

7.10 The Treasury/Finance approach to improved efficiency in public investment seems plausible and, indeed, the committee supports a large part of it but we are concerned at the apparent conflict between direct and indirect controls. This aspect of the proposals has also drawn trenchant criticism from the boards and managers of most Commonwealth public authorities. The Chairman of the Australian Shipping Commission, Mr W.Bolitho, summarised the general response when he predicted that: "the letter of the fine bureaucratic print will kill the laudable spirit of the proposals".[9] The Chairman of the Australian Telecommunications Commission, speaking at the same seminar, entitled his paper, "Shall we burn our management books?"[10]

7.11 The objections are perhaps best summarised in Bolitho's words:

> "The Government would be making a fundamental mistake if in removing a series of outmoded controls on government business enterprises, it replaced them with a new series of 'modern' commercially orientated constraints related to planning and financial controls centrally administered by government departments. The cure proposed is very likely to be worse than the complaint. There appears to be a continuing conflict between the needs of enterprises to manage their own affairs free of detailed intervention if they are to be successful and the fundamental need, desire and intent of the bureaucracy to exercise detailed control over them, whilst at the same time avoiding any bureaucratic responsibility for adverse consequences flowing from the exercise of that control..."[11]

7.12 The committee, like many of the public enterprise critics of the Treasury/Finance line, supports its aims while

disagreeing on some important points of emphasis. More importantly, the committee does not accept that the Treasury/Finance line offers potential benefits as great as those claimed by its proponents.

THE SCOPE FOR IMPROVING EFFICIENCY

7.13 It is implicit in the Treasury/Finance approach that present public investment practices are less than optimal. There would otherwise be no basis for expecting large efficiency gains from improved procedures. It is difficult to generalise about the efficiency or otherwise of so large a field as public investment. The committee noted that there is no convincing empirical evidence that public enterprises as a whole are managed less efficiently than private enterprises as a whole. This does not mean that improvements could not be made in the management of particular public activities but it is grounds for some scepticism as to how large an impact the proposed improvements might make.

7.14 An important study of Commonwealth business enterprises appears to have been influential in Treasury and Finance thinking on efficiency. The study, by a consultant to the Senate Select Committee on Statutory Authoritiy Financing, was tabled with the Select Committee's report in 1983.[12] The consultant assessed the real accounting rates of return achieved by nine major Commonwealth business enterprises over various periods between 1970-71 and 1981-82. The results show sharply varying performances between the various authorities, at least as measured by rate of return. The nine public enterprises when compared to a large sample of private companies were, on average, about six times more capital intensive. A much higher proportion of their net assets were funded by external borrowing and therefore they had higher debt/equity ratios than the private average. Return on funds employed and returns on equity for Commonwealth enterprises are illustrated in Table 7.1.

TABLE 7.1

AVERAGE RATE OF RETURN MEASURES FOR COMMONWEALTH BUSINESS UNDERTAKINGS, 1985-86

	Return on funds employed	Return on equity
OTC	15.8	38.0
Telecom	10.8	6.3
Australian Airlines	7.3	21.7
ANL	12.3	28.4
Qantas	3.2	-

Source: Annual Reports of the authorities listed.

Note 1. The Commonwealth has not equity in Telecom. Shareholders funds are calculated as longterm loans from the Commonwealth plus reserves.

7.15 These comparisons of average performance have led some commentators to propose rate of return targets at least equal to the private sector average as an efficiency benchmark for all public enterprises. The Department of Finance appears to lean in that direction, advising the committee that:

> "In the absence of a direct point of comparison, the <u>average</u> required rate of return applying in the private sector can provide a benchmark (for public rate of return targets) although that rate may need to be varied at the margin depending on the risk characteristics of the investment..."[13]

The committee believes, however, that comparisons with average private sector performance are not likely to be a valid measure of efficiency in the public sector.

7.16 Hugh Stretton, in a report prepared for the Minister for Finance in 1983, drew attention to a number of deficiencies in the comparative approach adopted by the consultant to the Senate Committee:

> "Pricing, earning, saving and dividend policies must vary from industry to industry. The following should be borne in mind -
>
> . ...the financial policies of public enterprises should be determined in relation to the whole range of direct and indirect functions they are expected to perform.
>
> . Rates of return will vary from industry to industry. The Government should not accept suggestions, for example from the Senate Standing Committee on Statutory Authority Financing, that public enterprises should aim at a common rate of return to assets employed or at rates comparable with the average rate in the private sector. First, the division of labour between the sectors gives the public sector a disproportionate share of capital-intensive industries whose returns are low everywhere, whether they are publicly owned or (as many are in the US) privately owned. Second, there are wide variations around the average rate of return in each sector. Information as to variations in the Australian private sector is not available. But the US range is from 20 per cent (e.g. in pharmaceuticals and many personal services) through

> some low rates in steel, housing and other manufactures to negative rates for railroads and some other franchised private services which enjoy public subsidies. The variations do not reflect degrees of monopoly, and cannot be sufficiently explained by factors of risk. They exist for complex historical, institutional and technological reasons..."[14]

7.17 These arguments are a serious challenge to the view that public sector efficiency can be gauged by comparisons between average private and public sector returns on investment. The committee fully accepts Stretton's arguments. It follows that, to the extent that the disparity between rates of return is explained by factors such as the degree of capital intensity, technology and other factors identified in the Stretton paper, the scope for achieving improvements in public sector efficiency is lessened.

7.18 There are other reasons for scepticism at some of the more extreme claims of potential efficiency gains from the measures proposed by Treasury and Finance. In particular, it is necessary to consider the extent to which rate of return targets will actually affect allocative and operational efficiency. Professor Ray Rees, in commenting on the proposed policy guidelines for government business enterprises, has suggested that the effect is likely to be small.[15]

7.19 Rees points out that in terms of economic theory there are two requirements to achieving allocative efficiency:

- all inputs must be valued at their real opportunity cost which is the realisable value they could achieve if put to the best alternative use; and

. prices for the resulting goods and services should be set to marginal opportunity costs.

7.20 Neither of these conditions will be met by imposing targets for the accounting rates of return of any enterprise. Existing capital, which is the main input of most public business enterprises usually has a low opportunity cost outside the enterprise - it is generally a sunk cost - and its accounting value will often be higher than its opportunity cost. Furthermore, the relevant comparison for new public sector investment is not with average accounting rates of return of any other enterprise or sector but rather with the rate of return which has to be earned on the new investment to compensate for the benefits foregone by diverting resources from consumption or private investment. Targeting of any particular accounting rate of return will result in prices which cover accounting costs not marginal opportunity costs. For this reason, pricing under this system will not necessarily improve allocative efficiency.

7.21 In practice, costing and pricing so as to achieve theoretical allocative efficiency will seldom be effective. A target accounting rate of return may serve as a proxy for the theoretical optimum and should improve practical performance if existing costing and pricing practices are poor. In making a case for a change to optimal pricing of its water-supply and sewerage services (see Appendix 9), the Hunter District Water Board made this point with clarity:

> "To protect our flank from academic point scorers and nit pickers, one further observation is required. (The rate of return argument) is associated with the venerated name of Professor Pigou. However, in the past 15 years or so, a new economic theory of optimal taxation and pricing has emerged. Some of the old results are qualified or even fundamentally questioned.

> Not to worry. The new theory and the old stand to each other as Relativity stands to Newtonian physics. The new is clearly right and better. However, until you are travelling close to the speed of light, the practical consequences of using Newton's results are trivial. The Board's engineers are still getting by with Newtonian physics and the Board's pricing and investment policies can live with Pigou at least for 1982-83. Pigou is a big enough advance over the totally inequitable and inefficient rating system..."[16]

7.22 This illustrates a point which is absolutely critical to the potential success of the Treasury/Finance approach. Rate of return targets can be expected to deliver impressive results when they drag the accounting practices of an enterprise forward to the early 1930s. Results are likely to be much less in enterprises which have learnt the lessons published by Professor Pigou in 1932.

7.23 We have noted that the boards and managers of most Commonwealth business enterprises have strongly opposed some of the proposed measures. Their opposition has been based in large part on management theory rather than the economic line sketched out above. The Finance-Treasury approach comprises a mixture of indirect control of public enterprises, through rate of return targets, and direct control through central approval of borrowing programs, corporate plans and strategies and non-financial performance indicators. Representatives of most Commonwealth business enterprises have soundly denounced the proposed division of responsibility. As the Chairman of the Australian Telecommunications Commission expressed it:

> "Boards are, supposedly, still to be held publicly accountable for performance - but performance, in turn is to depend on the decisions of persons remote from Board members..."[17]

Those closest to the management of the Commonwealth enterprises are almost unanimous in denying the potential for improved internal or operational efficiency from the Finance-Treasury approach.

7.24 Many of the objections from Commonwealth enterprise Boards and managements to the proposed controls cite the need for flexibility and speed in decision-making and for detailed knowledge of the business in those making the decisions. All of these, it is claimed, would be weakened by the extent of centralised control in the proposed system. Telecom and Australia Post in particular complained to the committee that Treasury control of their borrowing for macro-economic purposes has distorted their investment priorities. Public enterprises, they claimed, are required to produce commercial rates of return but their investment programs, which are crucial to their results, are arbitrarily cut to meet general public sector financial constraints. All these arguments have a respectable base in management theory.

7.25 Treasury argued that the Commonwealth should exercise control over its enterprises, "at least equivalent to those exercised in the private sector by companies over wholly owned subsidiaries".[18] The committee believes that few successful private sector companies exercise detailed controls over the activities of their subsidiaries while also setting rate of return targets. It is far more common for managers of subsidiaries to be held accountable for results and given a considerable degree of freedom in the way they achieve them.

7.26 In any case, as Rees points out, and as Treasury and Finance acknowledged in their evidence, economists would not necessarily expect rate of return targets to improve the operational efficiency of public enterprises. In Rees' words:

> "The idea here clearly is that the profit target puts pressure on management to cut costs and eliminate waste and inefficiency, if they exist. It is, however, a very blunt instrument for this purpose. There is first the standard point that enterprises with a considerable degree of monopoly power in their markets can meet targets by increasing prices rather than by cutting costs...
>
> There is the further difficulty which arises both in setting the financial target and in evaluating financial out-turns against the target. The level of the target will be determined on the one hand by market conditions - the inherent potential profitability of the market supplied by the enterprises - and on the other hand by the extent of community service obligations and other non-commercial objectives..."[19]

7.27 Rees goes on to note that all these difficulties, many of which are subject to continual change through the evaluation period, combine to make it extremely difficult to use target rates as a meaningful measure of performance. They are more likely, he claims, to generate a need for increasingly large flows of information from the enterprises to the government, thus further reducing the scope for managerial enterprise and initiative. All this uncertainty may protect truly inefficient enterprises from punishment by government and cheat efficient ones of their reward. Noting also that the actual results of rate of return targeting in the British public sector were disappointing, Rees concludes that it is difficult to see

rate of return targets alone providing any significant incentives for greater operational efficiency.[20]

7.28 The committee concludes that there is some scope for improvement in efficiency through the establishment of target rates of return for public enterprises. The rates selected should be specific to each enterprise in recognition of the different circumstances in which the various enterprises operate. The committee accepts the Treasury-Finance view that these targets need to be supplemented by some direct controls but the mixture of direct and indirect methods needs to assist flexibility and performance.

7.29 The proposals seem to the committee to incorporate unjustified levels both of pessimism about the present efficiency of Commonwealth enterprises and of optimism about the scope to which economic theory alone can lead to improvement. The committee recommends:

> **the Government should review the controls over government business enterprises outlined in its policy information paper with a view to allowing a higher level of managerial autonomy. Accountability should be assured through better specification of desired results and agreed, periodic review of performance after the event.**

7.30 As illustrated by the case of the Hunter District Water Board, one of the benefits of rational pricing is that it forces proper accounting for assets. It appears that this problem has already received attention in the Commonwealth business enterprises. Studies by the South Australian Public Accounts Committee suggest that there may be problems with asset management in the budget sector, the area of public infrastructure provision which does not charge for its services. The Department of Housing and Construction (DHC) was the main

asset manager for the Commonwealth budget sector when the committee collected evidence and its role will continue within the Department of Administrative Services following the recent change in administrative arrangements. The Department advised the committee that:

> "In providing capital works, DHC is adopting an asset management approach to ensure that client's needs are met in the most cost-effective way. This involves identification of all costs occurring throughout the life of alternative facilities and using standard discounting techniques to make cost comparisons. This asset management strategy will be developed as a tool to assist in determining and evaluating proposed capital works..."[21]

7.31 There is clearly value in such an approach, although the committee noted that as in benefit-cost analysis, results are highly sensitive to the assumptions made about discount rates and depreciation. The Department suggested that wider adoption of its asset management approach, both in the Commonwealth budget sector and at other levels of government might be beneficial.[22] To the extent that such an approach increases the rigour of analysis of decisions regarding the provision, maintenance and replacement of assets, this may be so, although the committee again is sceptical of some of the more extreme predictions of efficiency gains. The area of asset management is one suggested for attention under the CSIRO research proposal noted in Chapter 4. The committee recommends:

> **the Government should consider complementing the asset management work undertaken by the former Department of Housing and Construction with research by its successor and CSIRO into analysis of the asset replacement problem, strategies for asset management and research into construction materials and practices.**

7.32 In noting the limited scope for improvements in public sector efficiency, the committee does not wish to imply that there is no scope for improvement. Nor does it argue that no effort should be made in this direction. There are two essential threads to the argument. The use of rigorous economic technique proposed by Treasury and Finance is a necessary approach to public sector management but by no means a sufficient solution to the problem of inadequate public investment. Whatever savings can be achieved should be, but it would be dangerous to build exaggerated hopes on them. The committee believes that potentially profitable public investment has been prevented by current arrangements and that this is likely to continue. Shortfall in investment is a greater problem than any shortfall in efficiency.

LIMITS TO IMPROVING EFFICIENCY

7.33 The committee agreed with the aim of the Treasury/Finance enterprise approach as described in the Finance submission:

> "The more confident we can be that each investment proposal has been evaluated 'correctly', the more confident we can be that the aggregate level of investment reflects the best possible use of society's resources..."[23]

7.34 There are many institutional factors as well as priorities and policies which are properly the function of government which all affect the level of public investment.

While accepting that efficiency at the level of each public enterprise is important, the committee was concerned that the possibility of under-investment at the macro level should not be neglected. Professor Mathews, an acknowledged expert on public finance, told the committee that, in his view:

> "Budgetary policies by all levels of government have treated public investment as the most easily sacrificed or deferred form of expenditure during periods of both budgetary expansion and budget restraint. As a result of this neglect, problems have been created for the public infrastructure which in some areas will prove to be irreversible unless decisive action is taken to deal with them soon..."[24]

Similar views formed perhaps the strongest single theme to emerge from more than 50 submissions received by the committee.

7.35 Investment levels of public enterprises have, in practice, largely been determined by overall budgetary considerations. Efficient choice between projects within these overall limits is clearly desirable. If the limits are set too tightly, funding will, at best, be restricted to the handful of projects offering the highest return while many other activities which present opportunities for significant returns will be excluded. We will all pay the price for this in lost opportunities for greater economic growth and lower unemployment. The overall level of public investment is as important to our prospects for economic growth as is efficient choice between priorities. Attention to efficiency of the parts should not obscure the importance of the whole. The committee concludes that the level of public investment in Australia appears to be largely determined by the amount of funds available after recurrent

commitments have been met and a deficit target set. Rather than being a residual, public investment should have a much higher priority with all parts of the budget - recurrent, capital, revenue and the deficit - being set on an iterative basis.

7.36 Excessive concern with efficiency at the level of particular decisions may create a bias towards under-investment in the decision-making process if it leads to excessive caution in decision making. All investment decisions carry some risk and it is often the case that potentially high yielding investments carry higher risk. There is no logical reason to exclude the public sector from such investments. It will sometimes be necessary for the public sector, as for the private to take risks. Indeed, successful risk-taking is commonly identified as a component of good management. Rigorous scrutiny of the efficiency of countless individual decisions will encourage safer decisions but a good climate for investment decision making could be as important for public authority managers as for private sector managers.

7.37 The risk of under-investment in the public sector would be less if the financial and non-financial costs and benefits of all government activities were to be assessed and compared in a consistent way. Comparison of costs and benefits is relatively easily achieved for public economic services like water, electricity and telecommunications because they are sold. Market forces and well established economic techniques allow comparisons among investment proposals in this sector. But there are huge difficulties in comparing these priorities with non-economic services such as funding for age pensions, health services, education, cultural activities and the environment, to name only a few. Some of these services have an economic spin-off in producing a more stable or productive workforce but the costs and

benefits are difficult to quantify. Since the basic economic justification for much government activity is market failure, the potential for rigorous comparison of costs and benefits through what are essentially market-based techniques is, by definition, limited.

7.38 There are, as the Department of Finance submission noted, accepted estimating techniques for measuring the contribution of any activity to public welfare, whether a price is placed on it or not. To suggest that these techniques of rigorous cost-benefit analysis should be applied to every government activity is to propose job-creation for economists on a truly awesome scale. It is also to ignore the difficulties associated with the forecasting necessary for proper evaluation of investment projects that are expected to last for many years. At this point it is worth noting that the Treasury is thought to be reluctant to publish forecasts beyond the short-term because of the difficulties and the risks of being wrong. Yet to fully utilise the cost-benefit techniques proposed will require Authorities to produce long-term forecasts! Keynes, in his General Theory noted that:

> "Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence..."[25]

7.39 The process of placing a value on social costs and benefits for rigorous benefit-cost analysis is a useful discipline. It forces decision-makers to consider all the predictable results of their choices. Full account can be taken

of the opportunity costs associated with choices through the use of 'shadow prices' in which imputed values are used where market prices are unavailable or do not properly account for opportunity costs. The opportunity cost to the economy of unemployment, for example, can be recognised by the use of shadow wages in computing the costs and benefits of a project which would increase employment.

7.40 The Department of Finance advised the committee that a manual proposing a standard approach to benefit-cost analysis in the Commonwealth sector is in preparation. Although the committee is sceptical of some of the more extreme claims for this technique, its value in enforcing a rigorous approach to particular decisions is recognised. The Department of Finance initiative is fully endorsed and the committee recommends that:

> **the Department of Finance should complete and issue its proposed manual on benefit-cost analysis as soon as possible.**

Such a manual can only be beneficial in improving the efficiency of some decision-making in the Commonwealth sector and may be influential in other areas of public administration.

7.41 To suggest, as Finance did, that the more confident we can be that each proposal is 'correctly' assessed, the more confident we can be that total welfare will be at its best level is to ignore the fact that, in practice, external factors appear often to limit public authorities' ability to reach that desirable level.

7.42 The committee is concerned that the Treasury/Finance argument comes close to making efficiency an end in itself and the efficient management of investment almost the sole object of government. It is easy to move from this position to one in which particular projects receive preference because it appears that

they can be more efficiently undertaken than others. A recent article by Dr Peter Wilenski and Dr Robert Goodin made this point well:

> "The characteristic administrative form this fallacy takes is as follows. Some policy P_1 is rejected on the grounds that some other policy P_2 would achieve the same goal more efficiently. But then for one reason or another P_2 is not pursued either. Governments decline to build high-tech hospitals, for example, on the grounds that community health programs are a more efficient response to the needs; but then they fail to fund those either..."[28]

Efficient management is a means to achieving desired outcomes, not an outcome in itself and it will sometimes be better in public policy to satisfy a need inefficiently than not to satisfy it at all.

7.43 The tension between narrow efficiency - achieving any output with the lowest possible input - and the broader concept of effectiveness - achieving the right output - is well established in the management literature. Mr Lee Iacocca, perhaps the best known manager in the USA, recently wrote of the balance between efficiency and effectiveness in the following terms:

> "By their very nature, financial analysts tend to be defensive, conservative and pessimistic. On the other side of the fence are the guys in sales and marketing - aggressive, speculative and optimistic. They're always saying, 'Let's do it,' while the bean counters are always cautioning you on why you shouldn't do it. In any company you need both sides of the equation, because the natural tension between the two groups creates its own system of checks and balances.

> If the bean counters are too weak, the company will spend itself into bankruptcy. But if they're too strong, the company won't meet the market or stay competitive..."[29]

7.44 The committee was concerned that the balance in Australian public investment should not tip too far in favour of the "bean counters" and concludes that the Treasury/Finance approach to improved efficiency in Commonwealth enterprises pays insufficient attention to the possibility of under-investment in this sector and may increase the possibility that aggregate investment will be too low. Nor does it fully consider the value of such projects in stimulating economic growth.

CROSS-SUBSIDIES AND TRANSPARENCY

7.45 Before leaving the question of efficiency, the issue of the extent to which public sector enterprises should be used to raise taxes and/or redistribute income is raised. Many public enterprises have been used for one or both of these purposes. Telecom, for example, maintains a standard charge across Australia for many of its services. Since the cost of providing these services varies between telephone districts, high cost districts are effectively subsidised by low cost districts. In economic terms, an indirect tax is levied on all telephone users and the resulting revenue is distributed as a subsidy to Australians who live outside the capital cities.

7.46 The Telecom cross-subsidy to non-urban areas has been approved by successive governments. Its size was recently estimated at about $500 million per year.[30] Many economists oppose the use of deliberate cross-subsidies like this, although,

to paraphrase Adam Smith, few of these economists live outside the capital cities. Their arguments, however, are relevant to public sector efficiency. EPAC in a recent report claimed that cross-subsidies reduce allocative efficiency.:

> "Pricing methods which do not relate the price charged to the cost of producing an additional unit of the service are not likely to be consistent with allocative efficiency. There is a tendency to encourage over-use of a service which is supplied below cost, while unduly discouraging its use by those who bear the cost of the cross-subsidy..."[31]

7.47 EPAC also noted that cross-subsidies can only be used as a means of redistribution where they can be supplied through enterprises which exercise a degree of monopoly power. Enterprises which face competition will be under-cut in their profitable markets if they try to set excessive prices there to cover losses in the cross-subsidised areas. They will not therefore be in a position to cross-subsidise unprofitable activities to any great extent. EPAC went on to suggest that there were at least two alternatives to cross-subsidy; a direct subsidy from the budget and a direct subsidy funded through a levy on other users or providers in the industry concerned.[32]

7.48 It has also been argued that cross-subsidies are undesirable as a means of redistributing income because their costs and benefits are hidden. Professor Michael Porter recently went so far as to assert that, "the principle (sic) reason for state enterprises is to <u>conceal</u> cross-subsidies" (emphasis in original).[33] It is not necessary to accept this view of the rationale for the public sector to agree that hidden taxes on some users and subsidies to others are undesirable. The community

has a right to know how and why its collective resources are redistributed. In addition, there will always be a risk that cross-subsidies will allow technical inefficiency within an organisation to be wrongly attributed to the cost of meeting public service obligations.

7.49 Although many economists urge that cross-subsidies generally be avoided for all these reasons, others disagree. OECD economist Henry Ergas, in a recent, major report on telecommunications in Australia, argued that the main cross-subsidy in the Telecom accounts was an efficient way of achieving justified ends.[34] The Expenditure Committee in the last Parliament accepted Ergas' argument. The key issues are the degree to which cross-subsidies are visible or transparent and their size. The Ergas view, which is accepted by this committee as well as its predecessor, is that if a cross-subsidy is of moderate size and is properly identified in the accounts, it may achieve community objectives more efficiently and equitably than direct subsidies.

7.50 Most deliberate cross-subsidies have broad community acceptance and would be continued following any review, either in their present form or through a direct subsidy system. The Telecom rural cross-subsidy, for example, has been quantified and the broad scale of it has been accepted through the political process. Australia Post, estimates that standard mail rates Australia-wide provided a similar subsidy to residents of rural areas of about $24 million in 1980-81.[35] However total community service obligations are now in the order of $200 million.[36] Neither subsidy is large in proportion to the operations of the enterprise through which it is supplied and this is true of the Commonwealth sector generally. The committee concludes that there is little scope for improving efficiency by eliminating deliberate cross-subsidies in the Commonwealth sector but such subsidies should be made transparent through systems of clear, annual reporting of their extent and direction.

UNINTENDED CROSS-SUBSIDIES

7.51 Where natural monopoly provides the rationale for public enterprise, the committee sees no reason not to use that power for taxing and redistributive purposes provided the use is open and subject to scrutiny and review by the community. However, pricing policies of enterprises with a degree of monopoly power may also result in unintended cross-subsidies. The Hunter District Water Board noted in 1982 that the pricing system it then used resulted in careful users of water subsidising what the Board called 'water hogs' to the tune of $1.50 for each hour of unnecessary water use. Residents who owned low value properties and used small quantities of water received a reduction in water rates of around 50% following the change to user-pay charging. There was also a significant cross-subsidy between users in different categories prior to the change. In the non-residential sector, for example, industrial consumers paid for 63% of the water they used and agricultural users paid for 67%. Commercial users paid for all their own water and for the balance of the industrial and agricultural use.[37] Cross-subsidies of this type may occur both between different categories of users and between users in the same category.

7.52 The worst example of an unintended cross-subsidy to come to the committee's attention concerned transfers between different categories of users to the benefit of road transport. Heavy road transport vehicles, because of their weight, cause far more damage to roads than do cars but the charges for registering and using cars and heavy trucks do not fully reflect this, even when fuel excises are taken into account. As a result, it has been authoritatively estimated that each heavy truck receives a cross-subsidy of $15,000 per year from car users. The Bureau of

Transport Economics recently calculated that, in total, heavy road transport is subsidised to the extent of $1406 million per year. This compares with a combined deficit for rail freight of all the railway systems in Australia of about $300 million per year.[38]

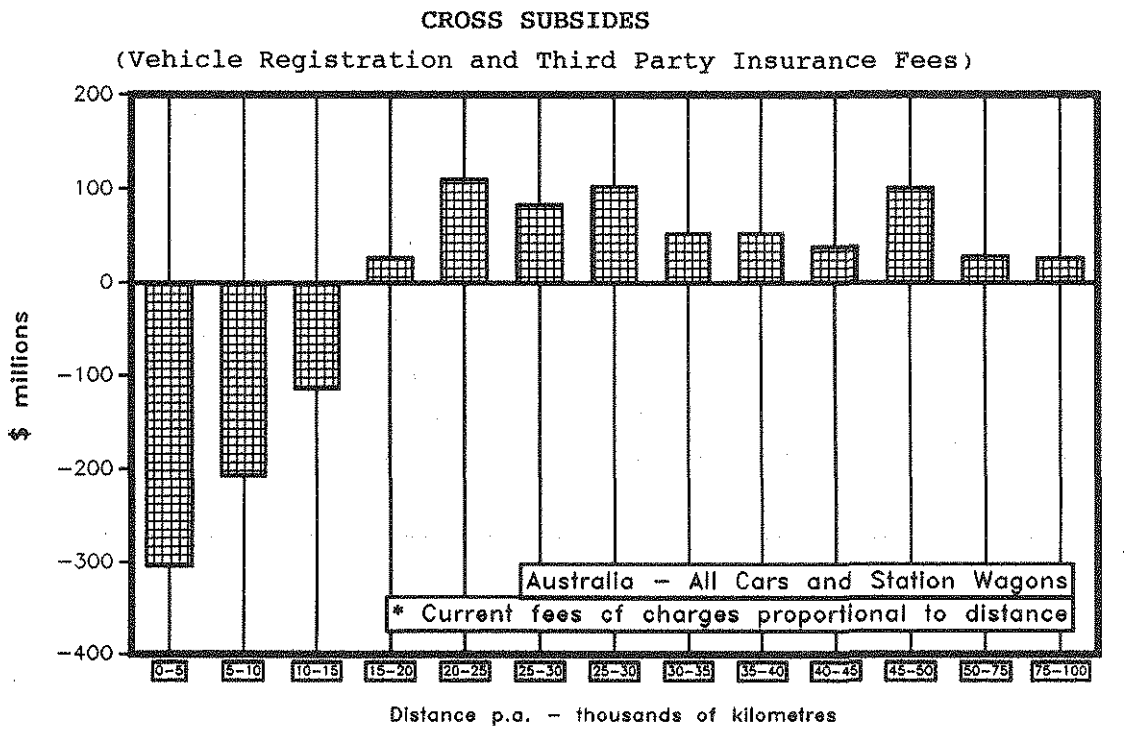
7.53 Road transport competes with rail in many markets and to ensure efficient choice between these two freight modes there should be no disparity in subsidy and preferably no subsidies at all. It is likely that both road and rail transport will operate inefficiently as a result of the different types and levels of subsidy. Road transport may be encouraged by the hidden subsidy into areas for which rail would be better suited. The railway systems, with their subsidies more open to public view may be starved of investment funds, even though this investment may have the potential to greatly increase operational efficiency.

7.54 Cross-subsidies between users in the same category also occur in many areas of public sector charging. They usually occur as a result of a flat-rate price structure which is administratively convenient but which does not take account of actual patterns of cost and use. In the Hunter District prior to 1982, a flat water rate provided a water allocation well beyond the needs of many households. 'Water hogs' paid much the same as more frugal users. Since the users of smaller amounts of water tended to be the elderly, often pensioners who were more likely to live in households of fewer people, the flat rate was quite regressive in its effect. The change to a user-pays system was clearly more equitable.

7.55 Similar cross-subsidies occur in the motor vehicle registration area where some fees such as registration and third-party insurance are not related to road use. The ABS survey of motor vehicle usage confirms the commonsense expectation that there are significant variations in the distances which different motorists travel each year.[39] When registration and third-party

insurance fees are allocated according to distance, the fees are highest for those who travel the least. The proverbial 'little old lady' who drives to church each Sunday subsidises the commercial traveller. If these fees were allocated according to user-pay principles based on distance travelled (through fuel taxes) a substantially different picture emerges. Taking the average registration and third party insurance fees for all cars and station wagons in Australia and allocating those fees according categories of distance travelled per year from the latest ABS survey a remarkable picture of cross-subsidy emerges. In comparison with the present system, all car and station wagon owners who travel above average distances receive a cross-subsidy which in total amounts to over $600 million per year from those car and wagon owners who use the roads the least (See Figure 7.1).

FIGURE 7.1



Sources : State Vehicle Registration Authorities, ABS Survey of Motor Vehicle Usage, 1985. Detailed microfiche tabulations

7.56 Economic opinion is virtually unanimous on the undesirability of unintended cross-subsidies like these, although it has been noted that an element of small cross-subsidies is probably inevitable in the pricing policies of any large organisation.[40] Hidden cross-subsidies not only contribute to allocative and operational inefficiency but are also usually inequitable. It is clearly unfair that car users should subsidise road transport operators or that responsible water users should subsidise their irresponsible neighbours.

7.57 It is important to note that some of the largest cross-subsidies exist in areas which would not be addressed by the initiatives proposed by Treasury and Finance. Under these proposals, the Australian National Rail line would face financial targets and direct controls aimed at improving the efficiency with which resources are allocated to and used by it. Unless the cross-subsidies to road transport are removed, its competitors on the roads would continue to enjoy large hidden subsidies.

7.58 In the committee's view much of the effort devoted to economic argument about cross-subsidies has been misdirected. It has paid too much attention to the operations of public business enterprises and too little to other activities where large unintended cross-subsidies exist, like road pricing. The committee concludes that removal of unintended cross-subsidies offers scope for improved efficiency. Movement in this direction may lead to more rational use of resources and defer or eliminate the need for new investment in some areas. In the case of the Hunter District Water Board, for example, water usage was reduced by 28% below the long term trend and construction of a new dam was deferred for at least 5 years, leading to very considerable savings.[41]

7.59 Some of the largest unintended cross-subsidies are in the budget sector rather than among public enterprises. The committee believes that much of the current concern with enterprise efficiency may tend to direct attention away from these areas with potential for improvement. The road transport cross-subsidies alone are about three or four times the Telecom non-urban subsidy. Unlike the telephone cross-subsidy the heavy truck and car cross-subsidies are not there for any social goal, but because institutional factors have kept them in the too hard basket. The removal of unintended cross-subsidies offers scope for improved efficiency in a number of areas and should be pursued through policies of appropriate pricing and charging. Many such subsidies occur in the budget sector and this area should not be neglected.

The committee recommends:

> **the Government should act to remove the distorting effects on allocative and operational efficiency of unintended cross-subsidies; the most glaring example being the large cross-subsidy to heavy road transport vehicles.**

ENDNOTES:

1. Whitwell, p. 144.

2. Exhibit 23, p. 1(ii)

3. Submission 34 (Finance), p. 433-4.

4. Submission 34 (Finance), p. 445.

5. Exhibit 22.

6. Australia, Senate, Statutory Authorities and Government Business Enterprises: A Policy Discussion Paper, AGPS, Canberra, 1986.

7. Victoria, Public Authority Policy and Rate of Return Reporting: Information Paper No. 1, Department of Management and Budget, October 1986, p 8,13

8. Submission 36 (Treasury), pp. 601-2.

9. W.Bolitho, 'The letter killeth, the spirit giveth life', Australian Journal of Public Administration,(AJPA) XLV (4), December 1986, p.338.

10. AJPA, XLV (4), p. 327.

11. Bolitho, p. 335.

12. Senate Select Committee on Statutory Authority Financing, Statutory Authorities of the Commonwealth: Financing, Parliamentary Paper No. 104/1983.

13. Exhibit 22.

14. Reprinted in Stretton, pp. 99-100.

15. Ray Rees, 'The proposed policy guidelines for government business enterprises: a review and a critique', Australian Journal of Public Administration, XLV (4), December 1986, pp. 320-23.

16. Hunter District Water Board, pp. 10-11.

17. R.W.Brack, 'Shall we burn our management books?', Australian Journal of Public Administration, XLV (4), December 1986, p. 328.

18. Submission 36 (Treasury), p. 602.

19. Rees, p. 322.

20. Rees, pp. 322-3.

21. Submission 50 (DHC), p. 1112.

22. Submission 50 (DHC), p. 1117.

23. Submission 34 (Finance), p. 434.

24. Correspondence, July 1987, p. 2.

25. Keynes, pp. 149-50.

26. Russell Mathews, Public Investment in Australia, F.W.Cheshire, Melbourne, 1967, pp. 322-34.

27. Don Aitkin (ed) The Howson Diaries: The Life of Politics, Viking, Ringwood, 1984, p. 222.

28. Peter Wilenski & Robert Goodin, 'Beyond efficiency: the logical underpinnings of administrative principles', in Peter Wilenski, Public Power & Public Administration, Hale & Iremonger, Sydney, 1986, p. 68.

29. Lee Iacocca, Iacocca: An autobiography, Bantam, New York, 1984, p. 46.

30. Australia, Parliament, House of Representatives Standing Committee on Expenditure, Poles Apart: Telecom's Zonal and Charging Policies in Rural and Remote Areas, AGPS, Canberra, 1986, pp. 170-80.

31. EPAC, Efficiency in Public Trading Enterprises, Council Paper No. 24, EPAC, Canberra, 1987, p. 15.

32. EPAC, Efficiency in Public Trading Enterprises, p. 38.

33. Michael G. Porter, 'Government regulation and privatisation', Canberra Bulletin of Public Administration, XIII (3), Spring 1986, p. 204.

34. Henry Ergas, Telecommunications and the Australian Economy: Report to the Department of Communications, AGPS, Canberra, 1985, pp. 104-6.

35. EPAC, Efficiency in Public Trading Enterprises, p. 15.

36. Australia Post, Annual Report 1986-87, p. 118.

37. Hunter District Water Board, pp. 8-16.

38. Australia, Parliament, Inter-State Commission, An Investigation of Cost Recovery Arrangements for Land Transport, Parliamentary Paper No. 119/1986, p. 408.

39. ABS, Survey of Motor Vehicle Use Twelve months ended 30 September 1985, detailed microfiche tabulations, July 1987.

40. EPAC, Efficiency in Public Trading Enterprises, p. 37.

41. P.J.Michel, Management of Urban Water Demand in the Hunter District Water Board, unpublished paper, 1986, pp. 5-7.

8. INSTITUTIONS AND NATIONAL PRIORITIES

Under the Australian federal system, the Commonwealth raises more revenue than it requires to finance those services and expenditures which come within its constitutional responsibility such as defence, social security, foreign affairs, immigration, quarantine, etc. On the other hand, the States which have constitutional responsibility for education, health, police, law and order, in addition to other social services, do not have access to revenue sources adequate to meet the costs of providing those services. (Hon. Mr Justice R.E. Else - Mitchell)[1]

INSTITUTIONAL ARRANGEMENTS - THE AUSTRALIAN LOAN COUNCIL

8.1 Accommodations between six sovereign States and the Commonwealth in the Australian federal system have led to decision-making structures and procedures relating to public borrowing which, it has been claimed by many commentators, leads to poor results. The balance between individual States, between the States as a group and the Commonwealth sector and local government and public enterprises is determined more by historical precedent than by any careful re-evaluation of public investment needs each year. A major theme of submissions to this inquiry was the need for institutional improvement.

8.2 There are three major concerns in the management of public borrowing. The macroeconomic effects of any level of borrowing are clearly important. It is also important that loan funds are allocated between competing uses as efficiently as possible. In a federation, equitable allocation of resources between component states is also essential. The central institution involved with public borrowing in Australia is the Loan Council. Fiscal balance between the States is a feature of

its operations but neither the Loan Council nor any other central agency has any comprehensive oversight of the efficiency of allocation of loan funds between the States.

8.3 The Loan Council was formed in 1927 to eliminate competition between the State and Commonwealth governments in the limited capital markets then existing. It was also intended to produce a coordinated approach to the problem of public debt; then at much higher levels relative to GDP than is now the case. The Loan Council has binding powers over the amount and conditions of all significant government borrowing in Australia and also decides the broad allocation of borrowings between the Commonwealth and the various States. It has no power over the composition of spending from borrowed funds nor over the aggregate level of investment by each level of government.

8.4 The Loan Council comprises the Prime Minister, or his nominee (traditionally the Commonwealth Treasurer) and the State Premiers. The interests of local government and of the semi-autonomous public enterprises are represented by State Premiers in the case of local government and State enterprises, and the Treasurer in the case of the Commonwealth enterprises. The Council normally meets in June but meetings may be called at other times. A secretariat service is provided by the Commonwealth Treasury but policy advice to Council members is the responsibility of their respective departments and other official advisers.

8.5 Three central features of Loan Council operations were of interest to the committee in this inquiry:

- the function of the Loan Council has come to be restricted to determining the overall level of borrowing, and by extension, it has become the main determinant of the overall level of public investment;

- the proportions of loan funds allocated to each State has hardly altered since the early 1950s; and

- the Commonwealth has come to dominate the Council.

The effect of these three factors is to reduce the link between particular investment decisions and the aggregate level of investment and between the process of investment and its funding. Investment ceilings are set at each level of government and investment projects are then ranked by whatever procedures have been developed by that government. The aggregate level within which local priorities are set is formed largely in isolation from any direct knowledge of needs.

THE OVERALL LEVEL OF BORROWING

8.6 As early as 1932, one commentator noted that:

> "...the Loan Council was, in effect, endowed with the function of regulating the speed at which the capital development of the whole country should proceed.."[2]

As recently as December 1983 the Martin report stated:

> "The ability of public authorities to undertake capital investment appears to have been constrained at times by the supply of finance. In recent years, the constraints appear to have related primarily, not to limitations on the volume of funds that domestic financial markets would be willing to supply to the public sector, but rather to official restrictions on authorities' borrowing activity (and on the ability of authorities engaged in commercial activity to raise prices or to retain earnings)..."[3]

8.7 The aggregate level of public borrowing each year is a key factor in determining the pace of public investment. Too little investment and we may sacrifice a more rapid rate of economic growth. Too much investment and we face declining but still positive returns on the investment dollar provided we target the projects which give the greatest return. It may be difficult or impossible to target an optimum level of investment. We can say that if projects are chosen wisely, raising the level of investment is the only way to achieve a higher rate of economic growth.

8.8 Most of the evidence pointed to too little public (and private) investment at present. The committee has concluded elsewhere that higher levels of investment would need to be financed in the short term by borrowing until the rate of domestic savings can be raised. This being so, it would seem important that the level of borrowings and the direction and potential of the investment funds be considered. A frequent theme in submissions to this inquiry was that Loan Council procedures pay insufficient regard to these issues.

8.9 The Australian Council of Local Government Organisations submitted to the committee that:

> "...the Loan Council does not act as a body coordinating investment funding and its allocation according to need. Further, there exists no other federal institution capable of examining the 'national and aggregate aspects of public infrastructure in Australia', the needs for maintaining existing and developing further infrastructure, or for assessing priorities between competing needs. Such an institution is urgently required..."[4]

8.10 The Australian Federation of Construction Contractors argued that:

> "Some involvement by the Australian Loan Council in public sector borrowing is also necessary to ensure that resources are allocated efficiently because of 'market failures' in the public sector. However, no mechanism exists within the Loan Council to evaluate projects so that resources are allocated more efficiently. ...A more permanent mechanism like the Commonwealth Grants Commission could be established to provide advice to the Loan Council as to a more efficient distribution..."[5]

8.11 These submissions reflect widespread concern for a long period of time among individuals and groups involved in public finance. The Advisory Council on Inter-government Relations reviewed the operations of the Loan Council in 1982 and concluded that the Council should advise on development policy and allocate funds for special development and infrastructure projects. [6] Numerous publications of the Centre for Research on Federal Financial Relations have made similar points [7]. A former Director of the Centre, Professor Mathews wrote in 1984:

> "...since arbitrary decisions have favoured some forms of public sector borrowing relative to others, discriminated against State general purpose loan programs, distorted the allocation of resources between and within the public and the private sectors, prevented the States from determining their own capital works priorities and ...made them resort to various expedients to circumvent Loan Council constraints..."[8]

There is no doubt that the vast majority of academic and expert opinion holds that the absence of priority setting mechanisms at the national level is, at best, unfortunate.

ALLOCATIONS BETWEEN STATES

8.12 The Loan Council may or may not be the appropriate forum in which to examine or set priorities but the rigidity in its overall allocation to the States is reflected in the figures. Information provided by the Treasury showed clearly that the proportional allocation of loan funds has barely changed in more than 30 years. In contrast, the relative distribution of population between the States has changed significantly in the same period, leading to large changes in the per-capita allocation of public loan funding within Australia. It would be comforting if these changes reflected deliberate and conscious decisions but it is impossible to believe this because the results appear perverse. A specific issue raised by the SA Public Accounts Committee (SAPAC) involved the funding replacement of assets which resulted through Commonwealth grants. The submission from the SA Premier noted that, "Whereas in 1980-81 specific purpose grants accounted for about 65% of total capital grants to South Australia, by 1986-87 that proportion is estimated to increase to about 80%." (Sub p.335) State program flexibility was reduced by this trend and also by the need for the State to provide funds for tied or matching arrangements with the Commonwealth.

8.13 By most accounts there are two main "types" of demand for infrastructure funds. One is to repair, replace and upgrade the existing network and the other is to extend the network. The demand to maintain and upgrade the existing network depends largely on the size of the population and to a lesser extent on geographic factors but the demand for extensions to networks depends largely on population and local economic growth. Leading from this one would expect that the States with the highest population growth to have the largest relative increase in loan funds. However, the figures show that the States with the highest population growth rates over the past decade have had a decrease

in funding from Loan Council sources on a per capita basis. By providing funds for new assets and not for their eventual replacement the Commonwealth may be unintentionally creating funding problems for the States when the eventual need for replacement or non-routine maintenance falls due. Therefore the committee considers that the Commonwealth may need to address this issue by providing funding for replacement and non-routine maintenance of infrastructure assets which were originally constructed with funds provided by the Commonwealth.

8.14 The relatively fixed allocation of loan funds between the States can be accounted for by the Loan Council arrangements rather than any deliberate or rational choice. As R.H.Scott explains it:

> "After the mid-point of the century, when State Governments were more willing borrowers and Commonwealth restrictions were more purposeful and potent than before, it was to be expected that willingness to make sacrifices for the sake of another should be limited in both extent and frequency...and State shares of State government borrowing programs have been fixed in a rigid pattern since the early 1950s. Indeed, once a pattern was formed, the formula for determining State shares of a national total in any year ...reinforced any tendency to preserve that pattern, based as the formula was on the shares of preceding years..."[9]

8.15 It can be assumed that this rigid Loan Council outcome has had an adverse effect on the economic growth of Australia since the States with the highest population (and economic) growth have had, through Loan Council, the lowest access to public loan funds on a per capita basis. Whether there are some

good distributional effects to outweigh the bad may be debated. The West Australian Government, in its submission to the committee, claimed:

> "The distribution of capital funding between the States should therefore reflect each State's needs in terms of relative rates of economic growth, population growth, etc. When these factors are taken into account it is apparent that Western Australia has been growing at rates above the national average and our needs for infrastructure financing on a per capita basis have exceeded those of other States... The relatively fixed factors determining State shares of capital funds (the factors determining the State shares have been virtually unchanged since the early 1950s) is considered to discriminate against higher growth States such as Western Australia and result in a lesser availability of general purpose Commonwealth capital funding and an increased reliance on higher cost sources of capital..."[10]

8.16 Distributional equity between regions is a proper objective of government and Loan Council may have contributed to this as part of a deliberate policy. It is difficult not to conclude that the weights given to the various factors 30 years ago are now no longer appropriate. Economists generally, however, would prefer that such interventions be transparent, with their objectives and effects clearly stated and understood. The distributional effects of the relatively fixed allocations of loan funds are clearly not transparent. Together with the tight limits on aggregate borrowing, they have prompted many attempts at circumvention of Loan Council restraints by various States.

COMMONWEALTH DOMINATION

8.17 The Financial Agreement, under which the Loan Council was formed, might appear to be an agreement between equals. But many commentators have claimed that a variety of structural and procedural factors give the Commonwealth effective domination. Mathews wrote in 1984:

> "To all intents and purposes, the Commonwealth is now able to control the fiscal transactions of State and Local governments in much the same way as those of its own departments and agencies. The aggregate level of Loan Council borrowing programs has been kept much too low in relation to the country's needs for public investment, so that in effect private sector borrowing has been given priority over public sector borrowing. The reason for this is not the relative needs of the two sectors or the fact that more government loans could not be raised in the capital market on reasonable terms, but rather that the Commonwealth, through the Loan Council, has imposed arbitrary limits on the amounts which State governments and their authorities may borrow..."[11]

8.18 The relative balance of Commonwealth and State power has led to frequent attempts by States to by-pass Loan Council controls. The first major change to Loan Council procedures, the 'gentlemen's agreement' of 1936 which established borrowing guidelines, for example, resulted from attempts by New South Wales to channel public works borrowings through statutory authorities to avoid Loan Council borrowing limits then in place. Wentworth, who was financial adviser to the New South Wales Government of the time, told the committee that Commonwealth pressures on the State extended to an offer of the Commonwealth Treasurership to the State Premier in exchange for compliance by his Government with Commonwealth wishes. While that offer was

declined, the State was eventually persuaded to comply by other means. The present 'global approach', which replaced the gentlemen's agreement in 1984, also resulted from an increasing incidence of State circumvention of Loan Council controls through sale/leaseback and other techniques, although the committee has no reason to believe that the Commonwealth Treasurership was offered up on this occasion. The committee has noted earlier the increasing popularity of public-private joint ventures for infrastructure development and these may also be seen as a way around tight public borrowing limits set by the Commonwealth.

8.19 The extent to which the Commonwealth actually dominates the Loan Council can be debated but it goes beyond Loan Council. It includes, since 1970-71, the Commonwealth's provision of interest free grants to the States. Between 1975-76 and 1984-85, one third of the States' borrowing program was financed in this way. Loan Council approved programs as a proportion the total capital funds provided by the Commonwealth to the States, had declined from 80% to less than 50% in the 25 years to 1979-80. There is no doubt, however, that the Commonwealth influence at Loan Council is strong. Given the need for macroeconomic management at the national level, this is probably desirable as well as unavoidable. The Loan Council is ultimately a political forum in which State and Commonwealth views tested and revised in a process of hard political bargaining. The question facing this committee was whether the Loan Council process could be improved.

8.20 Before considering specific proposals for reform put to this inquiry one further scheme should be mentioned. This was the Infrastructure Borrowing Program for larger public authorities initiated at the June 1978 Loan Council meeting. Under this program proposals for special additions to larger authority borrowings were examined. Eligible projects were those of special significance for national development which could not easily be funded under the normal Loan Council program. In special

circumstances overseas borrowings were permitted and a significant amount of offshore borrowing occurred during its operation. The Advisory Council for Inter-government Relations reported in 1982 that "the Program was initially considered on a project basis and allocations were made accordingly. Lately, however, approvals appear to have been politically determined".[12] In fact since 1980 no new projects have been approved and the program has been subsumed under the "global" borrowing limits now in place.

NATIONAL PRIORITIES

8.21 The Loan Council process has a significant effect on the level and distribution of public investment, and indirectly an effect on private investment. Its decisions on the level of public borrowing do have a marked effect on 'the capital development of the whole country'. Because of this, it has often been argued that the Council or some other body should make greater efforts to set priorities between projects. The committee considered a number of specific proposals to this end.

8.22 The Australian Council of Local Government Organisations argued:

> "Essentially two elements are necessary. One is for a federal institution involving the three spheres of government which determines priorities in infrastructure financing or investment funding. The second is for a mechanism which collects data of comparable quality or standards on which needs can be assessed.
>
> One institutional alternative favoured by both the Advisory Council on Inter-government Relations and the Centre for Research on Federal Financial Relations is to expand the present Loan Council in terms of objectives and staff resources to become a Federal Financial

Council involved in looking beyond public sector borrowing to include other financial transfers including *specific purpose grants*.

Another alternative could be for the present Loan Council to determine the level of infrastructure finance to be available within PSBR and for expanded Grants Commissions at both Commonwealth and State spheres to determine distribution..."[13]

8.23 The Australian Federation of Construction Contractors saw the existing Loan Council arrangements as not providing time for adequate participation by the States:

> "The participatory approach between the Commonwealth and the State Governments should be a continual process throughout the year and not left to the time of the Loan Council meeting. It should also provide the mechanism to evaluate programs so that resources are allocated more efficiently. Maybe a more permanent mechanism like the Commonwealth Grants Commission should be established to provide advice to Loan Council on the distribution..."[14]

The Federation was also concerned that the Australian political process is biased towards short-term priorities and it saw a need to "educate the country's decision-makers in the importance of investment".

8.24 The National Infrastructure Committee, which represents a wide range of interests, claimed that:

> "More effective mechanisms are required for determining infrastructure priorities, and the priorities of infrastructure in relation to other budget areas. The development of such mechanisms requires a better coordinated approach to infrastructure across the three

spheres of government; Commonwealth, State and local... In streamlining, upgrading and coordinating infrastructure decision-making processes, there is a need to maximise the use of existing mechanisms and structures. These include Commonwealth and State Cabinets and Parliaments, the Loan Council, Premiers' Conferences and other inter- and intra-government Coordinating Meetings and Offices, and parliamentary committees.

In addition to improving existing mechanisms and structures external Infrastructure Consultative Councils should be established for the Commonwealth and each State. The role of such Councils would be to provide advice to all spheres of government and to governmental agencies.

These Councils should include representatives from Governments, business, unions and community groups. They would highlight infrastructure issues, produce relevant material, and monitor infrastructure programs..."[15]

8.25 These views are representative of a widely held opinion that coordination of public investment in Australia is inadequate. The proposals for reform are also in line with many past calls for a greater level of politically neutral technical input into decisions and for a more broadly representative decision-making body. The State Governments which made submissions to this inquiry were more restrained in their specific proposals for change.

8.26 The State submissions accepted the need for restraint in the present economic climate and their views may have been tempered by this need. They did have a number of critical

comments on the Loan Council process. The Western Australian government suggested:

> "... close attention to the distributive mechanisms for available capital funding and, where appropriate, alterations to the funding levels to ensure that the most efficient use is made of scarce capital resources..."[16].

The South Australian Government argued for:

> "... further development in Loan Council rules allowing greater flexibility to the States and a longer time frame..."[17]

The Victorian Government stated that:

> "...due recognition should be given to the economic merit of proposed major initiatives... the loan raisings/works grant component of the Loan Council program, between the States do not appear to give due regard to the purposes to which the funds are applied..."[18]

8.27 Representatives of the Commonwealth Treasury were less hopeful that the changes proposed would take place;

> "Unless the States want to get involved in those sorts of processes, I think it is unlikely to take place. Frankly, I do not think it would be very productive. It is complex enough for us to handle the various processes involved in reaching decisions in relation to Commonwealth authorities. I think it would be completely unmanageable to think in terms of us having a round table debate with the States as to who has a stronger case as to particular projects they want to run.

> There is an obvious intellectual attraction in the idea of a centralised body laying down the rules which everyone must follow, whether it is investment analysis or whatever. But in practice, leaving aside the Loan Council complications of a federation, centralised decision-making is pretty difficult when it gets to matters of detail. One has to be trying to set up decision-making processes which can decentralise decision-making. Much of the debate about statutory authorities as vehicles for public investment is really about trying to get decision-making procedures which will give the right incentive to those making decentralised decisions. The Loan Council does not stand in one line as a particularly outstanding body for rational debate..."[19]

8.28 There is certainly scope for some improvement in priority-setting at the national level but achieving such an improvement will be difficult. The needs of macroeconomic management, allocative efficiency and equity between different parts of the nation are not easily reconciled. The committee is firmly of the view that a political process, such as occurs in the Loan Council, is the most appropriate forum for setting national public investment priorities. Any improvements in the efficiency of such a process must take account of the constitutional rights of the States and the Commonwealth as well as the historical development of the balance of power within the Australian Federation. Detailed investigation in this area being undertaken by the Constitutional Commission may hold some promise of longterm improvement.

8.29 In the shorter-term, some improvement might be available through improving the quality of the input to the Loan Council process. It seems an obvious deficiency that decisions which effectively determine the level of public investment are made

with little regard to actual need. The present procedures involve a risk that macroeconomic management may lead to a lower overall level of public investment than desirable for longterm economic growth. Further, the allocation of funds at the macro-level also leaves a lot to be desired from the viewpoint of allocative efficiency. The committee accepts that the balance is one requiring difficult and often subjective judgments and believes that these would be better made if more information on actual investment needs was available to members of the Loan Council.

8.30 The committee has seen that the relative importance of Loan Council decisions in relation to overall public investment has declined somewhat in the past 30 years. The Advisory Council on Inter-government Relations (ACIR) considered that an integrated approach should be taken to financial arrangements and that all aspects (including public sector borrowing plus general and specific purpose grants outside the scope of Loan Council) need to be studied in a co-ordinated manner. The committee agrees that a national approach to investment priorities would need to consider funding sources beyond the scope of Loan Council.

8.31 The committee notes the different treatment accorded to funds for capital and recurrent purposes. Recurrent payments from the Commonwealth to the States are determined at Premier's Conferences in the light of per capita relativities as reported by the Commonwealth Grants Commission. The Commission was established in 1933 and is empowered to inquire into and report on matters relating to the making of grants of assistance to States and the Northern Territory. Since 1979 the Commission has conducted three enquiries into the relative per capita distribution of general revenue grants to the States (the "relativities") that would be required to enable each State, provided it makes a comparable revenue effort, to provide services to its residents at a standard not appreciably below the standards of the other States. This is known as the principle of fiscal equalisation. [20]

8.32 There is no comparable body to research and advise on development policy and recommend funding of development and infrastructure projects. The ACIR examined whether the role of the Grants Commission could be expanded to include capital as well as recurrent grants. It concluded that the similarities between loan raising and specific purpose capital grants for capital purposes make it desirable for reviews of these matters to be made by the same body. As previously mentioned, the ACIR recommended the establishment of a Federal Financial Council to include present Loan Council functions but include a secretariat to provide policy advice and to assess infrastructure projects.[21]

8.33 The committee agreed with the general aims of this proposal but stopped short of recommending a particular structure to address the issues raised above; this being a major subject in itself which requires more comprehensive study than there has been time for in this already broad reference. There is considerable scope for improvements in the factual input to the Loan Council. Part of the reason for its rigidity could be the lack of a firm, researched and objective evaluation of the capital ie infrastructure needs of the States and Australia as a whole. The Commonwealth and State Grants Commissions already collect and assess a large amount of relevant information in performing their fiscal equalisation role. It may be possible to draw on this information so that the Loan Council can use it to determine national allocations in line with broad priorities rather than by a formula which essentially dates back to the 1950s. An expanded Loan Council research backup is presumed. There is no national body to assess whether a higher level of public investment in infrastructure would lead to more rapid

economic growth. There is insufficient coordination of major public sector investment proposals and the Loan Council has not been effective in this regard. The committee recommends that:

> **the Loan Council should attempt at least some broad measure of priority-setting and coordination of major public investment proposals.**

ENDNOTES

1. R.Else - Mitchell, Achieving Financial Accountability in a Federal System, Paper to the National Government Accounting Convention, Australian Society of Accountants, 1987 p. 82.

2. Cowper, quoted in R.H.Scott The Australian Loan Council and Public Investment, Centre for research on Federal Financial Relations, Occasional Paper No. 31, ANU 1983, p. 7.

3. Martin Committee, Report of the Review Group, Australian Financial System, AGPS 1984, p 230

4. Submission p. 1

5. Submission, Discussion Paper p. 1

6. Submission p. 4

7. Submission p. 7

8. Quoted in Submission p. 4

9. R.H.Scott The Australian Loan Council and Public Investment, Centre for research on Federal financial Relations, Occasional Paper No. 31, ANU 1983, p 22.

10. Submission p. 6

11. Submission p. 3

12. Australia, Parliament Advisory Council for Inter-Governmental Relations, Australian Loan Council and Intergovernmental Relations, PP No. 439/1982 p 19

13. Submission p. 5

14. AFCC Paper p. 15

15. Submission pp. 5-8

16. Submission p. 7

17. Submission p. 3-4

18. Submission p. 4

19. Evidence pp. 609 & 611-12

20. Budget Paper No 7, 1985-86 p 17-18

21. ACIR p 93,105

9. SECTORAL TRENDS AND ISSUES

> *Public concern has moved beyond simple physical evidence of deterioration to include the economic importance of public works facilities. Increasingly, it is understood that the condition, safety, and responsiveness of the nation's infrastructure are a reflection of national commitment to maintaining a healthy and competitive business climate, improving the quality of life, and providing a sound economic future for generations to come. (National Council on Public Works Improvement)*[1]

9.1 In a report as wide ranging as this it is not possible to deal adequately with all of the issues raised on specific areas of infrastructure. In the report the committee has sought to highlight the main issues and common areas of concern raised in the submissions and at the hearings but only so much can be highlighted. In this chapter some of the specific issues raised for the main categories of infrastructure are covered. A number of the categories have been the subject of previous study or enquiry and some of these are referred to.

9.2 Each section is preceded by a short summary of the trends in the major categories of public infrastructure expenditure in the post-war period. The comments should be read in conjunction with the corresponding graphs which show expenditure expressed as a proportion of GDP. The graphs enable comparisons between the major categories over a relatively long timeframe comparable with the lifespans of infrastructure assets. They also avoid some of the difficulties of deflating prices over such long periods.

9.3 Several factors should be kept in mind when attempting to assess need for future infrastructure investment. Productivity and technical advances may allow a greater amount of investment per dollar than in the past. This is offset by the tendency for capital equipment and construction prices in Australia to rise more rapidly than overall prices. One also needs to assess how much investment is going on replacement and maintenance as opposed to extensions of the network. The "echo" effect for replacement of past investment is certainly important for parts of the network and also for the overall national scene. Replacement may be cheaper than the original in some cases (eg. electronic versus older electro-mechanical switchgear) but it could be more expensive in others (eg replacing water or sewer pipes in built-up urban areas).

9.4 The graphs show at a glance how the share of the national cake devoted to the main infrastructure categories has changed over time. At the national level past patterns of investment do give some guide to the desirable future level of investment after consideration of the nature of each category (see also Chapter 4).

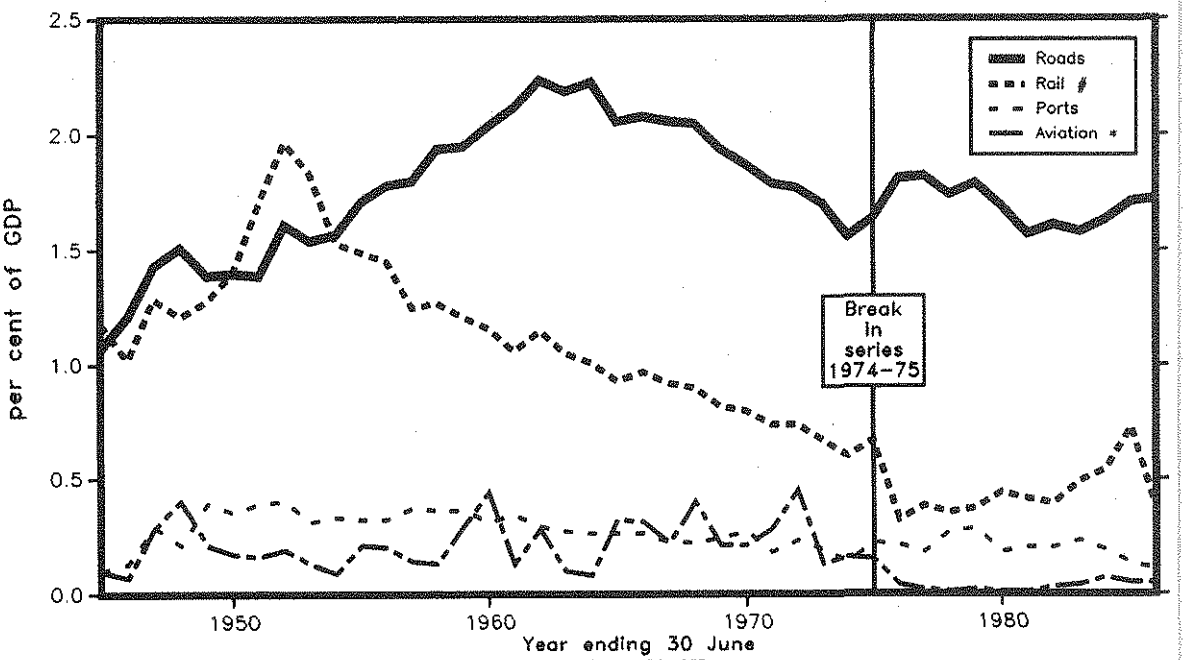
ROADS

9.5 The relative expenditure on roads rose from a wartime low to a peak in the early 1960s and declined subsequently until a pickup in the mid 1970s and 1980s (See Figure 9.1). Despite the apparent rise in road expenditure the provision of roads did not nearly keep pace with the increasing numbers and use of road vehicles. All three levels of government have an input to road funding and allocation of road funds. Within the overall allocation there have been examples of both overprovision and underprovision in the road network.

FIGURE 9.1

PUBLIC CAPITAL FORMATION - TRANSPORT

(As a percentage of gross domestic product)



Sources : Barnard and Butlin, Department of Transport and Communications, ABS, BTE
* Airline expenditure excluded after 1974-75
# Includes internal funding until 1974-75

9.6 The main concerns raised before the committee related to the raising of revenue from road users overall and the distribution of costs between users. There was a widely held view that motorists were used as a source of taxation and figures presented to the committee supported the claim. The proportion of revenue used for roads fell short of collections for both the Commonwealth and State governments at 61% and 65% respectively in 1983-84.[2]

9.7 The distribution of costs between road users was of major concern. It was widely claimed that heavy transports impose a burden on the road network which is not borne by those vehicles. This was expressed as a cross-subsidy from car owners to heavy trucks which amounted to some $15,000 p.a. per vehicle. Witnesses believed that the undercharging issue had not yet been adequately addressed. It also had adverse effects on competing transport modes, especially rail with the (subsidised) competition occurring at the end of the transport spectrum where rail has a comparative advantage namely heavy freight over long hauls. It has been recently claimed by officers of the Bureau of Transport Economics that trucks with 3 or more axles failed to pay road costs attributable to this class of truck of some $1406 million in 1985-86.[3] This estimate exceeds the State total rail freight deficit which was estimated to be "in excess of $300 million"[4]

9.8 A more concerted effort should be made to eliminate this form of cross subsidy. This could be accomplished by a greater use of existing mechanisms, including higher fuel taxes on trucks, that is on distillate, and an offsetting reduction on petrol (mainly for cars). It was suggested by one witness that Federal road funding be contingent on efforts being made by each State and Territory to reduce its road freight deficit. A precedent for this approach has already been supplied in the United States by their Surface Transportation Assistance Act, 1982.[5]

9.9 There was widespread support for roads revenue to be raised on a user-pays basis. The Executive Director of the Australian Road Research Board, Dr Lay said:

> "I am very aware of the Treasury-type arguments against hypothecation but in respect of that marginal usage of the system at least there needs to be in the internal

system a feedback that the user is paying for his use of the system. I think on those grounds a level of hypothecation is justified..."[6]

9.10 In this respect fuel excises, when hypothecated for road use were favoured over flat rate charges unrelated to road use such as registration fees. Although flat rate fees can, in theory, be set to achieve some equity between vehicle categories they fail to achieve equity within categories. Only use-related fees such as fuel excises or weight-distance charges can achieve this. Here a conflict emerges because the efficient user-pay charges such as fuel excises are not directly available to the States. However, all States except Queensland have introduced what are euphemistically described as "business fuel franchise fees" of about 2 to 6 cents per litre as a substitute. One alternative to defacto excises would be for the Commonwealth to collect dedicated excises on behalf of the States if agreement could be reached by all parties. Obviously there needs to be a degree of uniformity in these charges to reduce border hopping.

9.11 A further option to address the under-charging of heavy transports would be a load distance tax along New Zealand lines. This scheme was regarded by the Interstate Commission as the best of those for which it had a reasonable amount of information.[7] It could be introduced by the States although the Inter-State Commission had reservations because it would require a uniform approach by all governments"[8]. Priority should be given to introduction of a weight distance tax despite these obstacles. In New Zealand this tax raises about the same revenue as the New Zealand fuel tax. It has the advantage of more fully capturing the costs imposed by heavy vehicles since fuel taxes are not "progressive" enough to achieve this aim. In the short term greater reliance could be placed on differential fuel excises between petrol and distillate because distillate is now the main fuel for heavy transports. Such a move would also address the current cross-subsidy between cars and trucks. Even though 3 of

the 5 States which impose business fuel franchise fees do, in fact impose a higher charge on distillate, the differential is less than 2 cents per litre and not sufficient to adequately address the problem.

9.12 Continuity of funding was a most important aspect of road funding emphasised by contractors, state road authorities and motoring organisations. Continuity enabled road teams to be kept together and avoided the high cost of stop-start work. In this respect the Australian Bicentennial Road Development program and the Australian Land Transport programs achieved a large measure of continuity through a dedicated share of fuel excise revenue. They were regarded as "first rate programs" by Dr Lay.[9] However, budget constraints had resulted in cuts in the latter program in the last 3 years and the Secretary-General of the Australian Automobile Association said that the road system was now at a standstill and would start to deteriorate very rapidly unless adequate levels of funding were supplied.[10]

9.13 A related issue is the provision of funds for maintenance. This issue was raised in relation to roads but has wider applicability. It was claimed that often funds were more readily available for new works than for subsequent maintenance. In the USA there had been particularly striking examples of freeways which had been allowed to virtually disintegrate into a mass of potholes because subsequent funds for resealing and maintenance had not been made available. Dr Lay told the committee that there is an equal obligation every time the network is extended to make provision for maintaining it.[11] Often that provision has not been made in the past. Commonwealth road funding had been for construction of roads and not for maintenance in the same way. According to Dr Lay there was also "more justification for hypothecating funds from users to maintain the system because it is the users who are imposing a marginal cost on roads which is recovered in a reasonable way through the fuel tax.[12]

9.14 The committee asked witnesses for specific examples of infrastructure gaps or deficiencies. In the roads area urban arterial roads (including ring roads) were most frequently mentioned as in need of further investment. Evidence was cited to show quite high rates of return on these projects in the major cities, "cost-benefit ratios are very high, 4 or 5 times".[13] Major rural arterials between major towns were also mentioned. A specific example quoted by the Australian Automobile Association was a comparison of the declining accident rate on the Hume Highway (which had been extensively upgraded) and a rising accident rate on the Pacific Highway which lacked similar upgrading.

RAILWAYS

9.15 Railways investment recovered sharply in the early post war period but throughout most of the post-war years investment has shown a relative decline (See Figure 9.1). This was despite the gauge unification moves and the conversion to diesel and electrification during this period. The share of general rail traffic has declined through most of the post-war years mainly as a result of competition from the private car for urban passenger traffic and road transport for freight.

9.16 A failure to invest and modernise the rail network and improve its operational efficiency has restricted rail's ability to compete and as a result most of the rail authorities have run at a deficit for many years. The Australian Transport Advisory Council considered in 1959 that the annual rate of capital invested in railways was small having regard to the traffic task performed.[14] The Council believed there was scope for further investment to modernise and develop the railways and to continue the program of improved tracks and structures, modernise rolling stock, and add amenities and terminal facilities. A quarter of a century later, the situation had not improved:

"National rail mainlines are burdened with 19th century design specifications, break of gauge problems and a national land transport investment strategy which effectively relegates mainline investment to discretionary Ministerial funding from what may or may not be left over from the National Roads Budget.."[15]

9.17 From a national perspective, rail transport's problems began last century when State government's began developing their own networks and chose 3 incompatible rail track widths. The problems of incompatibility still extend far beyond the tracks to such things as couplings, braking systems, steps and handrails and also into operational areas affecting labour practices and working conditions. As for the road network, prime responsibility for rail still rests with the States (with the exception of non-metropolitan South Australian and Tasmanian rail which have been transferred to the Commonwealth). However, while funding of the road network is shared between all three levels of government public rail infrastructure is predominantly a State government responsibility.

9.18 The main issues in relation to rail transport flowed from the lack of an integrated land transport policy and an imbalance between road and rail transport in funding, in research, and in pricing. Federal rail funding in the post-war period has generally been in the form of specific purpose payments to the States, the majority being loans repayable with interest, while road funds have been outright grants. From 1951-52 to 1982-83 about $1030 million (in 1982-83 dollars) was made available by the Federal Government for rail works.[16] These funds have been directed principally to linking all the mainland capital cities to a national standard gauge network and to assisting the States to upgrade lines which are integral to interstate and overseas trade.[17]

9.19 In the past decade the Commonwealth has increased its funding of road infrastructure but decreased its funding of rail. The Australian Railways Union said:

> "Against the general trend in public infrastructure investment, the Commonwealth allocation to the states for roads increased dramatically from $433.8 million in 1976-77 to $1250 million in 1986-87. Over the same period annual Commonwealth allocation to the States for rail declined from $58.4 million to $0.2 million..."[18]

There was therefore, a dramatic improvement in the national highway network but no comparable improvement in the national rail network. The level of investment recommended for rail was not of the same order as that for national roads but even this was not forthcoming.

9.20 The Report on Rail recommended that the Commonwealth:

> ".. increase the level of assistance for mainline upgrading now provided in the National Railway Network (Financial Assistance) Act 1979 to at least $83 million per year ($1979-80) from 1982-83 to 1986-87. This compares with the existing Act which makes provision for $70 million over five years, 1978-79 to 1982-83..."[19]

This recommendation was not acted on and Commonwealth allocations for rail fell from $28 million in 1982-83 to $4.6 million in the following year. Moreover, the States' ability to invest in rail infrastructure was also hampered from 1983 onwards by the imposition of railway fuel excises (which amounted to $63 million in 1983-84). Unlike the principle of hypothecation outlined in the 1985 Australian Land Transport Program for roads, a dedicated share of railway fuel excise taxes has never been hypothecated to investment in rail infrastructure.[20]

9.21 The only national body capable of planning and assessing rail requirements, the Australian Railway Research and Development Organisation (ARRDO) was disbanded in July 1986. Further, it was claimed that there is now no national rail research planning whatsoever while at the Federal level various avenues are available for planning and assessing the road infrastructure and they receive grants of some $10 million per year.[21] Some of ARRDO's functions will be addressed by the Rail Industry Council (RIC) which was established at that time but it appears to the committee that the means of rigorously researching and identifying profitable avenues of investment in rail from a national perspective appears to be lacking at present.

9.22 The Rail Industry Council comprises representatives of Federal and State governments (with the exception of Queensland) the ACTU and the railway unions. It is expected that the RIC will have an important influence on the future direction of the industry and in particular the evaluation of its future infrastructure needs.[22] The committee doubts that the new arrangements will ensure that new proposals are identified and thoroughly evaluated in the national interest. There is an urgent need to look at many new proposals for rail. These include links from the major city airports to the central city areas, upgrading of intercity lines to cater for piggy backing and to increase the speed of intercity links.

9.23 The question of pricing is critical for an efficient land transport network so that prices facing users reflect the true costs of providing the rail and road network. By not fully covering the costs they impose on the road network, as mentioned above, heavy transport charges are lower and they pick up more freight from rail than they would otherwise. This has an adverse effect on rail's ability to compete. Part of the overall rail deficit can therefore be ascribed to "unfair" competition from heavy transports, especially for heavy items of freight over long distances where rail is normally most competitive.

9.24 A comparison of interstate rail and road freight costs was undertaken by the Inter-State Commission in 1986.[23] It compared cost recovery ratios for rail and six axle articulated trucks concluding that the cost recovery ratio for interstate road transport substantially exceeds that for interstate rail. Cost recovery ratios for trucks ranged from 72% to 94% and the Commission based its conclusion on a comparison with the estimated overall average for rail of 66%. However, the cost recovery ratios for rail ranged from below 40% to over 180%. The figures show that rail freight revenue exceeds fully distributed costs in some States but in no case did the heavy trucks fully pay their way.

9.25 This committee noted the Inter-State Commission's recommendation towards full cost recovery;

> "The Commission's clear conclusion is that before steps are taken in the progression towards full cost recovery, it is essential that more accurate estimates be available of the road costs attributable to particular vehicle classes. It will also be necessary to monitor the progress made by the rail systems in improving their cost recovery levels..."[24]

Rather than wait for more accurate data the committee believes that the magnitude of the cost under-recovery for heavy transports was sufficient to be addressed immediately. Later estimates appear even more glaring; the latest estimate puts the cost at some $1406 million and this estimate shades the rail freight deficit of some $300 million. Results of a recent paper by staff of the Bureau of Transport Economics show that while there is considerable over recovery of costs from private

motorists, operators of heavy vehicles pay only a small proportion (34% in the case of six axle articulated vehicles),in terms of effective road user charges, of the costs incurred by their use of roads.[25]

9.26 Aside from the major pricing problems affecting resource allocation there was a number of deficiencies in the rail area which should be addressed. First, there appear to be great economic and operational advances to be gained from having a national perspective on all aspects of railway design so that new investment is able to take advantage of economies of scale rather than have 5 separate systems. Secondly, rail's place in the national transport scene has not received the same priority from the Commonwealth as that accorded to road and air transport. This is perhaps reflected in the then Commonwealth Minister for Transport's initially sceptical response to the Very Fast Train proposal. Finally, to assess the scope for new investment in rail a greater research effort will be necessary. Rail appears to have been caught in a catch 22 situation; the operational deficits have discouraged new investment and failure to invest and modernise is one reason why rail deficits continue.

9.27 There were quite a number of potentially profitable rail upgrades and new investments which were brought to the attention of the committee. These include; standard gauge lines to ports at Brisbane, Melbourne, and Geelong and from Melbourne to Adelaide, a Sydney airport to city rail link, electrification of high traffic lines, alignment and clearance upgrades on the Sydney Melbourne line, and proposals for new links such as the VFT from Sydney to Melbourne.

THE VERY FAST TRAIN

9.28 The Very Fast Train (VFT) is a proposal for a new high speed track between Sydney and Melbourne via Canberra, Cooma and south along a coastal route. The proposed railway would be built

and operated by private enterprise. Pre-feasibility studies have proved favourable and the consortium is to undertake a full feasibility study. The VFT would use standard gauge, double track, conventional line with electric 25kV alternating current. Speeds of up to 350 km/h would allow travel times of one hour between Sydney and Canberra and three hours between Sydney and Melbourne. The high speeds enable steeper grades than with conventional rail resulting in a cost saving of perhaps $2 billion in comparison with conventional rail. The all-up cost was estimated at $3.66 billion over the chosen route.

9.29 The committee heard that the project will divert traffic from other modes and that this demand is about one third of the present demand on this route. A very large part of the traffic will be new traffic generated from the short travel times and relatively low cost, estimated to be $35 Sydney-Canberra and $70 Canberra-Melbourne. The greatest impact will be on airline traffic between Sydney and Canberra which could be virtually wiped out while the Sydney-Melbourne traffic could be reduced by 30%. Since air traffic was growing rapidly the loss of air traffic was only equal to about 5 or 6 years growth. Air traffic would not fall below what it is now.[26]

9.30 Rail passenger traffic on the existing line is also likely to disappear from both routes but it was claimed that those are unprofitable routes anyway. However the proponents of the scheme believe that they will be helping State rail authorities a great deal in that there will be an estimated 5 million passengers arriving and departing from both Sydney and Melbourne from the VFT and many of these will use the suburban services. Further demand is expected from feeder services to Newcastle, Wollongong and other regional centres. It was claimed that "from the State rail point of view.. the whole thing would

lead to greatly increased employment on railways and lift the standing, the reputation and the role of the whole railway community..."[27] Freight traffic would scarcely be affected because the freight taken would be of a totally different character.

9.31 The main area which the proponents see as needing government involvement was in land acquisition along the route. Costs would be met by the proponents although detail on whether the land would be owned by the joint venture partners or leased had yet to be decided. No other subsidies or concessions were required. The proponents have stated that:

> "...we are asking for nothing financial from the taxpayer, or the Government, except the privilege of paying tax..."[28]

9.32 The committee is impressed by the imagination, scale and potential of this new project. It ranked potentially with some of the great national projects of the past such as the Snowy Mountains Scheme. Most of the major infrastructure projects in the past had been undertaken by the public sector but the committee welcomed this new private initiative though noted that there would be dangers from exploitation of the market if one company is involved in each of the alternative transport modes between Sydney and Melbourne. The committee thought that there was however, a large grey area which involved the public sector through existing State rail reservations and perhaps facilities at either end. Also of course, Commonwealth and State governments have responsibility for transport planning and coordination and must therefore maintain detailed oversight of the project.

9.33 In other countries it is not uncommon for governments to be involved on some sort of joint equity basis and the committee questioned the proponents on this aspect. They thought that having governments involved through a minority equity would be a

"very good thing." While not speaking for the joint venture partners, the proponents thought that they would probably welcome a certain degree of public equity.[29] This aspect of divis Townership and responsibility between the public and private sectors has been under question in the aviation industry. The committee recommends that:

> **serious consideration be given by the Commonwealth Government to participating in a joint venture with the present proponents of the Very Fast Train.**

AVIATION

9.34 Expenditure on aviation facilities has shown a long term rising rate of expenditure but a more variable pattern than for other transport modes. This is mainly due to large investments involved in the provision or upgrading of major airports in the capital cities. Air traffic has been the most rapid of any transport mode and this is reflected in the generally rising trend on aviation infrastructure works since WW2. It appears that aviation infrastructure has not generally suffered from severe financial constraints, perhaps because of direct access to Federal funding, although political factors have adversely affected investment decisions in recent years (see below).

9.35 The Commonwealth Government is the major provider of airports and airways facilities. State governments play a regulatory role and provide subsidies to a small number of aerodromes. Local authorities own and maintain a significant number of aerodromes. There have been a number of significant changes recently aimed at improving the efficiency of airway and airport operation. These changes follow the strategies recommended by the Independent Inquiry into Aviation Cost Recovery (Bosch Inquiry) in 1984.

9.36 The Bosch report concluded that there was virtually no possibility of achieving 100% cost recovery under the arrangements at that time. The highest level of cost recovery ever achieved was 66% in 1979 and since then it had declined to 55% in 1982-83. The Bosch Committee estimated that if those arrangements had continued the recovery level would have fallen to about 49% in 1987-88. These figures were, with the exception of one figure in one year, lower than for rail; of 5 rail cost recovery studies undertaken in recent years, the lowest cost recovery figure was 65%.[30]

9.37 The Bosch inquiry found that governments have over-serviced the aviation industry so that industry revenues were not sufficient to fund the infrastructure as it was currently managed.[31] Bosch found cause for concern in almost every aspect of the situation. Some of the problems identified were:

- infrastructure costs not accounted for;
- arbitrary methods of allocating costs;
- charges not closely related to costs; and
- decisions that affect cost levels were taken without consideration of whether there will be offsetting revenue.

9.38 Significant changes are underway which will address many of these issues. A Federal Airports Corporation is expected to be established in January 1988. It will be responsible for investment decisions relating to airports. An in principle decision has also been made to establish a Civil Aviation Corporation to be responsible for the provision, operation and maintenance of airways facilities. The Department of Aviation

submitted that the thrust of these initiatives is to improve cost recovery, to achieve higher efficiency through modernisation of facilities and to emphasise commercial criteria in decision making.[32]

9.39 The main deficiency or gap raised before the committee concerned the inadequate provision of facilities at Sydney's Kingsford Smith Airport. Air traffic growth through the terminal was nearly 10% in 1985-86. Over 50% of international travellers declare New South Wales as their principal destination. In-bound traffic has been enhanced by overseas promotion and adverse factors discouraging tourism in some other parts of the world. Sydney airport is just not up to the task. The terminal was designed for 1000 passengers per hour. Even following a $23 million upgrade due for completion in 1989 its capacity will be only between 1600 and 1800 per hour but in the first hour of the day between 3000 and 3600 passengers sometimes arrive.[33] The airport suffers a peak load problem in the early morning and minor peaks at other times such as late afternoon. It was claimed that the upgrade will only overcome the current problems, and that with the substantial growth there will be additional problems that will have to be addressed in some other way.[34]

9.40 The committee views the peak load problem as one for peak load pricing. A representative from the Department of Aviation said there had been "...a lot of discussion... but so far nobody has been willing to try it".[35] Delays of up to 3 to 4 hours for some passengers to clear inwards have been reported.[36] It appears that the problem will only get worse until the upgrade comes on stream in 1989. Long waiting times are unacceptable to many overseas tourists and many would be quite willing to pay higher airfares to avoid them. This option is not available at present for early morning arrivals. If just half of the 3000 plus

early morning arrivals could reduce their waiting times by one hour for $20 each, over half the cost of the current upgrade would be raised in a single year. The obvious solution is to sell the highly prized early morning time slots to the highest bidders.

9.41 Problems identified at other airport facilities were not of the same magnitude as for Sydney. Tullamarine was experiencing some aircraft and terminal congestion due to the peak load problem. Darwin Airport was the most primitive, being a converted hangar and, for this reason needing an upgrade although Department of Aviation officials were unwilling to say that it should be number 2, 3 or 4 in terms of priority. One comment the committee found curious was that the Department of Aviation has a restriction that "...we have to clear the terminal when the winds get up to about 60 kilometres an hour..."[37] Given that the terminal survived cyclone "Tracy" with winds of over 200 km per hour perhaps the terminal is in better shape than current management practices would suggest.

PORTS

9.42 Ports expenditure has declined relatively throughout the post-war years. During this period passenger travel has virtually disappeared while there have been major changes and economies in the handling of cargo with the introduction of containerisation and bulk handling. Infrastructure provision is generally regarded as adequate but operational inefficiencies remain and some have suggested that there are too many ports for efficient use.

9.43 Specific issues raised include the need for rationalisation on the number of ports, especially in Northern Tasmania. There could also be a need for some upgrading of the Melbourne port facilities if recommendations in a recent report

to the Federal Government on liner shipping arrangements are followed up.[38] The main recommendation was for the bulk of Australia's liner trade to be concentrated at the main terminal ports of Melbourne, Sydney and Fremantle.

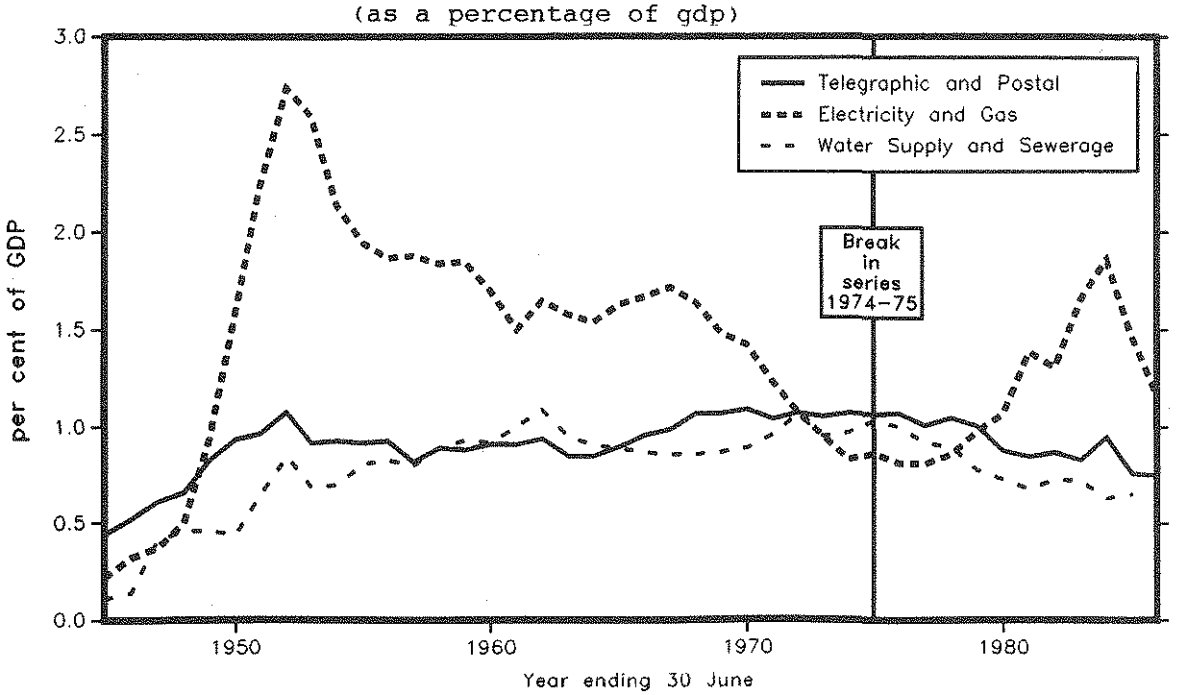
COMMUNICATIONS

9.44 Posts and telegraphic services were grouped until the separation of Telecom and Australia Post in the mid 1970s. The telegraphic component is the larger with Telecom capital expenditure in recent years over $2000 million p.a. compared with around $50 million for Australia Post. The combined posts and telegraphic graph shows that in the post-war period relative expenditure rose until the early 1950s and then levelled out (See Figure 9.2).

FIGURE 9.2

PUBLIC CAPITAL FORMATION - NETWORKS

(as a percentage of gdp)



Sources : Barnard and Butlin, Department of Resources and Energy, Telecom and Australia Post

AUSTRALIA POST

9.45 Australia Post has a statutory obligation to meet at least half of its capital expenditure from internal sources. But at present, in practice, it has been required to finance a far higher proportion of capital expenditure from internal sources. "Of the three occasions Australia Post has gone to the Loan Council, rationing of access to loans has meant... capital spending consequentially lower..." than planned.[39]

9.46 Australia Post's annual turnover is around $1.3 to $1.4 billion and capital investment was programmed at around $80 million in 1985-86. Just under half was financed from profits with the remainder expected to be financed from depreciation and other reserves. A $40 million short-term borrowing facility is used to smooth out cash flows but does not provide anything beyond the current year. A senior officer of Australia Post told the committee that:

> "We have been excluded from the Budget and from access to the Loan Council since Australia Post has been in existence. The Government has taken the position that if we need capital money we should finance it ourselves..."[40]

9.47 Australia Post has argued that although it is expected increasingly to operate as a commercial enterprise it is subject to the processes of the Prices Surveillance Authority, it has a statutory requirement to provide services at rates and charges as low as possible but that "...the pursuit of this statutory requirement is compromised by limitations on borrowing."[41] They argued that "...if profits do not achieve... the level which we anticipate they should when we do our initial planning, we find ourselves cutting back on investment during the year..."[42]

Statutory obligations require Australia Post to fund unprofitable mail obligations but "projects with low, or no financial return are included with profitable projects with the aim of yielding an average (real rate of) return of 5%".[43]

9.48 The committee thinks that subjecting a significant but imprecise proportion of Australia Post's capital investment to the vagaries of "profit" in any one year results in a less than optimal investment program. It could deny Australia Post the opportunity to undertake "profitable" investment when the opportunities are there from, say, new technology and thereby sacrifice long term growth and productivity increases. One example of new technology was in equipment for optically reading, handling and sorting letters. Representatives of Australia Post stated that:

> "We are moving into an area with the introduction of (new) technology... There are pressures... on the capital program by these initiatives, which are becoming a much greater proportion of the capital program than... in the past. In the past it was mainly buildings and land acquisition... we need either to find funds from elsewhere, or perhaps move into a program of selling off part of our assets and leasing back..."[44]

However, the committee was told that the sale and leaseback arrangements are often in the nature of financial leases and hence are subject to the global limits of Loan Council borrowings and even where they are not regarded as financial leases, there are real limits to the extent to which Australia Post can prudently increase its on-going costs.[45]

9.49 A large part of Australia Post's investment is in buildings and over 60% are over 25 years old.[46] This is a far older age profile than for private sector non-residential

building. Australia Post personnel believe that they are putting a higher percentage of funds in to building maintenance than they ought to:

> "We spend about 5.5 per cent of our historic written-down value of our buildings in maintenance every year... about 40 per cent of our building stock is in fair or worse condition..."[47]

Additional money spent on capital works in the building area would reduce the amount of money required for on-going repairs and maintenance. A further problem is that many building redevelopments or upgrades "...get one tied up in historical, or heritage issues, as was the case with the Sydney GPO..."[48]

9.50 Figures tabled by Australia Post appear to support the notion that postal investments are not keeping up with international trends (see table 9.1). There were no specific references to gaps or deficiencies in the postal domain by other submissions. The committee concluded that the rejection by the government of very modest borrowing applications by Australia Post was having an adverse effect on its investment plans. Australia Post was facing competition for almost all of its services except perhaps its unprofitable statutory obligation, and to meet competition needed to modernise and market its services. The present borrowing limits are "...brutally effective in restraining (authorities') investment behaviour. This is particularly evident when a comparison is made with the much weaker effects on private investment induced by monetary policy..."[49]

TABLE 9.1

GROWTH IN EXPENDITURE ON FIXED ASSETS

% growth

5 years to 1984-85

(10 years to 1984-85)

Australia	Sweden	U.K.	U.S.A.*
27	255	200	131
(83)	(511)	(246)	(105)

Source: Submission by Australia Post.

* Note: 4 and 8 year comparison to 1983-84.

TELECOM

9.51 Telecom is Australia's largest enterprise (public or private) with over 8% of the national infrastructure stock managed by Telecom. To illustrate its importance for the quality of modern life, Telecom drew an analogy between the importance of the road system that united the Roman Empire and what telecommunications do for us now.

9.52 Over the past 25 years the main thrust under the Telecommunications Act has been to provide an affordable telephone service to all Australians. This goal had been achieved and the task ahead was to modernise the telecommunications network. This involved digitising the network through the so called integrated services digital network (ISDN). ISDN will be introduced in an evolutionary way. In the first phase the telephone exchanges and the transmission links between them are

converted from analogue to digital technology. This process has been underway for some time. The second phase extends the process of conversion or digitalisation of switching and transmission facilities into an integrated digital network (IDN). Then, in the third phase the width or capacity of the telecommunication's lines is enlarged significantly. The latter development to wideband ISDN will be accompanied by the replacement of many existing copper cables with fibre optic cable which is ideal for ISDN-standard communications.

9.53 ISDN was described by Telecom as:

> "a bit of a moving target, because ISDN is really a system of international protocols for hardware and development and so on for the future... What it really means in practice is that over the last few years Telecom Australia and most telecommunications administrations have been progressively digitising their core networks... so that you have digital exchanges which have much greater capacity and more intelligence. When you have the voice facility (of a telephone) what ISDN is offering is that at the same time (as you are talking on the phone) you can transmit data to and from your terminals or someone else's at the same place or not at the same place..."[50]

9.54 The principal advantage of ISDN is its much greater flexibility. At the moment the cost of the ISDN system is slightly over the equivalent of two normal exchange lines but it gives the equivalent of two normal telephone lines. It is proposed to introduce ISDN services from 1988 to those customers who would make most use of it, essentially large businesses first, then general business and finally households.

9.55 The Ergas Report, commenting on suggestions that the Australian network required an annual increase in investment of 8% in real terms to achieve resonable growth objectives and the failure to achieve such rates under periods of financial constraints noted the following consequences:

- there has not been enough spare capacity in the network to meet the rapid growth demand;

- insufficient funds have been available to replace fault-prone equipment and improve the grade of service (although substantial progress has been made in this respect); and

- digitalisation has fallen behind the levels justified by the growth of demand and now lags behind the programs implemented in the other advanced economies..."[31]

9.56 Ergas examined three broad options to finance a higher level of expansion in the Australian telecommunications network. They were:

- greater retained earnings;
- greater borrowing; and
- greater quasi-equity capital.

The first option considered was a reduction in the incremental capital output ratio (ICOR) to allow greater network growth rates. (The ICOR ratio measures the amount of output from a small increase in capital investment). There has been a significant downward trend since 1974 in the ICOR when normalised for demand fluctuations implying that a dollar spent on the telecommunications network goes further each year.

9.57 How ever, Ergas concluded that "...it would be unrealistic to expect a major decline in ICORs over the period to 1995..."[52] The reasons were:

- rapidly increasing software costs at a time when networks are becoming more software intensive;

- the initial costs of digital systems now being installed were typically high (but offered low expansion costs); and

- technical progress had reduced the expected lifespans for telecommunications equipment in some cases to less than half that of the 1960s; implying more rapid replacement and higher costs.

9.58 Retained earnings or "profits" provide the major source of Telecom's investable funds. Higher internal investment funds could be obtained by higher productivity, increased prices or lower dividend and interest payments or repayments to the Government. Ergas concluded that preliminary calculations for the Australian (Telecom) network suggest annual rates of growth in total factor productivity two to three percentage points above American, Canadian and French levels, and more than twice as high as the overall average for the Australian economy. At least on the evidence currently available , the scope for further accelerating these rates must be judged to be limited.[53]

9.59 Higher prices were a further option for raising the level of retained earnings. Ergas did not think that Telecom price levels were too low by world standards but drew two conclusions in relation to pricing from the viewpoint of economic efficiency;

- the cross-subsidy provided by Telecom to rural and

remote subscribers may be a more efficient means of subsidising these subscribers' usage of the network than direct financial transfers; and

- there may be scope for increasing demand responsiveness and flexibility of the pricing structure, notably by refining and extending time-of-day discounts, in both domestic and international networks.

9.60 A third option to increase Telecom's retained earnings would be to reduce the dividend payout to the Commonwealth. Although payout rates have eased since 1983-84 they remain high when set against average private sector payouts and were four times higher than the level for Japanese and Canadian networks. Ergas found that payments to the Commonwealth out of net income have been an element of significant unpredictability in the authorities' financial planning, since they have largely been set in the context of the Government's annual budget cycle. This contrasts sharply with the private sector, where dividend policy is determined by longer term financial objectives and reviewed according to short term profit fluctuations. It is seldom determined by shareholders' short term budgetary needs.

9.61 External finance or borrowings provide a second fund raising option. Over the last decade Telecom's share of the public sector borrowing requirement (PSBR) had declined from about 10% to about 3%. Available evidence suggests that the return on further investment by Telecom exceeds the opportunity cost of capital. Therefore it may be regarded as more efficient to borrow to finance that investment than to fund internally by raising prices. Borrowing utilises voluntary savings but higher charges could be seen as forced savings implemented by using

Telecom's prices as an indirect taxing mechanism. These factors support the conclusion that there is scope for Telecom to increase its level of commercial borrowing, including, where appropriate, greater recourse to off-balance-sheet borrowing.

9.62 A final external source of funds is provided by financial instruments similar to equity capital with funds made available through project finance and for subsidiary companies in ancillary areas. Ergas found that:

> "the upgrading of the network would lead to new opportunities for the development of 'value added networks', which provide features above and beyond those available from the basic Telecom network. This is an area in which Australian producers can be highly competitive, and where there should be opportunities for export to other countries in the region. Telecom and OTC have taken numerous initiatives to develop value-added networks. They should continue to do so, both directly and through subsidiary companies with profit centre responsibility for particular services. The important role of the private sector in promoting value-added networks is recognised by the authorities... The scope should be examined for cooperation in developing value-added networks between the authorities and the private sector, notably through joint ventures..."[54]

9.63 The main issues raised before the committee related to the limit on Telecom's investment program and the uncertainty created by the current procedures. The uncertainty problem was raised by Telecom in relation to Telecom's borrowing and dividend payment:

> "The process of interaction with government on borrowing levels and related financial matters leads to disruptive

and de-stabilizing last minute changes to Telecom's capital program..."[55]

Telecom's chief economist stated that situations where there are short term changes to programs were not working and were very expensive.[56]

9.64 The committee found little evidence of significant gaps in the provision of telecommunications infrastructure. However, the issue of the boundaries for STD zones was raised. A major barrier to development of (local) employment in the satellite city of Macarthur was telephone links to Sydney which were charged at STD not local call rates.[57] Obviously the Telecom practice of charging the same local call rate througout Australia is debased if satellite cities and the commuting zones around the major cities are not included in the one STD zone.

9.65 Although there were few gaps in the telecommunications network, opportunities for productive investment are being lost by the restrictions on Telecom's investment level. Short lead times in the notification of borrowing approval levels and dividend requirements have imposed unnecessary cost imposts. Evidence points to telecommunications being an area offering a very high potential return on funds for both Telecom and related private sector investment. It appears to this committee that Australia's growth rate is being retarded by restrictions on Telecom's investment.

UTILITIES

9.66 Electricity and gas expenditure rose substantially with the commencement of coal-fired power stations and the Snowy Mountains Hydro-electric Scheme in the early post-war period and then declined until further substantial power stations were added in the late 1970s and early 1980s(See Figure 9.2). The peaks reflect the power station component rather than extensions to the

electricity network. The gas component has been usually fairly small except during the construction of the North-West Shelf to Perth gas pipeline in the early 1980s.

9.67 Provision of electricity was one of the few areas of infrastructure where there were no "gaps" but rather there was a significant surplus in generating capacity in some States. This had arisen as a by-product of the surge in demand for power for smelting aluminium in the early 1980s. Other factors were the lower economic growth rates during this period leading to demand growth below forecast levels, long lead times and inflexible timetables for power station construction and the electricity industry's inablity to defer projects due to contractual arrangements. This excess of generating capacity represents an investment of hundreds of millions of dollars.[58]

9.68 One particular deficiency was identified. This was the lack of electricity supply arrangements across State boundaries. A multi-state grid has been proposed by the Institution of Engineers as a means of keeping the reducing the capital costs of the networks.[59] This would be achieved by minimising the rolling reserves and total reserves to the benefit of each State component. The main interstate link was provided between Victoria and NSW when the Snowy Mountains Scheme was developed more than 25 years ago, but interest in such arrangements in the intervening period had seldom been put in to practice. However, South Australia and Victoria are currently engaged in the development of a shared electricity grid.

WATER AND SEWERAGE

9.69 Expenditure on water and sewerage services rose consistently from the end of the war until the early 1960s reflecting the rapid population growth and suburban growth of Australian cities. Expenditure then levelled out with a slight peak in the mid 1970s reflecting a concerted effort to catch up

on a sewerage backlog in some cities. The subsequent relative decline reflects a slowdown in population growth and a rise in medium density housing in mainly settled areas and a slowdown in "greenfields" land servicing.

9.70 A major study on water resources was published by the Department of Resources and Energy in 1983. The Water 2000 study comprised the report of the Steering Committee and 13 consultant reports. The study identified eight major issues facing the water industry until the year 2000:

- protection and improvement of water quality;
- more efficient use of available water supplies;
- the conservation of existing water supplies by more appropriate allocation and financial policies;
- coordinated management and use of water and land use resources;
- adequate provision for in-stream uses;
- improvements in data collection and analysis of information dissemination;
- provision of adequate funding for water resources purposes' including research; and
- a continuing Commonwealth Government role.

The report identified a changing emphasis in the industry from one of development of new sources of water supply towards the more efficient management and use of existing supplies. This was

being accomplished through more appropriate financial and economic management policies and improvements in the technical efficiency of distribution.

9.71 As a case study to illustrate a change in financial and economic management, the committee undertook an examination of the recent major restructuring at the Hunter District Water Board (see also Chapter 7 and Appendix 9). A key aspect of this reorganisation was the introduction of a "user-pays" tariff. The Board faced a series of problems typical of those faced at times by public authorities, namely:

- water consumption close to the limit of storage capacity;
- the revenue base not covering the real cost of recurrent maintenance expenditure; and, as a result;
- an accumulated backlog of deferred maintenance.

9.72 There appears to be a considerable gap between the theoretically desirable pricing options for public utilities and the actual pricing in place. The gap was analogous to that between pure research at tertiary institutions and application of that research in Australian industry. Some of the benefits achieved for the Hunter Board by the move to an efficient user-pay pricing system were:

- water consumption was substantially reduced deferring the need for further capital expenditure on water storage capacity;
- the deferral allowed resources to be devoted to a maintenance backlog;

- greater horizontal equity was achieved ie "water hogs" no longer paid the same amount for water as careful users;

- vertical equity was achieved through a slight element of progessivity (owners of more valuable properties paying a little more; although more could have been achieved); and

- demand for servicing of vacant land was reduced temporarily due to removal of an effective subsidy to these landowners.

9.73 A second case study examined by the committee was the water and sewerage works of Launceston City Council (see Appendix 6) . While a pricing solution would be of long term benefit it appears that much of its infrastructure has passed the point where it should have been replaced and the Council is now facing severe maintenance problems. As a result a high proportion of the available rate revenue is being consumed in merely maintaining a deteriorating network without sufficient funds being available for replacement.

9.74 The Launceston City Council stated that: "Launceston is facing major problems in coping with accelerating deterioration in its urban engineering infrastructure. Most of its services within the central city area were constructed in the 1840's - 1890's..."[60] The Council provided documentation on a quite alarming series of deteriorations and failures in the water and sewerage network:

> "Despite repairs to the Margaret Street (central city) sewer the danger of imminent collapse is very real. collapses impose huge repair and social costs on the

community... Some of our early sewers lie under buildings. The problems associated with collapse in these situations can be imagined..."[61]

9.75 Replacement costs were estimated at $1.5 million for trunk water mains and $14 million for the central area sewerage system. The latter work was recommended by consultants but covered mains and feeders only. The majority of the catchment has been developed on a combined system with water and sewerage in the one pipe and it would cost $40 million to "separate" the system.

9.76 Launceston should be treated as a special case for provision of funds to undertake the upgrading work, perhaps by greater access to borrowing, because of the risk and high potential cost of doing otherwise. However, infrastructure authorities must be encouraged to provide adequate reserve finance for the replacement of water and sewerage works before rising maintenance costs impose intolerable burdens on the communities they serve. The older metropolitan water and sewerage authorities also face the same need to replace old water and sewerage pipes but the high cost is more easily covered by the large revenue base of these cities.

9.77 Restructuring is being carried out by the Sydney Water Board. This included ocean outfall sewerage treatment to reduce pollution problems at Sydney beaches and augmentation of water storage dam spillways following an update on figures for likely maximum rainfall in catchment areas. A major restructuring of the Board had been undertaken to improve the operational efficiency, cut red tape and enable quicker responses. This had been achieved in consultation with unions and employees and had resulted in a reduction from 14 to 7 or less in the number of hierarchial

levels. These changes appear to have had a significant effect on the Board's efficiency. This is perhaps reflected in rate increases which have fallen significantly in recent years and the Board aims to keep them at current levels with rises that are below the CPI.

9.78 A number of specific gaps or needs in the water, sewerage and drainage area were raised. The number of unsewered urban areas had been reduced significantly in recent years but small portions of the networks in all cities visited remain to be completed. In the major cities the remaining unsewered areas are generally in difficult terrain or in semi-rural areas both of which are expensive to service. A major gap is in Perth where some 35% of the metropolitan region is without mains sewerage. It has been estimated that it would cost $800 million to remove this backlog.[62]

9.79 A major problem is looming in the Murray-Darling drainage basin in the form of a rising water table and serious salinity and drainage problems. In many of Australia's older irrigation districts particularly in the Murray-Darling basin, the irrigation infrastructure such as water supply and drainage channels is in very poor condition, either through poor initial design or lack of maintenance or poor irrigation practices. Leakage from these channels has, in many instances, contributed to the salinity problems. These problems are beginning to have a major economic and social effect on the viability of some industries and the regional economies based on them. These issues are being considered by the Murray-Darling Basin Ministerial Council and an amount of $7.7 million has been allocated for salinity control in the Murray-Darling and south-west Western Australia in 1986-87.[63] Far greater sums will be needed if a solution is to be found to this problem.

9.80 A related issue is the declining quality of the Adelaide water supply. Adelaide draws its water from the Murray River and rising salinity and turbidity is becoming a major issue. To maintain the current standard of water quality (which many regard as the worst in Australia) will require increased water treatment and major expense for water treatment facilities if current trends continue.

SOCIAL INFRASTRUCTURE AND EDUCATION

9.81 Education infrastructure (mainly buildings) rose consistantly until the early 1960s reflecting rapid population growth in the younger age groups, higher school retention rates as well as the rapid extension of urban areas during this period. The education share was maintained until the early 1970s when a sharp rise occurred during the Whitlam years. This was followed by a downward drift in part reflecting the passing of the post war baby boom "bulge" in the age distribution, but also a slowing in the rate of urban expansion (See Figure 9.3).

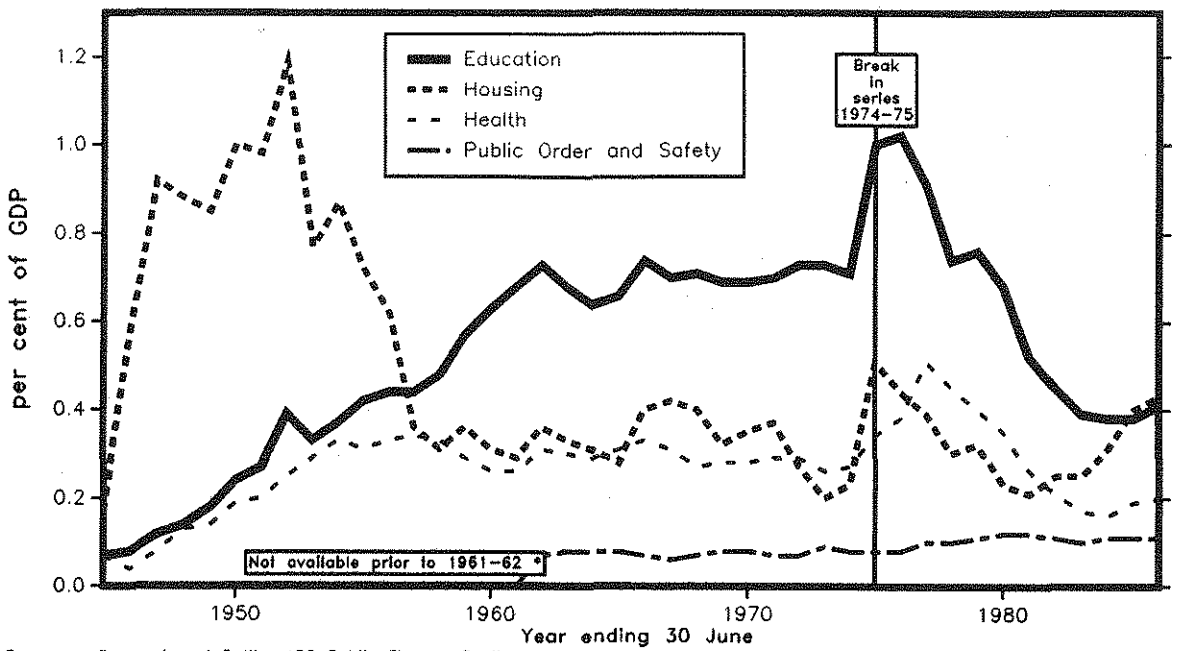
9.82 Educational requirements in future may be conveniently grouped into schools (for 5 to 16 year olds) and college/tertiary/TAFE institutions for the 17 to 22 year olds. The number of school age children is expected to fall until about 1989 but rise thereafter (see Figure 4.1). As school requirements follow the location of school age children there may be a surplus of under utilised schools in "older" areas but still a demand for new schools in outer areas of the major cities where young families live. Whilst increases in the number of school age children are likely to lead to a rising demand for public expenditure on schools, other factors such as participation rates and average expenditure per student are also important. The latter has risen sharply in recent years, by 19% between 1974-75 and 1981-82 and this has contributed substantially to the 117% increase (in real terms) in total outlays over that

period.[64] Even if there is no further increase in expenditure per student, total expenditure is likely to continue to rise until well into the next century. Another feature of projected school age population is the fluctuation in numbers. Until the 1990s declines in the numbers at primary school age coincide with increases in the number at secondary school age and vice versa. These trends indicate the likely need for flexibility in manpower and infrastructure arrangements.

FIGURE 9.3

PUBLIC CAPITAL FORMATION - SOCIAL INVESTMENT

(As a percentage of gross domestic product)



Sources : Barnard and Butlin, ABS Public Finance Section
Public Order and Safety source : ABS all years

9.83 The numbers of 17 to 22 year olds is expected to continue rising to peak in the early 1990s and fall back by some 7% to 8% about 6 years later (see Figure 4.1). In the short term pressure is likely to be placed on tertiary training facilities but there could be some easing shortly afterwards. On the basis of population figures alone demand for TAFE and higher education

places will increase by some 1.5% per year over the 1988-90 triennium falling to 0.3% a year for the rest of the 1990's.[65] More specifically Queensland, Western Australia, the ACT and the NT are expected to experience significant growth in the relevant age groups in the 1988-90 triennium and throughout the 1990s. With demands for a greater proportion of the population to undertake tertiary training and perhaps a carry-over of unmet demand, the expected levelling in numbers may not be translated into a commensurate reduction in the demand. Following the fall in numbers of 17 to 22 year olds in the late 1990s numbers will continue to rise for the next 15 or 20 years adding significantly to the demand for new tertiary infrastructure.

9.84 The main aspect of education infrastructure raised before the committee related to the need for a greater investment in human capital. While this enquiry has been concerned primarily with the adequacy or otherwise of public physical infrastructure the committee places great importance on the need for complementary investment in human capital. This aspect was highlighted before the committee in relation to the need for Australia to restructure - to change direction significantly. Dr Brain from the NEIR said:

> "We are expecting, in the longer term, the Australian economy to become a much more skill intensive - value added intensive basically - economy..."[66]

To achieve this aim it will be necessary to provide buildings and equipment to meet not only the needs of training the "17 to 22 year olds" but the retraining needs of older persons in the workforce.

9.85 The inadequate level of funding of equipment purchase and maintenance within universities was of serious concern to the committee. The Department of Science stated that there is

"probably a fairly significant backlog of re-equipment that has to be tackled".[67] In view of the need for training in the sciences and engineering where the Australian workforce numbers fall short compared with other nations constraints imposed by poor equipment are potentially very serious. Examples included instruments that "just do not have the resolution and accuracy that scientific journals demand nowadays". Equipment of this nature was largely imported and the dollar depreciation had increased the size of the problem.

HEALTH

9.86 Health expenditure followed a similar rapid rise to education in the early post-war period but expenditure levelled out during the mid 1950s with a subsequent peak in the late 1970s and then a decline (See figure 9.3). High rates of immigration have assisted in keeping Australia's age profile fairly young despite a relatively low birthrate and kept the share of GDP devoted to health infrastructure relatively constant since that time. Total health expenditure, in contrast has continued to rise. As a proportion of GDP it has risen from about 5% in 1960 to about 7.5% of GDP in 1980. The Department of Health have projected a rise to around 9% of GDP by the year 2000.[68]

9.87 The greatest use of medical services is made by the aged. The number of persons aged 65 or more is expected to double over the next 35 years rising at an average annual rate of over 2% per year (see Figure 4.1). This will create a rapid rise in demand for the types of infrastructure needed by the aged including medical facilities. Despite the aging of the population the age profile of Australia will still be younger than many other developed countries. Overall, the demand for health related infrastructure is expected to rise significantly, but less rapidly than either the projected rise in the aged or the projected rise in overall health outlays.

HOUSING

9.88 In the early post-war period considerable public resources were allocated to housing. A chronic housing shortage had developed during the war and the early Commonwealth-State housing agreements were aimed at overcoming some of the shortage through public housing. Public housing expenditure fell back in the mid 1950s and remained fairly constant in relative terms until the mid 1970s and early 1980s when successive Federal Labor Governments increased the money for public housing.

9.89 A very strong private housing sector in the post-war period has at times reduced the perceived need for public housing and perhaps lead to some fairly dramatic mistakes in the way public housing has been handled in Sydney and Melbourne in particular. These include some well publicised examples. The first was the resumption and demolition of private terrace housing in the 1950s to make way for high rise housing commission blocks. At the time many of these areas were regarded as slums but only a decade or two later these same houses were keenly sought by new owners for renovation. Not only were significant numbers of people displaced (especially migrants) but the new high rise blocks were not well suited to the needs of the types of families that were housed in them. At the other extreme, tracts of public housing were constructed on the fringe of urban areas well away from transport and community facilities. Without access to facilities this housing was also not well suited to the needs of tenants.

9.90 The backlog in the demand for public housing was described at the hearings as enormous and showing no signs of abating.[69] Over recent years the capacity of individuals to finance their own houses had diminished due mainly to high interest rates. This fact, plus the higher unemployment rate and a rise in the number of family break-ups have added greatly to

the public housing waiting lists. Another factor has been the reduced supply of private rental housing in some areas. In Australia only a small proportion of housing has been purpose built for rent from new with most of the supply coming from small landlords who formerly occupied the properties or landlords who are wishing to sell the housing when the market is "right".

9.91 The committee sees a continued need for public housing. Several lessons may be drawn from the past "mistakes". Many of those cited above are unlikely to be repeated. However, the committee's attention was drawn to the fact that public housing had been sold during the 1950s and later under financial arrangements by the vendor which were favourable to former tenants but did not allow the stock of public housing to be preserved.[70] In other words, housing was sold under concessional financial arrangements which encouraged ownership but deprived housing authorities of revenue to replace that housing stock. The committee has no objection to encouraging ownership among former tenants provided it is done in a way which allows the public housing stock to be maintained by replacing stock which is sold. In fact, it may be desirable to sell public housing under certain circumstances if this allows purchase of housing which better meets the needs of public tenants or if it avoids expensive rehabilitation, replacement or maintenance costs.

9.92 A rising maintenance bill is of great concern to most housing authorities and many are looking at available options including sale. However, it appears that those persons going into public housing are on lower relative incomes than was formerly the case and are not in a position to buy. Some of the State housing authorities are therefore looking at various options to reduce maintenance costs. Shared equity schemes are one option which may go part way and perhaps involve tenants in day to day maintenance.

9.93 An illustration of the size of the maintenance and replacement costs facing public housing was provided by the South Australian Housing Trust. The South Australian Housing Trust is facing a substantial rise in its public housing costs over the next 20 years according to a study undertaken by the SA Public Accounts Committee.[71] If past policies and practices continue unaltered, replacement of public housing in South Australia will double in the next 5 years and be three times current levels by the year 2000 after adjusting for inflation. The current level of maintenance expenditure is therefore a quite inadequate guide to future requirements. In evidence, it was clear that a growing maintenance bill was of concern to all State housing authorities.

9.94 In response to growth in public housing lists State housing authorities "have been trying to spread the dollar further by entering joint ventures with the private sector and by lease-back arrangements and things like that..."[72] These types of arrangements were generally supported in the submissions received.

9.95 Commonwealth funds for housing were once entirely in the form of loans but from the very early 1980s an increasing proportion of funds have been by way of grants. The great bulk of funding is untied grants "but there are specific areas, for example, the local government community housing program where a specific amount of money is specifically intended to encourage the States to get local community groups involved, generally through the provision of land or voluntary services..."[73]

9.96 The Commonwealth is also involved through its power over taxation arrangements. One anomaly in this area was brought to the committee's attention. Because of a decision related to leveraged leasing of power stations "stock leased by the public

sector does not attract depreciation allowances... inadvertently, or because of some previous decision, we built in a distortion which makes it more difficult to lease stock from the private sector..."[74]

9.97 The committee concluded that there was currently a substantial need for public housing as demonstrated by the rise in the size of public housing waiting lists in the past few years. The committee supports the continuing high priority of funding for public housing.

PRISONS

9.98 Prisons seldom attract attention until there are serious problems. The age of prisons was raised as problem (see box 2.4) by a small number of submissions but on further investigation the committee found that the problem of age and inadequate facilities was being compounded by chronic overcrowding. In a paper prepared for the committee by the Australian Federation of Construction Contractors, on infrastructure gaps and deterioration the AFCC said that:

> "...there is increasing awareness of the physical inadequacy of corrective institutions in all States. Gaols, remand centres and similar facilities are showing their age in over-crowding, the expense of repairs and difficulties in adaptation to new crininological and surveillance techniques. The stage has been reached when major works must be considered..."[75]

9.99 Specialists in the area of criminal justice have expressed similar views. Professor Richard Harding recently observed that:

> "Australian prisons in all jurisdictions except Tasmania are chronically overcrowded... Basic facilities, such as visiting and interview rooms, are under constant strain; reasonable hygiene is not easy to maintain; AIDS prevention and drug rehabilitation programs are very difficult to implement. The cumulative stress impacts not just upon the inmates but upon prison officers and other correctional staff..."[76]

Although there are some prospects of slowing the rise prison numbers by use of home detention and electronic surveillance it will really only buy time without addressing the basic problem of an aged and inadequate prison stock.

JOHN SAUNDERSON
Chairman

November 1987

ENDNOTES:

1. National Council on Public Works Improvement, Defining the Issues, Washington, 1986.

2. Evidence, p. 443.

3. Transport Who Pays? 12th Australian Transport Research Forum, July 1987.

4. An Investigation of Cost Recovery Arrangements for Interstate and Land Transport, Inter-State Commission Report, April, 1986. p.408.

5. Dr P.G. Laird, Submission p.9.

6. Evidence, p. 142.

7. Inter-State Commission op cit p.235.

8. ibid, p. 235.

9. Evidence, p. 141.

10. Evidence, p. 291.

11. Evidence, p. 138.

12. ibid.

13. Evidence, p. 298.

14. Australian Transport Advisory Council, Transport Costs in Australia, March 1959, p.32.

15. Australian Land Transport Trust Fund Bill, 1984 Explanatory Memorandum, p.2; quoted in ARU Submission, p.11.

16. Department of Transport, Submission, p.14.

17. Evidence, p. 438.

18. Australian Railways Union, Submission, p.3.

19. Australian Railways Research and Development Organisation Report on Rail, Melbourne, 1981, p. xx1.

20. Australian Railways Union, Submission p. 4.

21. Evidence, p. 155.

22. Evidence, p.439.

23. op. cit. p.360.

24. ibid. p.24.

25. David P. Luck and Ian J. Martin, "Road pricing and cost recovery" in Transport, Who Pays? 12th Australian Transprot Research Forum, Brisbane, July 1987, p. 659.

26. Evidence, p. 342.

27. Evidence, p. 345.

28. Evidence, p. 346.

29. Evidence, p. 348.

30. Interstate Commission, p. 322.

31. Independent Inquiry into Aviation cost Recovery Aviation Cost Recovery. A.G.P.S. Canberra, November 1984, p.14.

32. Department of Aviation, Submission p.2.

33. Evidence, p. 482.

34. Evidence, p. 398.

35. Evidence, p.484.

36. Department of Sport, Tourism and Recreation, Submission p. 9.

37. Evidence, p. 491.

38. Liner Shipping Report - An Industry Task force Review of Australian Overseas Shipping Legislation, A.G.P.S, 1986.

39. Australia Post, Submission, p.2.

40. Evidence, p.45.

41. Australia Post, Submission p.2.

42. ibid. p.56.

43. ibid p.43.

44. Evidence, p. 58.

45. Australia Post, Supplementary submission p.2.

46. Exhibit 12.

47. Evidence, p. 49.

48. ibid. p. 48.

49. Australia Post, Supplementary submission, p.5.

50. Evidence, p.50.

51. H.Ergan, Telecommunications and the Australian Economy (Report to the Department of Communications, A.G.P.S., Canberra, 1986, p.3.

52. ibid. p.60.

53. ibid. p.60.

54. ibid. p.40.

55. Telecom, submission, p. 59.

56. Evidence, p. 129.

57. Housing Industry Association, p.5.

58. Department of Resources and Energy, Submission p.16.

59. Institute of Engineers, submission p.2.

60. Launceston City Council, Submission, p.1.

61. ibid. p.5.

62. Urban Development Institute of Australia, Submission, p.5.

63. Department of Resources and Energy, Submission p.8.

64. Department of Immigration and Ethnic Affairs Australia's population trends and prospects, A.G.P.S., Canberra 1985, p.25.

65. Tertiary Education commission, Report for 1988-90 Triennium, A.G.P.S., Canberra 1985, p.25.

66. Evidence, p.66.

67. Evidence, p.383.

68. L.J. Willett, Address to the Committee for Economic Development of Australia 15/6/84, melbourne.

69. Housing Industry Association, Evidence p.257.

70. Evidence, p. 527.

71. Public Accounts Committee (South Australia) Housing Asset Replacement (44th Report) Government Printer, South Australia, 1986.

72. Evidence, p. 530.

73. Evidence, p. 531.

74. Evidence, p. 533

75. Exhibit 18.

76. The Bulletin, June 9, 1987.

Appendix 1

Conduct of the Inquiry

The inquiry commenced on 28 May 1986 when the House of Representatives Standing Committee on Expenditure in the 34th Parliament adopted the terms of reference and appointed a sub-committee with Mr John Langmore, MP, as chairman.

Advertisements were placed in the national press and submissions were sought from state governments, commonwealth government departments and a wide range of private and business organisations. In response the Expenditure Committee received 54 submissions which formed the basis for 7 public hearings. The Expenditure Committee also conducted inspections and held informal discussions in Launceston, Melbourne, Brisbane, Townsville and Sydney.

On 5 November Senator the Hon. Gareth Evans, Q.C. the Minister for Transport and Communications referred the inquiry with the same terms of reference to the newly established House of Representatives Standing Committee on Infrastructure. The committee agreed to continue the inquiry and confined its activities to a review of the evidence previously gathered and consideration of a draft report.

The Minister stated that the reference was to allow the committee to consider the draft report arising from the Expenditure Committee's inquiry and that the new committee might not require further submissions before concluding its considerations. The Minister also noted that it would be made clear that the report should not necessarily be taken as containing or reflecting the views of either previous or present committee members.

The inquiry was greatly facilitated by the contributions of a number of professionsl associations, particularly the National Infrastructure Committee, the Australian Federation of Construction Contractors and the Australian Council of Local Government Associations.

Appendix 2

List of Submissions

Australia Post
Australian Automobile Associations
Australian Council of Local Government Associations
Australian Federation of Construction Contractors
Australian Federation of Construction Contractors (Victoria)
Australian Institute of Marine Sciences
Australian Railways Union
Australian Road Research Board

Ballarat Water Board
Building Workers' Industrial Union of Australia
Bureau of Meteorology

Community Transport Concern Associations
Confederation of Australian Industry
CSIRO

Department of Arts, Heritage and Evironment
Department of Aviation
Department of Communications
Department of Community Services
Department of Defence
Department of Finance
Department of Housing and Construction
Department of Resources and Energy
Department of Science
Department of Sport, Recreation and Tourism
Department of Territories
Department of Transport
Department of Transport (Western Australia)
Department of Veterans' Affairs

Gladstone City Council
Gleghorn, Mr R.J.

Housing Industry Association
Humes Concrete
G. Hawkins & Sons Pty Ltd

Institute of Engineers, Australia

Laird, Dr P.G.
Launceston City Council

Master Builders' Federation

National Capital Development Commission
National Committee on Rationalised Building
National Infrastructure Committee

The Overseas Telecommunications Commission

Public Service Association of NSW

Shire of Benalla
Shire of Gordon
South Australian State Government
Stokes, Mr E.

Telecom
Treasury

Urban Development Institute of Australia

Victorian State Government
Victorian Trades Hall Council

Westernal Australian State Government
Western Australian State Planning Commission

Appendix 3

List of Exhibits

NUMBER	DESCRIPTION
1	Infrastructure and the economy from a macroeconomic point of view. A paper presented to the National Infrastructure Forum in 1985 by John Freebairn.
2	A vulnerable country? Edited by D. Ball and J. Langtry.
3	City of Brisbane Town Plan. Volumes 1-4 and guide - presented by the City of Brisbane Council.
4	Gateway Arterial Project. Information on the project - presented by the Main Roads Department (QLD).
5	Literature presented by the Australian Institute of Marine Science.
6	The Domain Tunnel - The Missing Link Paper presented to the Melbourne-South Yarra Group by Professor L A Endersbee.
7	Annual Report 1984-85 Melbourne and Metropolitan Board of Works.
8	Copies of overhead projecturals from MMBW meeting of 27 August 1986.
9	Assessment of the Australian Road System: 1984 Bureau of Transport Economics.
10	Macroprojects The Warren Centre, University of Sydney.
11	Papers presented by the City of Launceston, 16/12/1986.
12	Preliminary Analysis of Buildings by use and condition. Australia Post.
13	Source book for Australian Roads. M G Lay.
14	Documents presented by the Australian Railways Union, 11/3/87.

15 ACTU Economic Recommendations, Building Workers Industrial Union.

16 Photographs presented by the Public Service Association, 11/3/87.

17 Documents entitled "Resume of submission to the Infrastructure Sub-committee" and "New interstate rail freight options" presents by Dr Laird, 11/3/87.

18 Infrastructure Gaps, Australian Federation of Construction Contractors.

19 Transport Infrastructure, Australian Institution of Engineers.

20 V.F.T. Prefeasibility Study: Summary and Recommendations, V.F.T. Joint Ventures.

21 Integration, consolidation and modernisation of the airways system; evaluation of commercial viability, Department of Aviation.

22 Letter from M S Keating, Secretary, Department of Finance - reply to written questions from the Committee.

23 Letter from B W Fraser, Secretary, The Treasury - reply to written questions from the Committee.

Appendix 4

List of Witnesses

Wednesday, 17 December 1986

Dr F.A. Blakey, Chairman, National Infrastructure Committee
Dr C. Gerrard, Secretary, National Infrastructure Committee
Mr W. Neilley, Committee Member, National Infrastructure Committee
Mr L. King, Committee Member, National Infrastructure Committee
Mr E. Bajkowski, Committee Member, National Infrastructure Committee
Mr D.G. McQuitty, Chief Manager, Development & Services, Australia Post
Mr K.J. Fennell, General Manager, Estate Management, Australia Post
Mr R.A. Gray, General Manager, Corporate Planning, Australia Post
Mr C.A. Short, General Manager, Finance & Accounting, Australia Post
Prof. J.W. Freebairn, Victoria
Mr P.S. Wilson, Acting Director-General, Vic Dept of Management and Budget
Mr G.W. Frankish, Director, Public Authorities, Vic Dept of Management and Budget
Mr E. Stokes, Sub-Dean, Engineering Faculty, Royal Melbourne Institute of Technology
Dr T.A. Cutler, Manager, Public Networks Services Planning, Telecom
Mr J. de Ridder, Chief Economist, Telecom
Mr R.C. Danckert, Manager Programs, Engineering Dept Telecom
Dr M.G. Lay, Executive Director, Australian Road Research Board

Wednesday, 11 March 1987

Mr R.G. Jowett, Assistant National Secretary, Australian Railways Union
Mr P. Ferris, Research-Publicity Officer Australian Railways Union
Mr W.J. Neilley, National Research Officer, Building Workers Industrial Union
Mr P.T. Dempsey, Project Officer, Building Workers Industrial Union
Mr S. Rix, Industrial Officer, Public Service Association of NSW
Dr P.G. Laird
Mr L. King, Director, National Affairs, Australian Federation of Construction Contractors
Mr R.S. Barker, Director, Industry Development, Australian Federation of Construction Contractors

Wednesday, 18 March 1987

Mr G.B. Sheldon, Manager, National Office, Housing Industry Association
Mr G.J. Forster, Director of Economics and Corporate Affairs, Master Builders Federation of Australia
Rear Admiral W.J. Rourke, Chief Executive, Institute of Engineers Australia
Mr B.R. Lunn, Secretary-General, Australian Automobile Association
Mr D. Howell, Deputy Secretary-General, Australian Automobile Association

Wednesday, 25 March 1987

Mr L.J. Mooney, Executive Member, Australian Council of Local Government Associations
Mr R.C. Osborn, Deputy Director, Australian Council of Local Government Associations
Dr J.P. Wild, Chairman, VFT Joint Venture
Dr J. Brotchie, Adviser, VFT Joint Venture
Dr R. Noakes, Consultant Economist, VFT Joint Venture
Dr P.J. Brain, Executive Director, National Institute of Economic and Industry Research Pty Ltd
Dr R. Badger, Assistant Secretary, Strategic Policy Branch, Dept of Science
Dr P. Price, Director, Research Policy, Dept of Science
Dr J. Zillman, Director, Bureau of Meteorology, Dept of Science
Ms M. Voice, Liaison Officer, Bureau of Meteorology, Dept of Science

Thursday, 26 March 1987

Mr D. Maxitelli, Assistant Secretary, Dept of Sport, Recreation and Tourism
Mr G. Toomer, Acting Director, Infrastructure Section, Dept of Sport, Recreation and Tourism
Mr A. Petkovic, Acting director, Travel Industry Section, Dept of Sport, Recreation and Toursim
Dr F.A. Blakey, Chief, Division of Building Research, CSIRO
Mr P.J. Merner, First Assistant Secretary, Management and Co-ordination Division, Dept of Transport
Mr N. Waslin, First Assistant Secretary, Roads Division, Dept of Transport
Mr I.R. Rischbieth, Assistant Secretary, Coastal Shipping Branch, Dept of Transport
Mr B.E. McAdie, Director, Rail Branch, Dept of Transport
Mr J. Elliott, Director, Roads Policy Development, Dept of Transport
Mr C. Davidson, Manager, Marine Navigation Aids Branch, Dept of Transport

Wednesday, 13 May 1987

Mr D. McCarthy, Acting Chief Engineer, National Aerodrome Planning, Dept of Aviation
Mr P. Bowen, First Assistant Secretary, Domestic Policy Division, Dept of Aviation
Mr H.E. Wall, Acting Director, Corporate Projects Division, Dept of Aviation
Mr P. Coleman, Principal Adviser, Airways Division, Dept of Aviation
Mr J. Huggett, Principal Adviser, Airports, Dept of Aviation
Mr M.B. Roger, Deputy Secretary, Dept of Housing and Construction
Mr J. Mellors, First Assistant Secretary, Resources and Development, Dept of Housing and Construction
Dr R.G. Hawkins, First Assistant Secretary, Industry Policy, Dept of Housing and Construction
Mr E.R. Fraser, Assistant Secretary, Assets Management and Operations, Dept of Housing and Construction
Dr J.A. Harmer, Assistant Secretary, Public Housing Branch, Dept of Housing and Construction

Thursday, 28 May 1987

Dr M. Keating, Secretary, Dept of Finance
Dr N. Johnston, First Assistant Secretary, General Expenditure Division, Dept of Finance
Mr G.L.R. Dixon, Assistant Secretary, General Economic Branch, Dept of Finance
Mr R.T. Perry, Chief Finance Officer, General Economic Branch, Dept of Finance
Mr N.F. Hyden, First Assistant Secretary, Incomes, Industries and Development Division, Dept of the Treasury
Mr E.L. Waterman, First Assistant Secretary, Revenue, Loans and Investment Division, Dept of the Treasury
The Hon. W.C. Wentworth, Queensland

Appendix 5

THE MACRO-ECONOMIC EFFECTS OF PUBLIC INVESTMENT

A paper prepared for the House of Representatives Standing Committee on Expenditure in the 34th Parliament by Professor J. Nevile (University of New South Wales) May 1987.

THE MARCRO-ECONOMIC EFFECTS OF PUBLIC INVESTMENT

I Introduction and Summary

Public investment contributes to growth in output or gross national product in two ways. In the longer run it increases productivity and hence enhances the ability of the economy to produce goods and services. In terms of the jargon fashionable in some quarters, it is a significant supply-side factor. Indeed, sustained growth in output is only possible if the capital equipment and structures used to produce output also increases, and part of this increase in physical capital comes about through public investment, e.g. expenditure on roads. In Australia, increases in the amount of capital per head have been more important that in most countries in increasing output per head or productivity growth. Moreover, in Australia the public sector plays a greater role in increasing the capital stock than is the case in the majority of Western European and North American economies. Public investment has been an important source of productivity growth in the past and will be an essential part of any successful efforts to raise the long run rate of productivity growth in Australia.

In the short run, public investment puts money into the hands of Australians (through wages, payments to contractors and suppliers and so on). This increases the amount of goods and services demanded by Australians and hence the demand for output in Australia. If there is unemployment and unused resources, this increase in demand will encourage production and employment, increasing output and reducing unemployment.

Both the short-run and the longer run effects are important, but, despite the high levels of unemployment in Australia today, this paper argues that, in current economic circumstances the long-run effects of increasing productivity are more important than the short-run effects of reducing unemployment. The major

constraint on economic growth in Australia at present is the balance of payments. Any policy to restore economic growth in Australia can have, at the most, only temporary success unless it either increases exports and/or increases output in import competing industries. The paper argues that increasing the rate of productivity growth is essential if this is to occur. Hence, the longer run effects of public investment in increasing productivity are vital.

Part II of the paper discusses both the short-run effects of public investment of increasing output and employment and the longer run effects of increasing productivity. It also briefly spells out the case for the need for productivity growth and hence the vital nature of public investments' contribution in this area.

The importance of public investment is unquestionable, but, of course, it is not a free good. It has to be paid for, or financed. The way it is financed will affect the economy in the short-run, and possible in the longer run.

One way of financing public investment can be ruled out immediately, that is by "printing money". If this is done to a signficant extent over any extended period of time, it will have undesirable long-run inflationary effects.

The other ways of financing public investment are through taxation or through the government borrowing from the public. It is, of course, possible to finance public investment by cutting other government outlays, but if this can be done and then, in principle, either taxation or borrowing can be reduced. If the money saved by cuts in non-investment outlays is used to increase public investment either taxation receipts or government borrowing must be higher than they would have been if the outlays on public investment had not been made.

If pubic investment is paid for by taxation, then this taxation will reduce private expenditure, by not as much as the public investment increases expenditure if it is expenditure on building and construction, but usually by more if it is expenditure on capital equipment. There are also political costs and possibly some adverse economic factors associated with high levels of taxation. The short-run effects on the economy when public investment is financed by taxation are discussed in Part III. Australia already finances a significant proportion of public investment by taxation and the scope for financing more by taxation is limited.

If public investment is paid for by borrowing the effects of raising the levels of taxation would appear to be avoided. However, some argue that even when financed by borrowing, public investment will reduce private expenditure. Moreover, it is argued that the reduction in private expenditure in the borrowing case is particularly pernicious since it will be concentrated on private expenditure on capital equipment. This possible reduction in private expenditure consequent on increased public expenditure is called "crowding out", and Part IV sets out the arguments supporting crowding out in the "borrowing case" and assesses their validity. The conclusion reached is that the traditional arguments for crowding out do not hold water, but that public investment will increase the demand for imports to some extent. To the extent that additional imports are associated with public investment they cannot be private investment goods. In this sense and in this sense only is crowding out relevant. However, government policies already in place will reduce the demand for imports and encourage exports over the next 18 months. Therefore, some expansion of public investment is possible, along with an expansion not a reduction, of private investment over the same period.

Moreover, a far greater proportion of public borrowing is spent on actual capital equipment and structures than is the case for private sector borrowing, where most borrowing is used to

acquire financial assets. Thus, even if public borrowing did crowd out private borrowing completely, which it does not, the net effect of substituting public borrowing for private borrowing would be to increase capital formation in Australia.

Another concern about financing public investment through borrowing is that it increases the size of the public debt, and this may already be too high. The level of the public debt is discussed in Part V. The level of public debt in Australia is lower, as a proportion of gross domestic product, than it was twenty years ago. It is also lower than it is in almost all other O.E.C.D. countries today.

II The Role of Public Investment in Increasing Output

(a) Short Run Effects on Output and Employment

If the economy is operating at or close to full employment levels, increases in public investment will have little effect in the short-run on output in Australia. Either they will simply increase imports or, more likely, they will both increase imports and add to the inflationary pressures in the economy. However, when there is substantial unemployment, increased public investment will not only increase total demand in the economy, but, unless the investment is virtually entirely on items that are imported, will also increase output and incomes of Australians and reduce unemployment. This initial increase in output and income is not the end of the story. Those whose income is increased will spend some of their increase in income, causing a further rise in demand in output and in income, and so on. In an economy like that of Australia, with a high propensity to import, these multiplier effects are not large. Various individuals and research groups have estimated these effects with general agreement that in the year the public investment is made the multiplier for building and construction investment is no more than 1.5. That is for every 100 dollars spent by the

government on building and construction the demand in total for Australian produced output increased by up to 150 dollars. For investment on equipment the multiplier is much smaller because much equipment is imported and even that produced in Australia often has a higher import content than the output of the building and construction industries. On average, public investment in equipment probably has a multiplier of around .75, but it varies greatly depending on the type of equipment.

(b) Longer-Run Effects on Productivity Growth

The idea that economic growth requires investment is uncontroversial. Sustained growth in output is only possible if the capital equipment and structures used to produce output increase, that is if there is investment in physical capital (as opposed to financial assets). This need for investment is behind worries that high interest rates are having an unduly depressing effect on investment in the private sector in Australia today.

However, public investment, as well as private investment, is necessary for economic growth. Some public investment contributes directly to productivity growth in the private sector. This type of investment varies from very mundane things like roads and railways to very sophisticated technology like satellites which can send back "geological" pictures of remote areas and aid the search for minerals. Other public investment, e.g. in schools and universities, contributes indirectly to productivity in the private sector. Still another category of public investment does not contribute to productivity in the private sector in any easily traced way, but is necessary if the type of output produced is to be that which the community wants. For example, if the community wants part of the national output to be in the form of effective defence services, investment in military equipment is necessary. Much investment in hospital, jails and even houses of parliament falls into this category.

This is not to say that all public investment contributes equally to growth in output, or even that all such investment has a positive effect on output growth. Some public investment aids productivity growth much more than others; and, like some investment decisions in the private sector, some public investment decisions are misguided and result in white elephants. Obviously, care must be taken in selecting public investment projects; but the microeconomic considerations relating to this are beyond the scope of this paper. At the macro level, there is no doubt that public investment has contributed significantly to the growth in output in Australia and productivity growth, and has a continuing role to play in this respect.

In fact, public investment has been more important in increasing productivity growth in Australia than in many countries.

Growth in capital equipment per head is a very important source of productivity growth or growth in output per head. In the postwar period in Australia approximately half of the increase in output per head in Australia was due to increased capital. The other half was due to intangible factors such as technical change. The methods used to estimate sources of productivity growth are fairly crude and not much weight should be put on small differences between various estimates, nor on the exact figure. Nevertheless, the general picture is clear. A study by Kaspura and Weldon produced figures, quoted in the EPAC paper Human Capital and Productivity Growth (Council Paper No. 15) which imply that 48 per cent of productivity growth in Australia over the period 1946-47 to 1978-79 was due to increased capital per head. This conclusion is in line with figures in an unpublished study by W.D. Scott which estimated that in Australia, over the period 1950-51 to 1973-74, 58 per cent of the growth in productivity was due to increased capital per head. These proportions of the percentage of productivity growth due to increased capital are rather larger than the figures obtained in

studies for various overseas countries. Thus, the significance of the figure of approximately 50 per cent is twofold. It shows both the importance of investment as a source of productivity growth, and that it has been relatively more important in Australia than in many overseas countries for which studies of the sources of productivity growth have been made.

Increased capital per head comes from both public investment and private investment. The second point is that in Australia public investment is typically a greater proportion of total investment than is the case in many countries. Table 1 shows the way total investment is split between public and private investment in a number of O.E.C.D. countries. Non-Scandinavian continental European countries tend to be between the United Kingdom and the United States cases, as does Canada and are not shown in the Table. In general, public investment is a greater part of total capital formation in Australia than in non-Scandinavian western European countries and North American countries.

TABLE 1

Public Investment as a Percentage of Total Investment

	Australia	United States	United Kingdom	Sweden	Japan
	%	%	%	%	%
1965-69	33.8	18.8	43.3	n.a.	24.2
1970-74	33.7	17.4	40.6	42.8	26.0
1975-79	33.4	14.7	34.9	37.9	30.5
1980-84	32.5	12.3	26.8	40.4	29.8

Source: Calculated from figures in International Monetary Fund, International Financial Statistics, various issues.

Thus, in Australia, not only is investment more important in contributing to productivity growth than is generally the case, but public investment is a greater proportion of total investment than in many countries. Public investment has been an important source of productivity growth in the past, and must be an essential part of efforts to increase productivity growth in the future.

(c) The Importance of Productivity Growth

Productivity growth is always important in raising living standards, but at the moment it is much more than that. It is the key to restoring economic growth in Australia.

The major constraints on economic growth in Australia at the moment is the balance of payments. This is not only the case at present, it has been the case for most of Australia's history. However, the situation is currently worse than usual, largely due to trends in the world economy.

Relatively expansionary budgets gave Australia rapid economic growth from mid-1983 to mid-1985. While expansionary budgets can produce economic growth, if a country grows much faster than its trading partners, as Australia did in 1984 and 1985, eventually it will import more than it exports and have a balance of payments problem. In the case of Australia this balance of payments problem became a crisis because of the decline in our terms of trade - the prices received for our exports, compared to the price we pay for imports.

The important thing is that, although in the last two years the decline in our terms of trade was particularly severe, this was not an isolated event, likely to be quickly reversed, but the culmination of a long standing trend. The prices of our traditional exports have shown a downward trend relative to prices paid for imports since the Korean War. Over the last

thirty years it has taken, on average, 2% more exports each year to pay for the same volume of imports. Since 1970 things have become even worse so that it has required 3% more exports each year to pay for the same volume of imports. In the last few years, it has taken most of Australia's growth in productivity to pay the increases in prices for imports compared to the prices received for exports so that little has been available to increase living standards. There is no reason to believe this trend in the terms of trade will change in the next few years or even in the next decade. The Common Market agricultural policy will, one hopes, be modified, but it is unlikely to be abandoned; the success of the Democrats in the U.S. congressional elections will probably increase agricultural protection; and fairly low prices for oil are likely to persist, keeping down the prices of Australian energy and energy related exports. The balance of payments problem may ease, but it is not going to go away.

The balance of payments problem must be solved because the rest of the world will not go on lending Australia increasing amounts of money for ever. There are two ways to solve the balance of payments problem. Either there must be an expansion of Australian exporting and import competing industries or Australian imports will have to be reduced through a policy of more or less permanent recession. Assuming that we reject the permanent recession option and aim to restore and maintain economic growth in Australia, it is important both that import competing industries remain competitive internationally and that Australia develops new competitive export industries. This will require productivity growth, not only in export and import competing industries, but in all sectors of the economy, since the level of productivity in industries whose products do not enter into international trade, affects costs throughout the economy and hence, in export and import competing industries.

While there may be little argument that international competitiveness is essential for Australian economic growth, at first sight the claim that international competitiveness must be

based on productivity growth sounds implausible. In the last two years to trade weighted index of the value of the Australian dollar has declined by one third. Productivity growth may be of the order of 4 or 5 per cent a year, if we are lucky. How can productivity gains compare with the massive effects of substantial devaluation? Nevertheless, devaluation is not the answer to a lack of international competitiveness. At the best, all it can do is buy time to enable us to make the changes required if we are to have internationally competitive export and import replacement industries of the size necessary to support vigorous economic growth.

There are at least three flaws in the argument that devaluation alone can produce international competitiveness as a condition for economic growth in Australia. First, devaluation only works if accompanied by measures that reduce its inflationary impact, such as the remarkably tight monetary and fiscal policy in place in Australia at the moment. Measures like these normally reduce demand, increase unemployment and act against the economic growth the devaluation is supposed to facilitate. Secondly, in the case of Australia, many of our exports, and to a lesser extent of our imports, are such that the changes in the relative prices caused by the devaluation will have relatively small effects on the amounts exported or imported. Finally, devaluation itself is likely to worsen our terms of trade or the relative prices of exports and imports.

Import controls have been suggested by some as the solution, but experience has shown that they lead to inefficiencies and reduce productivity and economic growth, not least because in Australia they lead to the development of import replacement industries which are too small to be efficient. We do need import replacement industries, but efficient ones, with growth in output based on productivity growth, not industries that can only survive through protection, at considerable cost to the consumer and hence (through wage costs) to all other industries.

Increased public investment can and does increase output and employment in the short-run. However, any measures to raise output and employment will run up against the balance of payments constraint. Increased public investment is also an important factor in increasing productivity growth. This section has argued that increased productivity growth is essential to solving Australia's balance of payments problems. Hence, public investment's role in aiding productivity growth is vital.

III Public Investment Paid for by Taxation

Over the last 30 years Australia has financed a high proportion of public investment by taxation, although this proportion has declined since the mid-seventies. Even in the most recent year 1985-86, public investment on fixed capital was 19.8 billion dollars, whereas the total public sector borrowing was 10.7 billion dollars. However, public borrowing is also used, in small part, to acquire financial assets. Table 2 shows the proportion of public investment financed by taxation or by undistributed profits of public enterprises. (As far as the economic effects are concerned, a profit on the product of a pubic enterprise is the same as a tax on the product of that enterprise.)

TABLE 2

Government Net Savings as a Proportion of Government Fixed Capital Formation
Australia - All levels of Government

	%
1953-54 to 1962-63	82
1963-64 to 1972-73	79
1973-74 to 1982-83	46
1979-80	49
1980-81	52
1981-82	57
1982-83	24
1983-84	7

Source: Calculated from figures in Reserve Bank of Australia Statistical Bulletin and Bulletin, various issues.

Government savings tend to fluctuate substantially due to changes in both policy and economic activity. However, the ten year averages give a good picture of what has happened. Figures for the individual years in the eighties should be treated with a great deal of caution. 1983-84 is the last year for which firm figures are available and, it was obviously a very exceptional year. The evidence so far available suggests that since 1983-84 the proportion of government fixed capital formation financed by government savings has returned to about 50 per cent.

What would be the short-run macroeconomic effects of increasing public investment and financing the increase with increased taxation? The increased public investment will increase output and employment and the increased taxation will reduce it. If the public investment is on building and construction, or other items with low import content, there will be a small increase, on balance, in demand, output and employment. On the other hand, the demand for imports will decline since the public investment will have a significantly smaller import content than the private expenditure that no longer takes place because of the increase in taxation. Apart from any costs associated with increased taxation, the short run effects are beneficial.

The political costs of increased levels of taxation are obvious, the economic costs are not so clear cut. High levels of taxation do introduce distortions into private decision-making. The actions that maximise after-tax income are not the same as those that maximise before-tax income and this leads to inefficiencies in the use of resources. It is difficult to quantify these, but in this context, as opposed to the context of cutting tax rates as part of taxation reform, it is probably not important to do so, since raising taxation levels is not a politically viable option.

If increased public investment is in the form of largely imported capital equipment and is financed by taxation, the short-run effects are unambiguously bad (though the longer-run

effects on increasing productivity growth still remain). Output produced in Australia and employment will go down but imports will increase. Whatever disabilities attach to higher taxation are still there. Any justification for an increase in this type of public investment must lie in the longer-run effects on productivity.

IV Crowding Out

It is frequently argued that public spending on capital goods reduces or crowds out private spending, even when it is paid for by borrowing, not taxation. Moreover, it is argued that the reduction in private expenditure when public investment is financed by borrowing mainly occurs in private investment expenditure, whereas when public investment is financed by taxation much of the reduction in private expenditure is in comsumption. Thus, it is argued, the final outcome in the borrowing case is worse than in the case where public investment is financed through taxation. This result may not only occur when the economy is operating at full capacity with very little in the way of unused resources. Obviously, if there are already important bottlenecks preventing signficant increases in output, unless increased public expenditure is spent entirely on imports, it can only occur if private expenditure is reduced. But those stressing crowding out argue that increased public investment crowds out private investment, even when the economy is far from operating at full employment or full capacity levels.

There are two arguments advanced to support crowding out. The first is that the total supply of savings available is fixed, or at the most can only be increased by an undesirable increase in borrowing from abroad. Savings is the other side of the coin from investment. If resources are devoted to investment goods, they cannot be spent on consumption goods so that investment must, by definition, be matched by savings. Hence, when the total supply of savings is fixed, if the government invests more the private sector must invest less.

However, I know of no economist who would argue that if income increases savings will not also increase. It is nonsensical to start with the assumption that the supply of savings to finance investment cannot be increased in the short-run unless one argues that the total amount of output, or production, and hence income in Australia cannot be increased in the short-run. Obviously, this is the case at full employment levels of output but we are far from full employment in Australia today. The only possible reason for arguing that output and income cannot be increased in Australia is that, other things being equal, any increase in income will entail extra imports, the balance of payments situation is such that imports must not increase and that there is no acceptable way of restricting imports except through preventing any increase in output and income, i.e. that we must maintain a state of permanent recession in Australia.

This argument is logical, but it is a counsel of despair, an argument against any increase at all in expenditure whether in the public or private sector. Its weak link is in the assumption that there is no acceptable way to restrict imports except by maintaining a state of recession with high unemployment. There are other ways, e.g. the large recent depreciation in the value of the Australian dollar is restricting imports. In my view, a general revenue tariff of uniform height on all imports (not individual made-to-measure tariffs) would be another acceptable way of restricting imports. It is not only a counsel of despair, it is an unnecessary counsel of despair to argue that no increase in income and output and no reduction of unemployment in Australia is possible in current circumstances for balance of payments reasons, so that we are in the same situation as full employment as far as increasing savings through increasing income is concerned. The argument that the supply of savings is strictly limited so that government investment expenditure must crowd out an equal amount of private investment expenditure does not hold water.

The second argument to support crowding out is that if the government borrows to finance public investment expenditure, this forces up interest rates and the rise in interest rates reduces private investment. There is no doubt that higher interest rates reduce private investment so that, if government borrowing necessarily forces up interest rates, then it will crowd out some private investment to some extent.

One can tackle the question of whether increases in government borrowing force up interest rates in two ways, by looking at the theory of what determines interest rates and by looking at what has actually happened to interest rates as government borrowing has increased. Both approaches are helpful. At the empirical level it is very difficult to see any relationship between the level of interest rates and the amount of public sector borrowing in Australia. Table 3 gives the relevant figures and shows no discernable relationship between the public sector borrowing requirement and either short-term or long-term interest rates. Many commentators focus attention on the Commonwealth Government budget deficit, although there is no good reason to do this. However, figures for this magnitude are also given in Table 3 and again, no relationship can be seen between the size of the deficit and the level of interest rates.

If one looks at the detailed figures in Table 3 one sees that, more often than not, when the public sector borrowing requirement rose interest rates fell. There was a steady increase in the Public Sector Borrowing Requirement (PSBR) for the three years starting in 1970-71. Interest rates fell in each of these years. In the next year, the PSBR declined but interest rates rose. The next year there was a very large increase in the PSBR and a small increase in interest rates. The next large increase in the PSBR was in 1977-78 but long-run interest rates fell in that year. Interest rates rose in 1979-80 and 1980-81, but the PSBR fell in each of these years. In 1981-82 both the PSBR and interest rates rose. There was a very large increase in the PSBR

in 1982-83 and a fall in interest rates. In 1983-84 the PSBR rose and interest rates fell, and in 1984-85 both the PSBR and the long-run rate of interest fell. Overall, there is no pattern. In two of the three years in which there was a very large increase in the PSBR interest rates fell, but this was probably a coincidence.

TABLE 3
Deficits and Interest Rates

Australia, 1970-71 to 1984-85

Year	Commonwealth Budget Deficit	Public Sector Borrowing Requirement	Interest Rates 26 week Treasury	Interest Rates 10 year Bonds
	$M	$M	%	%
1970-71	10	522	5.73	6.85
1971-72	134	659	5.13	6.24
1972-73	696	978	4.31	5.91
1973-74	279	809	7.63	8.20
1974-75	2,545	3,459	8.90	9.50
1975-76	3,566	3,982	7.37	10.00
1976-77	2,717	4,053	8.72	10.23
1977-78	3,309	5,468	8.82	9.62
1978-79	3,449	5,552	8.82	9.18
1997-80	2,016	4,691	9.98	10.66
1980-81	1,105	4,674	12.35	12.58
1981-82	576	6,010	15.23	15.18
1982-83	4,467	11,195	13.08	14.51
1983-84	7,960	13,227	11.59	13.93
1984-85	6,746	12,517	13.30	13.42

Sources: Reserve Bank of Australia, Statistical Bulletin and Bulletin, Various issues. Statement No. 6 Budget Statements, Budget Paper No. 1, Various issues. Australian Bureau of Statistics, Government Financial Estimates, Cat. No. 5501.0, Various issues.

There is an economic theory, the loanable funds theory, which supports the view that increasing government deficits forces up interest rates. This theory argues that interest rates bring into balance the demand for and supply of loanable funds. Hence, if

the government increases the demand for loanable funds, by increasing the deficit, interest rates rise and some crowding out occurs. This theory works well to explain what has happened in the United States since Mr. Reagan became President. But as Table 3 shows, it is not consistent with the Australian experience. There is a very good reason for this. The United States is the largest and most important economy in the Western World. Australia is relatively small and unimportant. Interest rates in Australia are greatly influenced by what happens overseas and less influenced by what happens in Australia. Short-run interest rates are determined by the Reserve Bank of Australia, and there is no disagreement with the proposition that in recent years, the Reserve Bank has used interest rates to influence the rate of exchange for the Australian dollar. However, this is not inconsistent with the view that the level of interest rates in Australia is greatly influenced by overseas factors.

Because of the increasing international integration of financial markets, interest rates in Australia are determined by interest rates in major financial markets overseas adjusted for the expected change in the value of the Australian dollar on foreign exchange markets. If the value of the dollar is not expected to change, interest rates in Australia go up and down as interest rates abroad go up and down. If the situation changes, so that instead of no change being expected in the value of the Australian dollar our dollar is expected to depreciate, interest rates in Australia will have to rise to compensate those who lend money in Australia (rather than, say New York) for the expected depreciation of the Australian dollar. The Reserve Bank influences the exchange rate by setting interest rates but it is actually the differential between the Australian interest rate and the overseas interest rate which is relating to the rate of exchange. If this differential rises, money tends to flow into Australia and the exchange rate rises. This higher value of the Australian dollar is consistent with higher interest rates, since, if the money market considers that, in the longer run, the

value of the exchange rate is set by "fundamental" factors such as import and export flows, then, if these fundamentals are unchanged, the higher the exchange rate, the greater the expected depreciation and, of necessity, the greater the Australian rate of interest. This theory of the determination of interest rates is coherent and consistent with the facts. Notice that the size of the budget deficit has no part to play in it.

Having said all this, it must be stated that nevertheless, under one possible set of circumstances, there is one indirect way in which, in a country like Australia, a larger budget deficit will tend to result in higher interest rates, other thing being equal. A larger budget deficit will provide more stimulus to the economy in a given situation than will a smaller one. That is, again other things being equal, with a larger budget deficit, income, output and employment, and hence imports, will be at higher levels than with a smaller deficit. Unless something is working in the other direction, higher imports will mean a tendency for the exchange rate to fall. If the government is determined to resist this fall in the exchange rate, the mechanism which it will use to prevent a fall is for the Reserve Bank to force up interest rates.

This is a long chain of conditions which must be met before larger deficits increase interest rates. In the case of Australia today, we have already expressed the judgement that the balance of payments will improve over the next eighteen months. Hence, there is room for an increase in public investment, fianaced by borrowing, without either a fall in the value of the Australian dollar below the levels holding at the beginning of 1987, or upward pressure on interest rates.

Moreover, it is important to notice that even in those circumstances, when the mechanism just outlined does result in high interest rates, it is not the increase in public investment itself which brings about high interest rates, but the higher

level of income, output and employment. Any increase in expenditure in either the public or the private sector which resulted in economic growth - in increases in income output and employment - would have exactly the same effect on interest rates. To argue that public investment should be cut to reduce interest rates is to argue that income and employment, that economic growth itself, should be cut to reduce interest rates. This is to confuse means with ends.

One final point on the concern that public borrowing crowds out private borrowing. It is also necessary to look at the uses to which borrowed funds are put. In Australia public borrowing is largely to finance public investment in buildings, other structures, and capital equipment. In fact, as we have seen, public investment is much larger than public borrowing, and much of this investment is paid for by public savings (i.e. through taxation and retained earnings of public enterprises). However, some public borrowing is used for the acquisition of financial assets. But this is a small proportion of total public borrowing, most of which is used to finance that part of public investment not financed through savings.

In the private corporate sector this is not the case. Again a substantial part of investment (in physical capital) is financed through savings, and the rest financed through borrowing, but well over half of the borrowing by corporate trading enterprises is used to acquire financial assets not to create new capital structures and equipment. This was not always the case, but there has been a trend for less and less government borrowing to be used to aquire financial assets whereas in the private corporate trading sector the trend is exactly in the opposite direction. This is shown by the figures in Table 4. (The household sector is not included since this sector is a net lender both to the government and to the private corporate trading sector. The financial sector is also excluded since this sector comprises firms, such as banks, whose business is to borrow and use the funds to acquire financial assets).

TABLE 4
Fixed Capital Formation less Net Savings, and Gross Borrowings

Australia 1954-55 to 1984-85

	Annual Averages			
	1954-55 to 1963-64	1963-64 to 1973-74	1974-75 to 1983-84	1984-85 Preliminary
	$M	$M	$M	$M
Total Government Sector				
Fixed Capital Formation less Net Savings	222	564	5,615	12,385
Gross Borrowing	784	1,593	7,041	15,361
Private Corporate Trading Sector				
Fixed Capital Formation less Net Savings	306	601	2,172	2,609
Gross Borrowing	514	1,714	6,053	10,818

Note: Net Saving is defined as savings available to finance fixed capital formation, i.e. gross savings, less capital formation in stocks, land and intangibles and capital transfers.

Source: Calculated from figures published in Reserve Bank of Australia, Statistical Bulletin and Bulletin, various issues.

Table 4 shows that since the mid-sixties only a little over a third of gross borrowings by private corporate trading enterprises has been needed to finance fixed capital formation, whereas an increasing proportion of government gross borrowing is used for that, and in the last decade in the government sector fixed capital formation less net savings was 80% of gross borrowing. The figures for 1984-85 show the contrast between the two sectors becoming more marked if anything; but not too much weight should be put on the figures for one year, and in any case, those for 1984-85 are only preliminary. However, there is no evidence to show a change in trend since 1983-84. Thus, even

if public borrowing did crowd out completely private borrowing, which is certainly not the case, the net effect of substituting public borrowing for private borrowing would be to increase capital formation in Australia.

V Public Debt Issues

Some may oppose borrowing to finance public investment because they believe that the public debt in Australia is too large. There are several adverse effects of a very high level of public debt. The most important are probably the effects on income distribution. People who receive interest payments are usually a different group to the typical taxpayers who pay the taxes that service the debt. It is a safe generalisation that those who directly (or indirectly through superannuation funds) receive government interest are on average richer and older than the typical taxpayer. Similarly, they are generally richer than those benefitting from government outlays which may be squeezed to meet interest payments, that is they are richer than pensioners and others dependent on government transfer payments, and those using government subsidised facilities. Therefore, many argue that the distributional effects of a large public debt are bad, though it should be noted that if the public debt is reduced by measures which increases unemployment, the distributional effects of this are worse.

The second major reason why some fear a large public debt is something that can not be objectively assessed, but is rather intangible. Since the public debt is fixed in nominal terms, high rates of inflation can reduce its size relative to gross domestic product. This has happened in the past and could happen in the future as long as interest rates do not rise with rises in the rate of inflation. Given today's sophisticated financial markets, it is perhaps unlikely that interest rates would not increase if inflation increased significantly. Nevertheless, some fear that a large public debt could tempt a government into inflationary policies, though this is unlikely in the current climate in Australia.

It is easy to list the adverse effects of a high level of public debt, but it is harder to say categorically when the level of debt becomes too high. There are two standards of comparison. One is to compare the present level of public debt with that occurring in the past in Australia, and the other is to make international comparison. Neither of these comparisons suggests that the level public debt is high in Australia today. The ratio of public debt to gross national product is lower in Australia now than it was in the halycon years in the mid-sixties, and, with the exception of Finland, Australia has the smallest ratio of public debt to gross national product of any country in the Western World.

There are two concepts of public debt, gross debt, or debt net of financial assets. The net debt concept is the one most directly related to the sum of past budget deficits and may be considered the most relevant in this context. However, the international statistics on gross debt are better, and this is the one usually discussed. In the case of Australia, gross debt and net debt have tended to move together so one reaches similar conclusions when making historical comparisons whichever concept is used.

It is also useful to distinguish between the debt of general government and the debt of public business enterprises such as Australian Airlines or Telecom. While a strong case can be made for excluding the debt of public enterprises, it is included in this paper when making historical comparisons for Australia. This is done to show that even taking the worst case, in which all possible debts are included in the public debt, that debt is not unduly high and is lower than it was 20 years ago.

The net public sector debt was 47 per cent of the annual gross domestic product at the end of 1965-66. (All net public debt figures used are from the EPAC paper Issues in Medium-Term Budgetary Policy, Council Paper No. 16). The percentage steadily declined until 1974-75, but then showed an upward trend till it

reached 34 per cent in 1984-85, the last year for which exact figures are available. Thus, the ratio of public debt to gross national product is still well below that which held 20 years ago. Moreover, if the public sector borrowing requirement remained constant at the 1985-86 level (i.e. 4.5 per cent of gross domestic product) given the author's projections of growth rates, interest rates and the inflation rate, the ratio of the public debt to gross domestic product will gradually approach the level of the mid-sixties but will take a decade to reach it. Such a forecast, like all ten year forecasts, is based on a large number of assumptions (or guesses); but the historical record is not and by historical standards the level of public debt in Australia is reasonably low at present.

By international standards, the level of public debt is very low in Australia today. In making international comparisons it is meaningless to include the debt of public enterprises, because then what is included in the public sector varies so widely from country to country. To give a single example, in Australia Telecom is a public enterprise, in America, telephone services are provided by private firms and in the United Kingdom a few years ago they were provided by a public enterprise but now are in the private sector. Hence, all international comparisons are for the general government sector, that is excluding public enterprises.

Some figures which enable international comparisons are given in Table 5. They are taken from an O.E.C.D. publication (Department of Economics and Statistics Working Paper No. 30) and this publication singles out Australia as one of the countries with the lowest ratio of public debt to gross domestic product. In fact, of the 20 countries it studies only Finland had a lower level.

TABLE 5

Gross Public Debt as a Percentage of Gross Domestic Product

	1973	1983
	%	%
Australia	31.8	24.5
United States	40.9	43.5
Japan	17.0	66.9
Germany	18.6	41.0
France	25.1	29.8
United Kingdom	69.7	54.1
Italy	60.6	84.3
Canada	46.7	58.7
Total 7 major countries	36.9	49.6
Total 20 countries[a]	36.0	49.7

(a) the eight listed in the table plus Australia, Belguim, Denmark, Finland, Greece, Ireland, Netherlands, Norway, Portugal, Spain, Sweden and Switzerland.

Source: see text.

For purposes of comparison, Table 5 shows figures for 1973 as well as 1983, the last year for which figures for all the countries are available. As in most countries, public debt in Australia rose as a proportion of gross domestic product in recent years. But it rose significantly less than was typical. In 1973, Australia's level of public debt was higher than that in Japan, Germany and France, and also than the level in Austria, Denmark, Greece, Portugal, Spain and Sweden, (although these latter countries are not shown in the Table). By 1983 the level of public debt in Australia was lower than that in any of these countries. In the western world only Finland had a lower level of public debt, and our level of public debt was less than half the average level.

The most important reason identified earlier for concern about the public debt related to the level of interest payments rather than to the level of the debt itself. Interest rates are higher in Australia than some countries. Perhaps this could change the favourable picture. In fact, it does not. The relevant figures are given in Table 6. Again, they related to general government public debt. This time the comparison is made only with the major O.E.C.D. countries, as it enables the figures to be one more year up to date, but a similar conclusion would follow if all the O.E.C.D. countries were to be examined.

TABLE 6

Interest on the Public Debt as a Percentage of Gross Domestic Product, 1984

	%
Australia[a]	2.7
United States	5.0
Japan	4.4[b]
Germany	3.0
France	2.8
United Kingdom	5.3
Italy	9.6
Canada	7.6

(a) for the years 1969-70 and 1983-84
(b) 1983, figure for 1984 not available

Source: O.E.C.D. Economic Surveys, Various Issues.

In 1984, Australia had a lower ratio of public debt interest payments to gross domestic product than did any of the seven major O.E.C.D. countries. In the year just ended, 1985-86, the ratio for Australia had risen to 3.6. This was below the average for the seven major countries in 1984 and, in fact, they also have an upward trend in the ratio, so Australia may still have a lower ratio than any of the seven. In any case it is clear that Australia is not a country where the level of public debt is of pressing concern.

APPENDIX 6

The Ageing of the Infrastructure: Launceston Water supply and Sewerage system.

As the third oldest city in Australia Launceston, is facing major problems in coping with accelerating deterioration of its urban engineering infrastructure... Although primitive in form sewers existed as far back as Roman times. The modern sewer as we know it today, was first laid in Hamburg in 1842. Following a competion Launceston saw its first sewers located in York and Margaret Street in 1857 just 18 years after Hamburg's first mains...

In the central area, construction was in brick and stone. Very many of these are still in use today... some sewers have seen nearly 100 years of service... The majority of the catchment has been developed on a combined sewer arrangement, ie where the stormwater and sewage are carried in the one pipe... The present system is that the theoretical sewage component is extracted by pumping and the balance of the combined sewage is discharged to the river... The inability of the Margaret Street sewer to discharge even minor (drainage water from) storms results in transfer flooding to tributary sewers. A recent hydraulic study... revealed that for sections of this sewer there is a 200 - 400 % over-load for moderate storms.

Brick sewers are not designed to withstand excess internal pressure, particularly in a situation where there are external voids surrounding the sewer, caused by the entry and exit flow through eroded brick joints in the wall of the sewer. In these situations with external ground support removed collapse is

inevitable. Despite repairs... the danger of imminent collapse is very real. Some of our early sewers in the central City area lie under buildings. The problems associated with collapse in these situations can only be immagined.'

Source: Submission, Launceston City Council.

APPENDIX 7

The South Australian Asset Replacement Studies

Asset replacement in the public sector in South Australia is due to increase sharply over the next decade and to continue growing until around 2010 (at which point it will be almost four times current replacement expenditure). At that point it falls back a little but remains at an overall level much higher than current replacement activity. (# 44th Report p 2)

The projections illustrate the consequences of present actions (or inactions). They are not prescriptive of what should be spent on replacement in future years, nor are they predictions of what will be spent in future years. They are not predictions at all. They are simply "exploratory calculations". They project the level of expenditure that would fall due in various time periods if the assumptions and asset vauations in the model are correct. (#53 p 16).

Not only are the amounts of money in this series of reports very large but it is clear that attitudinal changes of major importance are necessary if the State is to make a smooth transition from a situation where the creation of new assets is considered both normal and desirable to a generalised acceptance that the replacement and refurbishment of assets must take precedence over the acquisition of new assets.

If we fail to make the required changes then we should anticipate the traumatic experiences which have occurred overseas when enormous asset replacement problems arrived without warning. These reports ... provide a clear indication of the enormous increases which will occur in the amount of asset replacement falling due (and) ...give the warning in time for adequate preparation. (53rd Report p 5)

It seems reasonable to the (South Australian Public Accounts) Committee that the Commonwealth be involved in, and asked to contribute to, the replacement of assets which originated through Commonwealth grants and where it is deemed necessary that the asset be replaced. (53rd Report p 45)

APPENDIX 8

Premature ageing of the Infrastructure: Concrete Deterioration

Following widespread reports of "concrete cancer" on many modern buildings and other reinforced concrete structures, a study was undertaken by the Building Research Centre at the University of New South Wales. The study was the first industry funded project to be undertaken by the Centre but the problem is not confined to the private sector and these same faults have been appearing in many public buildings.

The research involved an examination of aspects of the distribution and density of corrosion induced faults on buildings and a series of site tests to determine whether quantity or quality of the concrete cover was the major factor leading to the problem.

The results of this research show quite clearly that most durability failures are the result of inadequate concrete cover over the steel reinforcement. Reinforcement is protected from corrosion by the concrete encasing it. This layer of concrete, however, will only adequately protect the reinforcement if the quality and quantity of concrete are sufficient.

Following these results a quantitative assessment was made on the accuracy of reinforcement placement in 16 buildings under construction. As a result of this study a booklet and two videos are being produced for clients, designers and contractors... drawing attention to detailing issues which affect durability. This material is aimed at preventing recurrence of the problem at the construction stage which is easily the cheapest long run solution.

The study also yielded cost estimates for repair of existing faulty buildings. All repair and new construction costs were in 1986 values. Results of the research so far show that for typical buildings showing signs of concrete deterioration the average repair cost is equal to some 7 per cent of the initial cost of the building. For a typical 15-year-old 6-storey building with a replacement value of around $1.1 million the average repair cost is over $70,000 but exceeds $140,000 in 25 per cent of buildings surveyed.

It is difficult to put a figure on the likely aggregate repair costs from faulty buildings already in place but they seem destined to rise in to the $100 million p.a. category over the next decade. (Building Research and Development Advisory Committee Building Research and Development in Australia 1983-86, Department of Housing and Construction, Canberra, 1986, p1.)

SOURCE: Marton Marosszeky et al, Site Investigation - Quality of Reinforcement Placement on Buildings and Bridges, Building Research Centre, The University of New South Wales, 1987.

Appendix 9

Pricing and Efficiency: the Hunter District Water Board

In a paper prepared prior to the introduction of the user-pays tariff the president of the Board (Dr John Paterson, an economist) observed that "a large proportion of members of the economics profession over the past 200 years... had thought written and argued, about public utility pricing. They have, collectively, had no effect on the running of the Australian water industry." The first water supply authority in Australia to move to a "User-Pays" approach was the Perth Water Board. The Perth Water Board was faced with a drought of near disastrous proportions and (with necessity the mother of invention) "made the move in the theoretically desirable direction in 1978".

The principles of "user-pays" pricing may be well known among the economics profession but they are not well known outside. In common usage "user-pay" often has a political overtone. The experience of the Hunter District Water Board illustrates this point. "Public reaction to the (user-pays) tariff was enormous and the initial reaction was predominantly unfavourable... The public controversy did, however have one clearly beneficial effect. It dramatised the new pricing system, and created a new consciousness of the real cost of water." (Hunter District Water Board, Annual Report 1982-83, p 11,12).

The basic theoretical principles were established by Professor A. C. Pigou over 50 years ago. There are two;

(i) Where a fixed capital investment is involved, charges to users for debt service and amortisation should cover this cost (the 'owning cost') of capital and should be independent of use. How those fixed costs should be distributed is a matter of

relative indifference to the theory; they agree that it depends on your social values, or in other words it is a matter for political choice, on which theory offers no real comment.

(ii) Where operating costs are involved, charges related to volume consumed should be equal to the long run marginal cost of the system and should be equal (per unit volume) for all consumers. Basically long run marginal cost is the cost of connecting and servicing the next 10 percent of consumers as a city grows. To simplify matters it can be safely assumed, at least in the case of the Hunter District Water Board, that the long run marginal cost is about equal to the present average cost of services rendered. For the foreseeable future there are no dramatic economies or diseconomies of scale in sight", (Hunter District Water Board ,An Equity Based Water and Sewer User-pays Tariff, 1982 p 10).