INFRASTRUCTURE PRICING AND ADEQUACY

QUESTIONS FOR RURAL AND REGIONAL AUSTRALIA

Bob Lim and Company Pty Ltd
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FOREWORD

This paper canvasses issues currently being researched under a grant from the Rural Industries Research and Development Corporation, supported by the National Farmers Federation, Canberra.

Very important issues are at stake for rural and regional Australia in the implementation of National Competition Policy reforms – particularly as they bear on the pricing and supply of economic infrastructure services and hence on the international competitiveness of the rural sector.

Process, as much as policy and economic theory, is important in understanding and equipping rural and regional Australia to participate effectively in this key area of microeconomic reform. The devil is indeed in the detail.

This paper is designed to indicate the kind of key questions and issues being examined in our research project and assist in informing rural and regional stakeholders generally of the issues involved. Feedback and practical material from rural and regional Australia will be a welcome input into our research task, and help with the formulation of policy and practical recommendations in our final Report.

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CONTENTS

1. NATIONAL COMPETITION POLICY

Five Years On

National Competition Policy has been controversial

National Competition Policy (NCP) is now five years old – although the increased emphasis on "microeconomic reform" in Australia, of which the NCP is an integral part, began much earlier in the mid 1980s. The NCP package embraces (1) a Code of Conduct Agreement; (2) Competition Principles Agreement; and (3) an Agreement to Implement the National Competition Policy and Related Reforms. It also established the National Competition Council (NCC) to advise on implementation. Unfortunately, and although the aims of microeconomic reform are commendable, there is increasing concern over the NCP and its impact both in economic and social terms. This has been acknowledged by the NCC itself (Box 1).

Box 1

"…recent public debate has revealed widespread confusion about competition policy and how it ties in with other government policies. For example, it has been suggested that the NCP agreements require certain policy actions such as repealing all anti-competitive legislation or privatising government businesses. Conversely, NCP is a form of 'economic rationalism' which focuses on money, markets and materialism with no regard for equity, the environment or the social fabric."

Source: NCC 1999, p23.

Expectations have been oversold while NCP benefits have been more gradual.

In retrospect perhaps it can be said that the expectations of micro-economic reform have been oversold. The benefits are likely to be more gradual than first thought while the costs are likely to be more immediately felt (PC 1998a, 15-16). Moreover, the benefits have been unevenly distributed across Australia.

How can the NCP process be enhanced?

This paper canvasses some of the key issues in the NCP area from the viewpoint of rural and regional Australia and focuses on how the process of reform can be enhanced. Only by injecting itself more constructively in the implementation process can rural and regional Australia ensure that lasting improvements in its own competitive position are achieved. In this regard it is important to note that Australia's rural industries are uniquely exposed to international competitive pressures. They do not operate in a closed economy. NCP reform must, therefore, deliver prompt and

clear internationally competitive outcomes for rural and regional Australia.

The Theory of Microeconomic Reform

As the Productivity Commission has recently observed, microeconomic reform is about making Australia a more productive place (PC 1998a, p10). The greater efficiency with which the Australian economy can deploy its factors of production the greater will be its economic growth, its standard of living and its ability to create employment and a better life for its citizens. As a Business Council of Australia study has previously noted *"…Microeconomic reform is about making the economic system more efficient. It is about removing impediments to the free flow of the great primary factors of production – land, labour and capital – to their highest and best use. It is about breaking down barriers to entry which have been artificially erected to prevent competition in product markets. Essentially it is about making Australia a more productive and wealthy society. Improving efficiency is likely to be a prerequisite for both the sustainable expansion of investment and aggregate demand and reconciling a reduction in real unit labour costs with increases in real wages."* (BCA 1995, p1). The reasons for Australia embarking on a program of microeconomic reform are well summarised by the Productivity Commission (Box 2).

Microeconomic reform is aimed at making Australia more productive

Box 2

Reform is a means to higher living standards

"The origins of microeconomic reform lay in the gradual realisation that, over the years, some key government policies and practices were preventing Australia from reaching its economic potential. Inappropriate regulation and red tape – which inhibited healthy competition while raising the costs of doing business – and mandated government monopolies which denied freedom of choice of supplier, were among the policies which had weakened incentives for people in all walks of life to be innovative, self-reliant and to use the resources available to them to the best effect."

Source: PC 1998a, p5

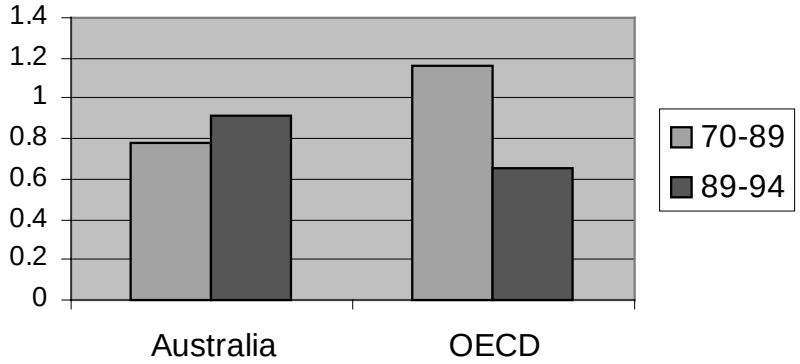
Slow productivity growth – a problem

The following chart (Chart 1) illustrates the serious and fundamental problem Australia had from 1970 to the late 1980s with slow productivity growth. Beginning in the late 1980s Australia has moved on to a path of sustained productivity improvement. Multifactor productivity is now running at around 2 per cent per year compared with the historical average of 1.5 per cent a year while labour productivity has shown a similar improvement and has been increasing recently at around 3 per cent a year (PC 1998a, p10). While there is a need to be cautious

in attributing all of this improvement to microeconomic reform the current trend in productivity is encouraging.

Chart 1

Annual average productivity growth (%)



Source: IC 1997 p 68

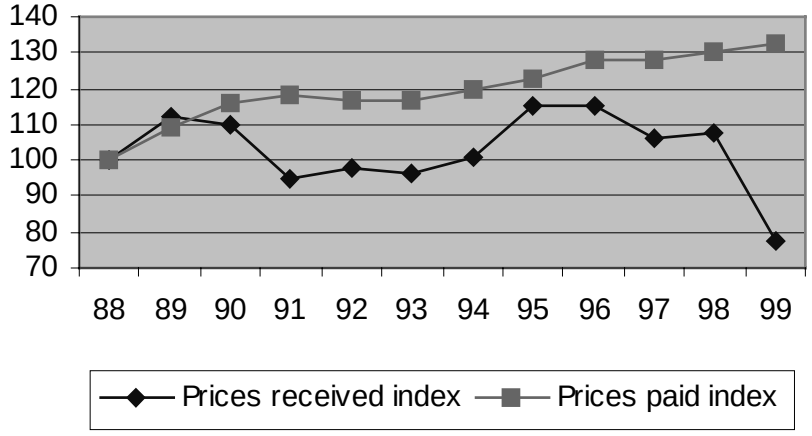
Australia's rural sector suffering

But the problem for rural and regional Australia is that its own competitive position seems to be getting worse in spite of microeconomic reform. Australia's rural industries are uniquely exposed to international competitive pressures and to be effective NCP reforms must deliver internationally competitive outcomes. This is illustrated by the serious decline in farmers' "terms of trade" over the last 10 years reflecting ever rising costs of farm inputs, while prices received have moved unfavourably. The Australian rural sector requires a drastic "pull-back" in its costs (including infrastructure costs) if it is to achieve anything close to a return to its competitive position in the mid 1980s – let alone to earlier decades when its international competitive position was excellent (Chart 2).

Chart 2

Farmers' Terms of Trade

Source:ABARE



National Competition Policy: Process and Procedures

NCP process is aimed at accelerating microeconomic reform

As already noted the NCP, launched in 1995 by the Council of Australian Government (COAG), was designed to accelerate that element of microeconomic reform aimed at competition, particularly (but not exclusively) in relation to traditional government or public sector operations. As the NCC stated the 1995 reforms are to:

- extend the reach of the anti-competitive conduct laws in Part IV of the Trade Practices Act (TPA) to virtually all private and public sector businesses;

- improve the performance of essential infrastructure through implementing reform packages in the electricity, gas, water and road transport industries; and establishing third party "access" arrangements for the services of nationally significant monopoly infrastructure;

- review and, where appropriate, reform all laws which restrict competition, and ensure that any new restrictions provide a net community benefit; and

- improve the performance of government businesses through structural reform, introducing competitive neutrality so that government businesses do not enjoy unfair advantages or disadvantages when competing with private businesses; and considering the use of prices oversight.

As the NCC observes: *"…In essence, most NCP reforms are measures designed to reap the benefits that competition, properly harnessed, can bring. The objective is not to pursue competition as an end in itself, but, where appropriate, to inject competition into previously sheltered areas of the economy to boost economic performance and provide benefits to Australian consumers and households."* (NCC 1999, p5)

But NCP processes are complex, confusing and on-going

But while the NCP has desirable goals the processes and procedures which stakeholders must engage in to achieve those goals are complex and confusing. No lesser an authority than Professor Fels has stressed this point to potential players in the NCP reform game (Box 3):

Box 3

"…Securing an agreement at COAG and enacting reform legislation is just the beginning, not the end, of the implementation of competition policy.

In this respect it is worth comparing competition policy with tariff reforms. Before tariffs are reduced there is usually a very considerable and heated political debate. Many political obstacles have to be overcome before the reform can be introduced. However, once the decision is made to reduce the tariff all that is required is the stroke of a pen by a Minister reducing or eliminating the tariff. After that there is no more work left for government. It is the market not the government which goes to work in sorting out the adjustments in resource use which the change in the tariff will bring about.

Reform of competition policy is quite different. Competition policy involves a paradox: government intervention is necessary to get a free market to work competitively and efficiently and to prevent anticompetitive conduct from occurring in markets which are otherwise competitive. Lawyers, regulators, public servants, economists, courts, tribunals, Commissions, interest groups and many others become involved. There are complex processes involving hearings, determinations, authorisations, court decisions, appeals and so on. And there are many difficult decisions to be made. It takes time for them to be made. There are transition provisions and it takes further time for the effects of these decisions to be felt.

Implementation is thus a challenging process in competition policy."

Source: Fels 1995, pp11,12.

Summary and Questions

Rural and regional Australia has an urgent need to secure improvements in its economic fortunes – farmers cannot sustain another decade of declining terms of trade. Although the NCP has been underway for five years, and should be delivering solutions, being involved in the process and in the implementation details to ensure that farmers' interests are protected are pre-

requisites for success. The process involved, as noted, is complex and time consuming and, most importantly, involves the inter-play of various vested interests – asset owners, users, financiers, governments and regulators.

Some questions for rural and regional Australia are:

- ***Has the NCP delivered urgently needed improvement in international competitiveness?***
- ***Have the benefits of NCP been fairly distributed?***
- ***Do you need to be directly involved to get your fair share?***
- ***How do you deal yourself into the complex game of NCP processes and procedures?***

2. INFRASTRUCTURE IN THE NCP REFORMS

Infrastructure central to NCP

Infrastructure is a central concern of the NCP process. Equally, infrastructure is a vital issue for rural and regional Australia. Two issues are of the greatest importance, (1) the adequacy of infrastructure; and (2) access to, and pricing of, infrastructure services.

Infrastructure Adequacy

Infrastructure crucial to rural and regional Australia and its economic development

Infrastructure is capital sunk into land – such examples being, railways, roads, water supply, electricity, communications, etc. Not surprisingly infrastructure provision is important to rural and regional Australia and historically substantial infrastructure investment was essential for the economic development of our nation. As an essential ingredient to modern economic growth there is no doubt that sustained investment in infrastructure is highly desirable (Box 4):

Box 4

Infrastructure: Economic Benefits

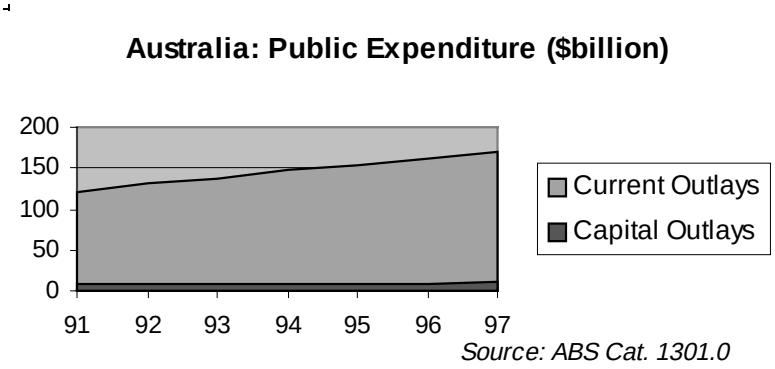
"It is beyond dispute that investment in economic infrastructure, much of it traditionally publicly provided, affects the productivity of the private sector capital stock. Obviously, for example, the productivity of a truck depends very much on the availability and quality of roads where the goods are to go. No one, therefore, doubts that the efficiency of, say, our ports and airports – and our transport and handling system as a whole – is an important ingredient in our international competitiveness."

Source: FitzGerald 1994, p14.

Infrastructure running down?

There are now concerns that Australia's infrastructure stock may be running down as governments increasingly spend less on capital works and more on recurrent expenditure for consumption and transfer payments in the areas of social priority such as health, education, welfare, etc. Recurrent spending by all levels of government in Australia is now around 15 times greater than capital expenditure, and while current spending is increasing rapidly capital expenditure is languishing (Chart 3)

Chart 3



Source: ABS Cat. 1301.0

Will the infrastructure situation get worse because of NCP?

Although there are clear signs that infrastructure expenditure is falling relative to current public spending it is perhaps too early to say whether Australia's infrastructure has reached a crisis stage in terms of adequacy. Some of the slack in the public sector has been taken up by the private sector. The more important question of concern in this research is whether the new approaches to infrastructure provision in Australia triggered by micro-economic reform and NCP processes is likely to retard further Australia's infrastructure adequacy?

Infrastructure pricing and access

Pricing and access issues important for international competitiveness

Pricing of infrastructure services, and access to infrastructure, are of supreme importance from an international competitiveness viewpoint. As was noted recently: *"…If American farmers have access to better and cheaper transport or cheaper water, that means Australian farmers may suffer an absolute cost disadvantage in competing on world markets.* (NFF, *Reform* 1999)

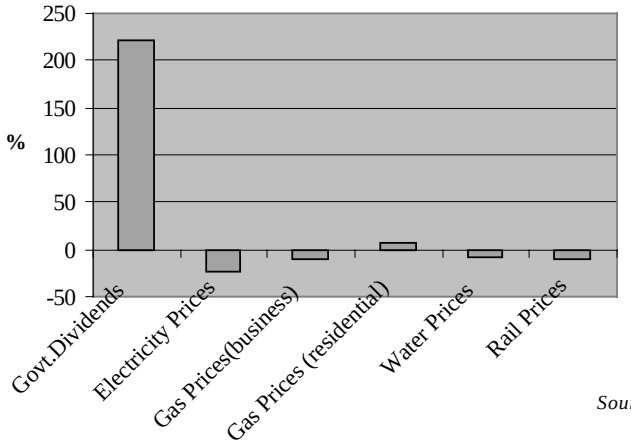
Dividend payments to governments have increased meaning smaller price reductions to users

Although there are some welcome indications that NCP processes have resulted in lower prices, particularly for electricity, gas and rail freight (NCC 1999, p9) it is clear prices could fall much further if dividend payments to governments were restrained (and in some cases, if privatised assets had not been excessively valued). In other words, some of the benefits of reform have been siphoned off to governments for general current spending and debt consolidation, rather than being passed on to infrastructure users in lower prices. It is also clear that price benefits have been uneven. The following chart compares the most recent data available on GBE real price reductions with dividend payments to governments. While dividends paid to governments have

skyrocketed with an increase of over 200% in the last 5 years electricity prices have fallen by only 24%; gas prices to business by 10%; water by 9%; and, rail by 11%. However, gas prices to residential users actually increased by 7% over the same period (Chart 4).

Chart 4

Real Percent Change:91/92-96/97



Source: PC 1998b

Price regulation of infrastructure is a complex issue

Price regulation of infrastructure services has emerged as a major issue in the NCP process. A range of complex problems and regulatory processes have arisen as traditional public sector pricing policies have given way to a new framework. On the one hand there is a desire by regulators to ensure that prices are not excessive reflecting the natural monopoly characteristics of infrastructure industries. On the other hand prices, it is argued, need to be adequate to ensure an incentive to invest (Treasury 1999). Five key pricing practices have been identified in a recent study (Treasury 1999). It should be observed, however, that current practice in a number of key Australian infrastructure sectors subject to NCP regulatory reviews can result in a self-fulling circular process of price formation where ever increasing revenues can flow to the infrastructure owner. This remarkable process – virtually a "wheel of fortune" - of self perpetuating utility revenue escalation with minimal price reduction (or even price increases) is described below (Box 5):

Box 5

Tariff Effect of Inflated Asset Values:
A "Wheel of Fortune"?

The maximum aggregate revenue stream is determined by the sum of (efficient) operating costs and capital costs. There are two elements to capital costs: (i) depreciation and (ii) the opportunity cost of having capital tied up in the business. Expressed as an equation, the periodic revenue stream is calculated as:

$$\text{Revenue}_i = \text{operating}_i + \text{oppcost}_i + \text{depn}_i$$

Where revenue is the periodic revenue, operating is the amount spent on operating (non-capital) costs, oppcost is the imputed (opportunity) cost of devoting capital to the entity, and depn is the period depreciation (loss of capital) expense.

Of the three components of periodic revenue, two are determined by the Regulatory Asset Base (determined by the asset owner or the regulator). These are oppcost (the return on capital) and depn (the return of capital). The greater the Regulatory Asset Base, the greater or more lasting both these items. It is obviously in the interest of asset owners and/or governments to obtain a higher Regulatory Asset Base. There is no additional cost to the asset owner as the Regulatory Asset Base is only a "book value", it is not an actual outlay.

Another way of ensuring self-perpetuating revenues is to continually top up the asset base through the revenues earned through the above equation. This is because periodic capital expenditures are added to the Regulatory Asset Base to augment the amount of capital earning the regulated real rate of return. If the regulated rate of return is attractive, the asset owner will want to leave as much money in the Regulatory Asset Base earning the rate of return by additional capital expenditures or extensive maintenance programs.

In addition, because maintenance expenditure is reimbursed through the operating term of the above equation, by judicious maintenance activities, the economic lives of assets may be extended, in which case the provider can push out the length of its (real rate of return earning) inflated investment with no net cash input of its own.

Source: Professor David Johnstone, 1999

Infrastructure and taxation by disguised "user charges"

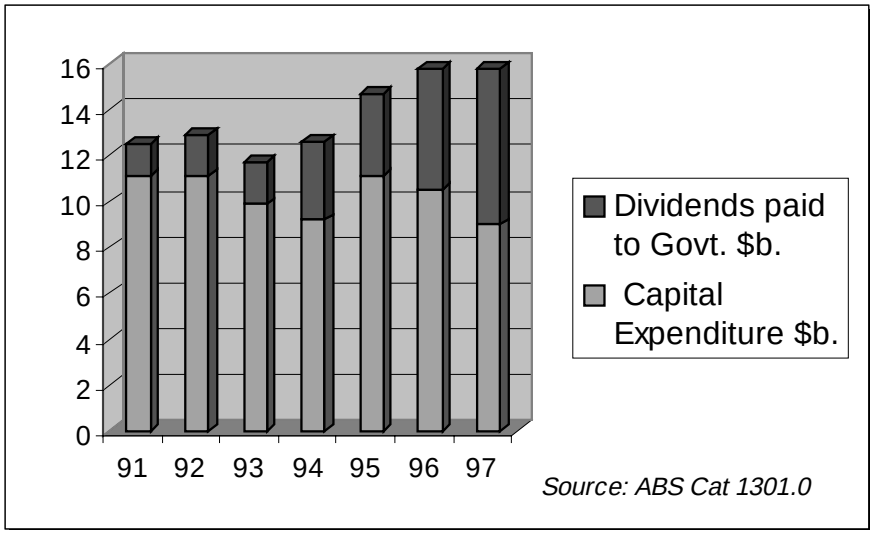
Taxation as disguised "user charges"

Previous studies (BCA 1995) have highlighted the meteoric rise in indirect taxation in Australia in recent years under the guise of "user charges" imposed by public trading enterprises. These "user charges" reflect "dividend" payments to governments by public trading enterprises. The Australian Automobile Association (AAA 1995) has described this phenomenon as follows: *"…the commercialisation and privatisation of Government business enterprises such as communications, electricity, water and sewerage have been accompanied by State and Federal Treasuries transferring existing funded public assets to GBEs at replacement value and imposing spurious 'dividend' requirements on Government business enterprises which in turn must be recovered by 'user charges'."* (BCA, 1995, p59).

The rise in "user charges" taxation has been meteoric

That this new form of indirect tax has grown at a truly meteoric rate can be gauged from the fact that income transferred to governments from all public trading enterprises in Australia (other than banks) jumped from $0.4 billion in 1987-88 to $6.8 billion in 1996-97, an increase of 13,000 per cent! Over 40% of the annual revenue of public trading enterprises in Australia is now transferred to governments compared with only 9% seven years ago. The new "tax milch cow" status of public trading enterprises as revenue generators for governments can be seen from the following chart (Chart 5). This shows that while their gross fixed capital expenditure is shrinking public trading enterprise revenues in Australia are being siphoned off to governments at a rapidly increasing rate. In 1990-91 "dividends" from public trading enterprises were $1.4 billion while their gross fixed capital expenditure was $11.1 billion. By 1996-97 dividends had jumped to $6.8 billion at the expense of capital expenditure which had dropped to $9 billion.

Chart 5



Source: ABS Cat 1301.0

Present trends in user charges tax not sustainable?

In the longer term this trend of governments stripping dividends from public enterprises while capital expenditure is being run down is unsustainable but, in the meantime, the damage to Australia's competitiveness of massive "user charges taxation" – to say nothing of possibly seriously depleted infrastructure assets – inflicts severe injury on rural exporters.

The difficulty for users of public sector services being able to deal with this "disguised user charges tax" problem was summed up by the former Bureau of Industry Economics as follows: *"…Over the last decade or so, governments have actively pursued reforms that have encouraged GBEs to adopt a commercial focus, make profits and pay a dividend to shareholders. These initiatives have intensified pressures on GBEs involved in the provision of infrastructure to exploit their market power by overpricing. Exposing GBEs to competition can discourage such behaviour. However, there are situations where effective competition will be difficult to achieve, or will take time to establish."* (BIE 1995, p61).

The BIE's observations can be clearly seen in some infrastructure sectors, where lack of competitive structures, the exploitation of market power, and the primacy of government privatisation objectives have limited or negated the benefits that could have accrued from NCP reforms. More seriously, if these experiences are left unchecked, they could have significant adverse impacts on rural and regional Australia.

Summary and Questions

Government practices and regulatory processes have serious impacts for rural Australia under the NCP

The issues of adequacy and pricing of infrastructure are crucial to rural and regional Australia but significant changes have been occurring without proper understanding and debate of the implications. Some questions are:

- ***How can the adequacy and pricing of infrastructure issues achieve better public understanding?***
- ***How can government practices associated with the NCP process which negate or limit the benefits be reformed?***
- ***What are the flaws in the regulatory regimes that have been established and how have they worked against infrastructure users' interests?***
- ***How can NCP processes which result in unwarranted price escalation be changed?***
- ***Can rural and regional Australia achieve better outcomes by engaging directly in NCP pricing and regulatory processes?***

3. ECONOMIC THEORY AND INFRASTRUCTURE

The NCP process involving infrastructure reform has resulted in new approaches toward the pricing, access and supply of infrastructure.

Under the banner of "creating competition" infrastructure pricing and access are to be set on the basis of "user pays". In natural monopoly sectors, regulators are expected to make determinations on price, access and service provision that replicate competitive markets.

Potentially contestable sectors (ie those that could be exposed to competition) are segmented or disaggregated (from non-contestable sectors) and exposed to competitive forces. Prices and supply of new infrastructure services will be determined by the interplay of market forces. New infrastructure will only be seen as socially worthwhile if users are willing to bear the full costs (IC 1992).

The provision of economic infrastructure raises important questions in economic theory and practice. These questions include the following:

- When should infrastructure be provided?
- Who should bear the cost of providing infrastructure?
- Should infrastructure be provided by the public or private sectors?
- How should pricing regimes for use of infrastructure be set?
- How can wasteful duplication of infrastructure be prevented?
- Does infrastructure necessarily involve natural monopoly and what can be done to prevent abuse of any monopoly position by government or private owners of infrastructure?
- Are there systemic tax biases which inhibit the provision of private infrastructure?

When should infrastructure be provided?

Governments in a key role

It has long been accepted that governments have a key role in the provision of infrastructure because it may often be impossible for a private provider to reap the benefit of investing in such enterprises. For example, typically transport infrastructure results in benefits to many more people than the immediate users and only a government may be able to spread the cost of such public works over all beneficiaries.

Queensland as a case study

The history of Queensland provides a case study. When the first government of the State was formed in 1860, Queensland was a sprawling and almost virgin territory with virtually no infrastructure. Yet without infrastructure, and railways in particular, Queensland's wealth could not be unlocked. As Sykes has noted Queensland found itself in a classic "chicken and egg" situation. Without infrastructure there could be no development of Queensland's wealth. Without development there would be no tax revenue. But the infrastructure required meant spending now. The Queensland government borrowed in expectation of future tax revenues which would flow from the development of the colony and put the loan funds into providing the necessary infrastructure (Sykes 1988).

The unlocking of wealth

Australian governments, in providing infrastructure, saw that public infrastructure would unlock the land, increasing the productivity of capital and labour and thereby more than pay for itself in increased tax revenues. They therefore did not seek to recoup its whole cost from users but were content to subsidise it heavily from public funds. Economists refer to this kind of reasoning as an externality argument. If an economic action confers benefits on others which a person is unable to recoup or be compensated for, then the market will not work efficiently.

Governments have a role in providing infrastructure – the externality argument.

Economists would argue that if the total benefits from an infrastructure project exceed its total costs, then the infrastructure should be provided - whether or not user charges will meet its cost. The problem is that in many cases the private infrastructure provider is unable to recoup all the benefits. Hence it is not surprising that governments over the years took over the provision of public infrastructure.

Who should bear the cost of providing infrastructure?

"Loss-making" provision

The traditional development pattern in Australia was that much infrastructure was provided by governments on a loss-making basis. Governments felt that the increasing public revenues from the development of their territories generated by the provision of

infrastructure would more than pay for the cost of infrastructure provision.

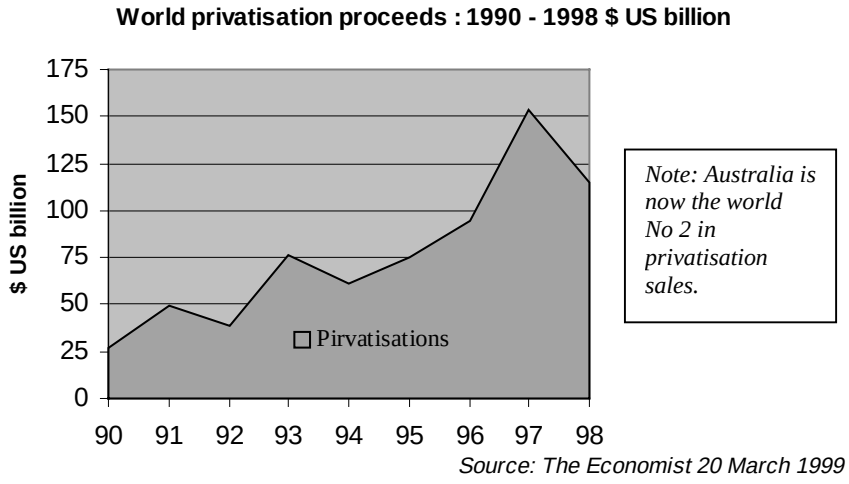
Efficient provision

But it is understandable that people, whether as taxpayers or infrastructure users, should be concerned that infrastructure be provided as efficiently as possible and (in that sense) on a "commercial" basis. Governments also, facing increased demands for welfare spending and social services as the post-WWII growth years slackened, have recently been less inclined to subsidise loss-making public infrastructure, such as railways. In many cases, infrastructure services have been cut back or rationalised.

Change in public finance philosophy

The result has been a general move since the late 1970s, and pioneered chiefly by the UK, towards the commercialisation, corporatisation and privatisation of infrastructure. At the same time, there has been a drive to shift from tax-based Budget financing to full cost recovery, and indeed profitability, based on full user charging. The push by governments around the world to adopt the new budgetary and public finance fashion of "privatisation" has accelerated in the 1990s. The following chart shows that global privatisation proceeds jumped from around $US30 billion in 1990 to $US115 billion in 1998 after peaking at over $US150 billion in 1997 (Chart 6).

Chart 6



Source: The Economist 20 March 1999

The world wide move to privatisation. A new era

In the period 1994-98 Australia ranked second in the world in privatisation sales averaging over $US8.5 billion annually after Italy ($US12 billion). Japan followed with annual sales of $US8 billion, then France, Spain, the UK and Germany. It would, of course, be wrong to characterise all this as necessarily bad since users of infrastructure have benefited from the focus on waste elimination, efficiency and reduction of excessive wage or other

costs. But users have not necessarily benefited from the reduced general tax financing of infrastructure. Public utilities have been compelled to divide their activities into the profitable and unprofitable. Where a service is unprofitable but that service is expected to be maintained for the community, that service is described as a "community service obligation" or "CSO" which in theory should be met by taxpayers' funds being appropriated to the public utility provider. Cross subsidisation of unprofitable services via profitable services is supposed to be eliminated, to promote efficiency and avoid disguised taxes being imposed upon the users of the profitable services. The problem arises when utilities are privatised, and CSOs do not play a role in utility pricing behaviour.

The cross-subsidisation issue

However the concept of cross-subsidisation in the case of infrastructure does raise serious questions. For example, in the case of network infrastructure, it is not clear how a subsidy is to be ascertained. In the case of a railway or road system, how much does each part of the system contribute to the whole? If one kilometre were removed from the Sydney-Melbourne rail link, it would be rendered largely useless. Central Railway Station in Sydney may show a profit from handling large amounts of freight traffic but could it be so profitable if it were not at the centre of a network stretching across the State of New South Wales? Is it the receiving railway station which generates a profit or the sending railway station? The reality is that network infrastructure is full of externalities.

Is "user pays" appropriate?

In addition, because infrastructure generates increased productivity for the community as a whole and increased revenues for government, it may be questioned whether a policy of strict "user pays" is always appropriate. If, for example, the benefits of infrastructure provision are reflected in increased land values or increased tax revenues, users of infrastructure may well ask why they alone are expected to meet the whole cost of the infrastructure.

Economic efficiency dictates that beneficiaries should pay, not users.

The idea that infrastructure costs should be borne by users alone is in fact contrary to economic theory, which stresses that in the case of externalities, there will be under-provision of useful infrastructure if the full cost is sought to be recovered from direct users *only*. Economic efficiency dictates not a policy of "user pays" but a policy of "beneficiary pays" (BCA 1995, Vickrey 1994). To the extent that infrastructure reform has meant a shift towards fully commercial models under which the whole costs of infrastructure *must* be met by users, and by users alone, it may be questioned as being neither rational nor efficient.

Should infrastructure be provided by the public or private sectors?

UK and US history

Historically, infrastructure in the USA and the United Kingdom was provided by joint stock companies granted legal franchises. In Britain the early canals and railways were constructed by companies which secured private Acts of Parliament granting them rights of way over the objections of landholders.

Australia different

In Australia, things took a different turn. Australia did not have sufficient private capital while investors in London were more willing to trust the credit of colonial governments than colonial railway companies. More importantly, the pattern of population distribution, then as now, did not offer railway promoters easy opportunities to make money by linking large well established or well populated urban centres, unlike America or Britain.

US influence

Although most economic theory on the regulation of public utilities has been heavily influenced by the American experience of publicly chartered, but privately run, corporate provision of infrastructure, history shows that, in one way or another, whether through land grants or direct subsidies, there has always been a substantial government involvement in infrastructure. No country has ever allowed private promoters to run railways wherever they liked and most countries have given direct or indirect subsidies to infrastructure in the name of economic progress and national development.

Governments must be involved

Given that infrastructure may exhibit natural monopoly characteristics (which means that competition to duplicate facilities is wasteful) and that infrastructure, if made available to users on reasonable terms, may generate large positive externalities and increased productivity for the community generally, it is also not surprising that governments have been involved.

Natural monopoly issues

The minimum involvement for government is to grant the exclusive franchise. The maximum involvement for government is to provide the infrastructure itself, prohibit alternative providers and directly employ and control the labour and capital involved. The old Postmaster-General's Department and the New South Wales Government Railways were examples of this latter form of total public sector financing and management. Faced with entrenched public-sector unions and the restrictions of Treasury budgeting and Parliamentary appropriation procedures, governments have recently moved towards corporatisation, greater reliance on user charges and more managerial autonomy. Examples of this shift are Australia Post, the New South Wales Electricity Commission and the former Telecom. In the shift from on-Budget authority to off-Budget statutory corporation,

User charges emerge

there has usually been an accompanying drop in the level of publicly funded "subsidy" and a greater reliance on user charges. Political oversight still however remained and statutory authorities were under political pressure to keep charges as low as possible.

Public finance drivers

Treasuries like getting money no less than private entrepreneurs. It is not surprising that in due course more emphasis began to be laid on operating public infrastructure as a "government business enterprise" rather than as an "essential public service". The change in the phraseology marked a significant shift in Treasury attitudes to public finance theory. Treasuries in Australia began to set dividend requirements and rates of return based on the alleged cost of capital "tied up" in infrastructure (such assets are always valued so as to obtain the highest values!). Once public infrastructure began to be seen as a profit-making rather than a loss-making concern, it is equally unsurprising that governments and Treasuries started to contemplate privatising such infrastructure for one large lump sum from a public float rather than waiting for a growing stream of dividends.

From the point of users, it may be argued that the important question is not so much whether infrastructure is publicly or privately provided, but whether it is provided at all - and that they face reasonable charges which do not represent over-charging by either private entrepreneurs or Treasuries.

How should pricing regimes for use of infrastructure be set?

Price regulation is common

Unlike most other goods and services, infrastructure provision is almost invariably subject to some form of price regulation. Even in the United States, there are highly developed systems of price regulation at both Federal and State levels. Price regulation arose in response to perceived abuses by utilities of their natural monopoly position.

How to price regulate?

Yet price controls are generally anathema to economists. It is typically argued - and with good reason - that an industry subject to price controls will tend to under-invest and consumers will be deprived of the use of the price controlled product completely - which is equivalent to being charged an infinite price. In the case of infrastructure, economists have tended to take a more benign view of price controls recognising that an infrastructure franchise may be "a licence to print money" because of natural monopoly characteristics. Most interest has centred on the appropriate design of price regulation so as not to inhibit necessary investment or encourage wasteful management.

Pricing: marginal cost or full cost recovery?.

The other issue which has featured prominently in price regulation is whether price should reflect marginal or average costs of infrastructure. Once infrastructure is in place, there is often little additional cost incurred in allowing its use. In these circumstances, economists have argued that society's interests would be best served by pricing at marginal cost. Unfortunately pricing at marginal cost generally does not provide sufficient revenue for large scale infrastructure to pay its way. Accordingly some economists have argued for variations of marginal cost pricing so that a mark-up is applied to recover the fixed costs of infrastructure. Sometimes it has been suggested that long run marginal cost, rather than short run marginal cost is the appropriate test for economically efficient pricing. But economists such as Vickrey have pointed out that if the size of investment is optimal long run marginal cost will be the same as short run marginal cost. Eminent economists have continued to argue for public subsidies to meet the fixed costs of infrastructure, leaving users to bear only their marginal costs (Vickrey 1994). But this has to be weighed up against the marginal cost of public funds, although one might note that similar efficiency criteria are not often applied to current government spending on social transfers.

Rural Australia face considerable price increases

These academic debates are of considerable practical significance. A mark-up on price is essentially a form of taxation and almost all taxation has disincentive effects, sterilising productive effort. Especially in the case of rural and regional infrastructure, the fixed costs of maintaining the network infrastructure are very large as compared to the marginal costs. The resulting changes in prices allowed when different regulatory formulae are applied may therefore be considerable.

Externalities and pricing

The issue is further complicated by externalities. If infrastructure generates benefits for others, such as landholders, efficient pricing would require that they contribute to the costs of maintaining the fixed infrastructure, thereby reducing the required charges to direct users. Recouping externalities offers the hope of solving the problem of financing the operating losses inevitable with short run marginal cost pricing for infrastructure without having to resort to distorting taxation. In any event since Treasuries are major beneficiaries of infrastructure investment it may appear reasonable that they should contribute towards its cost.

How can wasteful duplication of infrastructure be prevented?

Avoiding duplication

One question which Australians have tended not to think much about is the question of wasteful duplication of infrastructure. When infrastructure was publicly provided at a loss by governments, the idea that the private sector would be interested

in competing to duplicate the infrastructure was rather remote. Private sector investors are interested in competing for profitable monopolies, not unprofitable ones.

Wasteful duplication can arise

Once governments cease to provide infrastructure at a loss and new entrants are allowed, the question of potentially wasteful competition arises. It is one of the characteristics of natural monopoly infrastructure that it is typically uneconomic to duplicate whole networks. Indeed it is positively undesirable to attempt to do so. For example, the competition by Optus and Telstra to provide pay-TV cables down both sides of many streets in Sydney meant that these duopolists over provided infrastructure in some areas in the hope of picking the eyes out of the market. A consequence was that both providers found difficulty in making profits where they had laid competing infrastructure, yet infrastructure was not much provided at all in other locations such as rural and regional Australia.

NCP action on essential facilities

National Competition Policy partly recognises this ever-present problem of wasteful competition by requiring that natural monopoly infrastructure may be declared as an "essential facility" subject to an approved third party access regime. This means that where infrastructure already exists, wasteful duplication will be avoided by allowing a competitor to use an incumbent's existing infrastructure under an approved third party access regime. The access regime will cover terms and conditions of the usage and pricing. Industry codes and access regimes can be very complex. Without effective and ongoing user representation, access and pricing regime outcomes may be biased towards government or asset owner interests.

If one seeks to avoid the problem of wasteful infrastructure duplication through a system of legislated monopoly franchises, one then comes face-to-face with the problem of preventing abuse of the monopoly franchise, whether by a government infrastructure provider or by a private infrastructure owner.

Preventing Abuse of Monopoly

Abuse of monopoly

Prevention of the abuse of monopoly positions concentrates both on access and price. Mandated access is required to prevent the creation of upstream or downstream monopolies. Price regulation is aimed at preventing profiteering and forcing monopolists to share productivity gains with consumers. Price regulation may take the form of limits on the allowed rate of return on the monopolist's investment or some form of price capping with an inbuilt productivity factor.

Pricing problems

Both forms of regulation have problems. Depending on what costs are allowed in working out the rate of return on investment, a monopolist may pad his costs by claiming excessive managerial remuneration inflating asset values (through gold plating or even simply raising book values) or excessive payments to affiliated supplier companies. Conversely, if the rate of return is depressed by over-zealous regulation, there may be under-investment and consumers may suffer from decrepit or congested infrastructure.

Regulatory process

The regulator is also required to perform a formidable task: that of providing regulatory outcomes that replicate competitive markets, in the face of well-known problems such as information asymmetry, financial expertise and resourcing. The cards are further stacked against the consumer. Under the NCP in practice, the regulator is required to reward the service provider with sufficient revenues to make further investments: there is, of course, no guarantee (unless a trust fund is set aside) that the service provider will necessarily make the future investment. In addition, the service provider is guaranteed an inflation-adjusted price path making it one of the few commercial entities in the economy where future earnings are guaranteed against inflation.

Consumers disadvantaged

In summary, both theoretical and practical problems suggest that regulating monopolies (to replicate competitive market conditions) is not a clear cut issue (Box 6):

Box 6

Privatisation Requires Good Regulation

"Maybe it's that I've seen too many overpaid private sector CEOs playing Boxes and Arrows with McKinsey and the corporate cast of How to Succeed in Business Without Really Trying*.*

Whatever the reason, I have never been able to share the touching faith of some of my business commentator colleagues in the automatic benefits of privatisation.

The truth, I have always thought, is more complicated.

There is good privatisation and bad. Privatise the wrong thing – or privatise the right thing in the wrong way – and the private sector may not do a better job. It may even do a worse one."

Source: Alan Mitchell, Economics Editor, *Australian Financial Review*, 30 Dec 1998.

Taxation Problems

Tax treatment crucial

Another problem which has been raised in relation to the private sector provision of infrastructure is the question of its income tax treatment. Infrastructure is typically long-term investment and infrastructure projects often generate large losses or deductions in their early years. Tax allowances for depreciation, and whether that depreciation or other deductions can be passed through to the ultimate owners, become very important in calculating the after-tax rate of return to private sector investors in infrastructure.

Income tax provisions such as section 51AD which deny infrastructure deductions operate as penalties on infrastructure investment.

If depreciation allowances are wound back, there is a greater negative impact on private investors in long-lived infrastructure assets. Also, in an inflationary climate, if depreciation allowances have to be claimed back over an extended period, inflation reduces their real value. This amounts to a form of selective taxation of long-lived investment. Options such as accelerated depreciation and allowing immediate write-off of the present value of future depreciation allowances are of particular importance to infrastructure.

Tax bias problems

Given the vital role of infrastructure in economic development, it is a matter of great concern if there are tax biases against the private provision of infrastructure.

It would be the worst of both worlds if Australia were to increasingly see the public sector withdrawing from the provision of economic infrastructure, while imposing tax disincentives upon the private provision of infrastructure.

Summary and Questions

Infrastructure tends to be characterised by the following features, (i) it exhibits decreasing costs (or increasing returns) to scale; (ii) it often exhibits natural monopoly characteristics; and (iii) it often generates external benefits which cannot be captured through simple user charges.

Rural and regional Australia need to question:

- ***Has economic theory been applied correctly or in fact mis-applied under the NCP processes of infrastructural reform?***

- ***Does economic efficiency always and necessarily require full cost recovery from users alone?***

- ***Has proper account been taken of network externalities in considering both pricing and further infrastructure investment?***

- ***Has the notion of cost been precisely defined in a meaningful economic way?***

- ***Is there a confusion between economic and accounting concepts and purposes in consideration of income and costs?***

4. CASE STUDIES AND FURTHER RESEARCH

NCP crucial to rural Australia but there are apparent serious concerns about its regimes, processes and outcomes

From the perspective of rural and regional Australia the NCP process is crucial to its long-term survival. Ill-considered policies, faulty theoretical foundations or unduly complex processes of implementation could impact seriously on international competitiveness and retard, rather than improve, the cost base of Australia's rural and regional industries.

Further research will probe into the issues canvassed in this paper with the view to making policy recommendations by considering as case studies NCP reform progress in the key sectors of:

Further research to highlight concerns and to make policy recommendations

Water, where NCP reform is well advanced and complex issues of pricing, sustainable development and asset status arise across differing catchment and geographic areas;

Rail, where NCP reform is least advanced but where infrastructure under-investment appears most acute and pricing problems are most complex because of the inherent vertical integration characteristics of the industry; and

Electricity, where NCP reform and structural separation issues have been significant and privatisation has been very prominent. Important questions of pricing and quality of service arise for rural and regional Australia in this sector.

Summary and Questions

Case studies of the water, rail and electricity sectors (with the assistance of the NFF) should throw more light on the following questions for rural and regional Australia.

- ***Can regulators replicate competitive markets?***
- ***Are governments still influencing regulatory outcomes?***
- ***Can users negotiate effectively with natural monopolies?***
- ***Are there flaws in the regulated pricing outcomes?***
- ***User contributed capital: are users being asked to pay twice over for infrastructure?***

- ***Have asset owners been over-represented relative to users in the process of developing regulatory access codes, pricing principles and pricing determinations?***

- ***Is it consistent, in seeking to achieve international competitiveness, for Treasuries to seek quasi taxation revenue in the guise of user charges from producers in rural and regional Australia?***

- ***Have regulators in Australia, like their British counterparts, allowed excessive monopoly profits?***

- ***Does price cap regulation create a bias towards gaining cost savings by limiting utility services to rural and regional Australia?***

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