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Changes in native forest management policy

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Competition between conservation and wood using groups for access to Australia's native forests has been intense. A simple private interest theory of regulation would suggest developments in forest policy and management to be the outcome of competitive pressure on governments by conservation and wood using groups. It would also suggest only a very limited role for economists in predicting future change rather than advising on efficient policy development. The simple social choice model appears to provide a poor explanation of actual policy change. It is argued in the paper that economists can contribute to efficient policy formation in two areas — first, by providing decision makers with advice on efficient design of forest property and use rights and, second, by providing objective information on the gains and losses from forest policy change, particularly on what people value, and how many value it, in forest conservation and on what the costs of conservation are.

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Introduction

Australia's public native forests provide a wide range of goods to a diversity of consumers. A large proportion of publicly owned native forest area is now devoted purely to conservation and recreational uses. Nonetheless a substantial area of public forested land is still available for multiple uses including wood production.

Competition for access to public forests and forest land has historically been intense. The early development of forest reserves had its basis in competition between wood users and groups seeking land for agriculture and grazing. More recent competition has been predominantly between wood processors and conservation groups for the use of existing public forests. A secondary set of pressures over recent years has concerned the efficiency of use, by state forest services, of public wood and financial resources.

Both state and federal legislative change has been involved in reducing forest use. Changes in the structures and roles of state forest management agencies have been made on the basis of reports of a series of inquiries into both specific forest use conflicts and into the organisation of forest management. The purpose in this paper is to discuss what role economists may have in influencing institutional change in public forest use. A pessimistic proponent of private interest theory of political activity might suggest that the economics profession's only contribution of substance could be to predict the direction of future policy change. On the other hand, a good deal of the efforts of the profession are directed toward offering policy advice based on notions about the efficiency impacts of policy change. In the following sections of the paper some of the general trends in the rules for forest use are analysed from both public interest and private interest strands of economic theory.

The emphasis is on public forests although some aspects of private forest use are relevant. Observations are made about general directions of change in forest institutional structure and forest use. To provide a rigorous analysis would require a detailed history of forest use and its regulation over several decades. It would also require both a state by state examination of change and allowance for changing federal/state relationships.

Theories of policy choice

Economists have in recent times devoted much intellectual effort to the development of parallel and somewhat overlapping explanations of what policies should be and what they will be. The fundamental basis for a normative model of policy choice is drawn from

modern welfare economics. The view that economists could have a socially useful influence on public policy depends on a conviction that it is possible to distinguish between good policy and bad policy and the presumption that, having done so, it is possible to convince policy makers to adopt the former in preference to the latter.

Pareto efficient trade

The argument that it is possible to make useful normative judgments about policy has two logical threads. The first is formalised in Coase's work (1960) on social cost and Buchanan and Stubblebine's (1962) work on opportunities for Pareto relevant trade. The prospects for socially useful policy arising from this avenue of theory centre on government definition and enforcement of property rights. The discussion of trade between individuals makes sense only in the context of clearly defined property and enforceable rights.

In the simple world of zero transaction costs assumed by Coase, policy matters only in terms of the definition of property rights. Who is assigned the rights influences the after trade distribution of wealth but does not influence the total net benefits from production and trade. Buchanan and Stubblebine argue that the existence of transactions costs means that the structure of initial assignments of rights will influence the efficiency of a negotiated result.

More recently Griffin (1991) has shown that institutional design not only affects the nature of transactions costs but also the attainable welfare frontiers. Different institutional designs will give different, generally Pareto non-comparable, opportunities. Griffin makes the point that the frequently made distinction between property rights and regulatory solutions to externality problems is something of an overstatement. There is actually a continuation of institutional design.

Hypothetical compensation

The second thread of the argument that design of good policy is possible rests on the Hicks-Kaldor hypothetical compensation criterion (a change is desirable if the winners could compensate the losers). In a sense the criterion could be said to arise from a logical adaption of the Pareto criterion. Clearly if there are no losers but some winners from a policy change the change is socially desirable, but Pareto optimal policy changes are few and far between unless Coase's assumption that all negotiation is efficient is taken literally. Formally, the use of the hypothetical compensation criterion as a measure of the 'efficiency' of policy change seems to rely on the idea of lump sum taxes to redistribute the benefits of policy

change. A combination of general redistributive taxes and welfare schemes, along with compensation packages for large losers from specific projects seems largely to be complementary to the use of such a policy criterion. Informally, it appears that there is a degree of professional faith that the effects of changes resulting from a large number of decisions based on the criterion will average out to nobody's particular disadvantage. Nonetheless, the use of the criterion underlies much of the discussion of economic efficiency.

Social choice

Both threads of economic theory discussed above are essentially normative. Parallel developments in public choice theory have involved both positive and normative elements. Early work was done by Downs (1957) on representative government, and by Buchanan and Tullock (1962) on the constitutional basis for and operations of democratic government. The work by Olson (1965) continued the examination on individual motivation in collective behaviour. The contractarian, or constitutional, approach taken by Buchanan and Tullock is continued in more recent work by Hardin (1982) and Brennan and Buchanan (1985). A related but significantly different avenue is the private interest theory of political behaviour begun by Stigler (1975).

The contractarian approach has both normative and positive elements. While there is some emphasis on describing how people operate within a set of political rules, the other element retained from Buchanan and Tullock's approach is the discussion of the nature of constitutional rules within which people would agree to operate. There is a strong normative element in that public choice theory potentially offers insight into the design of constitutional rules and institutions which will maximise the welfare of the participants.

The private interest theory following Stigler is much more purely a positive, rather than normative, view. Potentially testable propositions from private interest theories of political activity are most clearly evident from the theoretical work of Becker (1983) and Cairns (1989). In a sense, those theoretical developments also represent the most extreme extension of the field. Adaptions of the Stigler model have been used to provide an explanation of the origins and reasons for the persistence of policy developments in a range of industries (see, for example, Anderson 1978; Stigler 1975; Gardner 1987; Martin 1990). Sieper (1982) uses the logic underlying private interest theory to explain a set of seemingly inefficient and otherwise not easily plausible policies and industry structures in Australian agriculture.

Private interest theories have not been without their critics. The assumption of pure self-interest is often criticised. For example, Quiggin (1987) argues that private interest theories provide poor explanations of a number of social activities and suggests an alternative model in which individual utility functions are interdependent. Although the Quiggin alternative model may not work (see Brennan and Pincus 1987 for a rebuttal), a considerable amount of relevant work, such as that by Andreoni (1990), exists on private provision of public goods. While that body of work indicates that simple private interest theories have some limitations it does not necessarily mean that they are generally invalid.

Martin (1990) observes that the simple self-interest model of political activity appears to provide a good explanation of assistance to agriculture. He argues though that the same degree of simplicity seems not to be realistic in attempting to explain changes in natural resource policy. He goes on to suggest that economists at least have a role in providing objective information inputs to the natural resource policy process.

Predictions from private interest theory

Becker (1983) derives four formal propositions about the actions and achievements of competing political influence groups which are of interest and are potentially testable. These propositions are outlined below and their apparent applicability to recent developments in Australian native forest use is examined later in the paper. Becker models wins and losses by a pressure group in terms of net taxes paid, or subsidies received, by the group. So a group may win by gaining a subsidy or by avoiding the imposition of a tax. Efficiency in the sense used here means the ability to produce political pressure relative to the contributions by its financial members. Becker's propositions are:

- a group that becomes more efficient at producing political pressure would be able to reduce its losses or raise its subsidy — in other words, there are always potential gains to a group from becoming more efficient at applying pressure;

- lower equilibrium subsidies will result in cases where developing subsidy arrangements is higher cost — a corollary is that policies that raise efficiency are more likely to be adopted than those that lower efficiency;

- competition among groups will favour efficient methods of taxation;

- successful groups will tend to be small relative to those taxed to pay the subsidies.

A corollary to the first proposition is that the effectiveness of a group depends on its efficiency relative to that of other groups, rather than on its absolute level of efficiency. Consequently, as is supported by Cairns in his dynamic extension of the Becker model, if one group becomes more efficient with time others will need to do so or make consequent losses. Cairns finds that extension to a dynamic model produces only slight modifications to Becker's other propositions.

Institutional change in public forest management

There has been extensive change in forest policy and forest use over the past two decades. It is not the intention to discuss the details of those changes here but to briefly outline several themes in those changes which form the basis for the discussion in the remainder of the paper. A detailed history of the changes in forest policy, and the forces underlying them, up to the mid-1980s is given by Carron (1985). A brief summary of the major changes since 1985 can be found in Department of Primary Industries and Energy (1991).

The major changes in forest policy which are of interest here concern the increased devotion of forest to purely conservation uses, increased regulation of activities in multiple use native forests to protect conservation values and the reorganisation of state forest service structures and activities. Removal of public native forests from multiple use, including wood production, to purely conservation and recreational uses has been substantial throughout the 1970s and 1980s and to the present. Obvious examples are the World Heritage listing of Tasmanian forests and of north Queensland rainforests and the 'rainforest' reservations in New South Wales. Over the same period, amendments to forest codes of practice and other regulations of state forest service activities have placed greater emphasis on the environmental consequences of commercial forestry. In some cases, regulations have been extended to cover private forestry — for example, the 1989 revisions of forest codes of practice in Victoria coincided with an extension of the application of the code to private forestry and with the introduction of restrictions on the clearing of native forest on private land (Department of Primary Industries and Energy 1991). While regulations have been extended to private forests, there has been little purchase of private forest land for inclusion in conservation reserves.

At the same time as the move toward greater emphasis on conservation has occurred, there have been two somewhat divergent solutions to forest management problems. In Victoria and Western Australia, forestry and conservation departments have been amalgamated to form departments with broad responsibility for land conservation and integrated forest

management. In the other states, no real structural change has yet occurred. The tendency has been to maintain the separation between those with the responsibility for managing conservation as a separate forest activity and those whose primary role is wood production. There has been considerable pressure on forest services to become more commercially oriented in their wood production and marketing activities and some evidence exists that they have begun to do so (Rose and Bhati 1991).

Efficiency effects of institutional change

Measures of gains and losses from change are needed to judge the efficiency of institutional change given a public interest view of such change. Similarly, testing the proposition that competition among groups favours the adoption of policies which increase efficiency, or involve efficient methods of taxation, requires some assessment of the efficiency of change. For forest issues this is no simple task.

The nature of conservation goods

In the first place, as is pointed out by ABARE (1990a) and the Resource Assessment Commission (1991), the types of goods potentially derived from forests are varied, many are not market goods and at least some may be unmarketable. That means that there are not existing market valuations for many of the benefits and that it is not easy, or in some cases even possible, to estimate such values. That makes it difficult to assess the differential benefits arising from different forest management regimes.

Native forest managed in a variety of alternative ways will give rise to a range of products. Wood production may, for example, be quite consistent with protection of watersheds, the production of forest types suitable for a range of recreational uses and conservation of many plant and animal species. But there are conservation demands, such as those associated with 'old growth' forest characteristics, or 'wilderness' preservation which are quite inconsistent with commercial wood production.

Areas of public native forest which have been managed to provide sawlogs and pulp logs have generally been managed on a multiple use basis. The idea of multiple use forest management has been a keystone of state forest management strategies over time (Carron 1985; O'Regan and Bhati 1991). Yet most of the argument from conservation groups has been based on the assertion that all commercial activities are inconsistent with conservation

objectives, or on the explicit objective, as in Cameron and Penna (1988), of ensuring cessation of forestry activities in native forests.

It is highly unlikely that all forestry activities are inconsistent with all conservation objectives. The combination of particular conservation goods and wood that is produced from a native forest depends on a wide range of management factors including fire management, silvicultural and harvesting techniques. An informed decision between management options would be one made on the basis of knowledge of differences in conservation and commercial values and direct management costs at the margin.

Opportunity costs of conservation

How great are the commercial losses from conservation restrictions on native forest use? The only current estimate of the opportunity cost of a forest reservation is provided by Streeting and Hamilton's (1991) benefit–cost study of the removal of National Estate listed forests in south-eastern New South Wales and adjacent areas of Victoria from wood production. The areas concerned amount to around 500 000 ha. Streeting and Hamilton estimate that the net losses to wood growing and processing from cessation of forestry in these areas would be equivalent to a capital cost of $11 million (given a real interest rate of 7 per cent). They then go on to argue that if each adult resident of Victoria and New South Wales were willing to make a once off payment of $1.55 for any additional conservation services arising from the change, closing the areas to wood production would be economically worthwhile. Regardless of willingness to pay for conservation, it would seem, on the basis of Streeting and Hamilton's preferred cost estimates, that at most a small loss would be made from closing the areas to forestry.

Streeting and Hamilton provide an alternative set of estimates which raise serious questions about their preferred estimates. More importantly the estimates raise questions about the approach of costing the opportunity lost by closing forests to wood production on the basis of current native forest management practices. Streeting and Hamilton examine the prospects for intensive management of the forest areas considered. The parameters they use are taken from information produced as part of the young eucalypt program. In a sense the estimates of returns from intensive forestry are speculative. They are not drawn from data specific to the forest areas which are National Estate listed. But there are no strong reasons to suspect that the results are not generally valid. The estimated opportunity cost of closing the areas is $200 million, eighteen times the cost estimated on the basis of current forest practices.

The differences between the alternative estimates of opportunity cost raise a further question. What is the cost of restricting potential uses of native forest land in a broad sense? Much of the rather heated debate about the question has concerned the removal of native forest areas from multiple use to purely conservation uses. Yet it would appear from the Streeting and Hamilton estimates that, at least for some forests, restricting forestry management may be almost as costly as ceasing wood production. The question is not only what alternative forest management regimes could be profitable. Other, non-forest, uses may well be the best uses for some public land forest land.

Benefits of conservation

A further aspect of the efficiency of policy change is the degree to which those changes succeed in increasing conservation services. The contribution of any particular forest area reservation or other forest use regulation to conservation services is quite unclear. Despite the efforts put in to a number of specific forest use and general inquiries, little is known about the benefits people draw from forest conservation. Whether the benefits claimed to arise from reserving an additional area of 'old growth' forest depend on the existence value of old trees, the preservation of particular animal species or of general biodiversity is unclear. Westman (1990 p. 31) observes that '... preserving wilderness and preserving all its resident species are not necessarily the same task'. He suggests that, from both specific and cost effectiveness viewpoints, an approach emphasising preservation of natural areas to the exclusion of other management options may not be effective.

Other efficiency indicators

A number of regulations arising from conservation group pressures appear to detract from efficient use of forest and other resources. The Victorian government restriction on the use of logs not suitable as sawlogs to produce export woodchips is inefficient. Although the regulation has its origin in conservation groups' objections to woodchipping, it is difficult to believe that it adds effectively to conservation. By substantially reducing the revenue from wood production the regulation may discourage harvesting from some areas. But those areas will be selected on the basis of the reduction in profitability resulting from the loss of revenue. Such a selection would only fortuitously coincide with a selection on the basis of conservation value.

The requirements of the Heritage Commission Act also impose significant costs without guaranteeing that conservation priorities are met. The provisions of the Act become of

importance to forest management largely through the exercise of the Commonwealth's export licensing powers by the Minister for Resources. Before approving a licence to export woodchips (or any other material) from an area listed on the National Estate Register under the Act, the Minister is required to establish that there is 'no prudent or feasible' alternative to any commercial use of the area. What is 'prudent or feasible' is not clearly defined. The Department of Primary Industries and Energy (1990) argues that these aspects of the Act create considerable administrative cost and raise the degree of risk faced by commercial forest users.

Recent changes to the New South Wales National Parks and Wildlife Act appear also likely to reduce the efficiency of forest use. The changes require an assurance by the National Parks and Wildlife Service that no endangered species are at risk from a particular proposed harvesting or other management action by the Forestry Commission before the Commission can act. The changes mean that a whole range of forest management decisions to be made by the Commission must be channelled through the National Parks and Wildlife Service. The administrative costs are likely to be substantial. Ostensibly the changes were made to preserve endangered species. But it is not clear that the risk to the species is a primary decision criterion. The cost of forgone commercial opportunities is not a consideration in the decision process.

Assessing the private interest predictions

Some of the changes in forest policy and forest management which have occurred over the past two decades seem consistent with the broad predictions of private interest theory. Several other aspects of forest policy change appear not consistent with the simple private interest theory predictions.

Gains to groups from increasing efficiency

The ability of industry to extract subsidies from governments appears, until very recent times, to have been substantial. Evidence assessed in O'Regan and Bhati (1991) indicates that users of wood from Australia's native forests have often paid substantially less than implied market values of that wood. Industry or regional development has long been a stated objective of most state forest services (O'Regan and Bhati 1991). The substantial gains made by conservation groups in having forest areas reserved and management roles changed must also give a strong indication that there are potential gains from efficient application of pressure.

High costs produce small subsidies

Without an assessment of costs and benefits to different groups, including taxpayers who bear some of the costs of forest lobbying but have no other direct interest in the debate, it is difficult to assess this proposition. But some of the above observations about the efficiency of policy developments is of some use. We would expect clearly inefficient arrangements to be fairly rare, or at least not to be persistent. From the above discussion, that does not seem to be the case.

Competition will lead to efficient taxation

The prediction that competitive lobbying will result in low cost subsidies is fairly difficult to test given the absence of value estimates for conservation and of clear indications of the net value of wood production. The above discussion of the Streeting and Hamilton results suggest that constraining forest services to follow multiple use forest strategies may have been costly. The other indicators of efficiency noted above also cast doubt on the proposition that competition leads to efficient taxation in this instance.

One further element in the policy changes over time is the pressure on state forest services to improve the financial efficiency, market relevance and transparency of their operations. Carron (1985) argues that over the 1970s and 1980s there was considerable pressure on agencies in all states to improve the financial viability of the wood production aspects of their responsibilities. That pressure is reflected in the observations by the Helsham Inquiry (see Department of Arts, Sport, the Environment, Tourism and Territories 1988) about the Tasmanian Forestry Commission and in the reports on wood pricing (O'Regan and Bhati 1991 and studies cited therein).

Response to that pressure is evident in a number of areas. Most evident is the review of wood pricing and allocation policies in Western Australia (Department of Conservation and Land Management 1987a) and the implementation of the recommendations from that review (Department of Conservation and Land Management 1987b). Rose and Bhati (1991) note a number of moves toward more market oriented wood pricing and allocation policies by state forest services.

In one sense, the general pressure for improved financial performance is explicable in terms of private interest theory. Competition from groups seeking access to government funds, but without interest in the forest debate, will keep pressure on forest users of government funds.

But the same degree of interest has not been shown by groups outside the conservation/ wood production debate in the capital value of land under public forests as has been shown in the cash flow of forest management activities. Land under public forest represents a substantial asset in terms of its potential value in non-forest uses. Overall, there is not convincing evidence for the proposition that competitive actions by pressure groups have produced a tendency toward efficient regulation.

Successful groups tend to be small

A basic expectation from the Becker model would be that wood processing groups would be more efficient in applying pressure than would conservation groups. There are only small numbers of wood processors each with a potentially large investment (or opportunity for profit) at stake in regard to access to forest resources. They are also clearly identifiable as beneficiaries of access. It would, therefore, be expected that organisations of processors could be formed and operated fairly cheaply and that free-riding could be limited. The reality, for quite a long time, seemed not to be so simple. The recent activities by the National Association of Forest Industries appear to fit these suggestions but the development of a national industry body to represent wood users was fairly slow. This is despite the existence of a national government council, the Australian Forestry Council, since 1965 and increasing federal involvement in forest policy over the 1970s.

Conservation groups would appear to face a number of difficulties in developing effective pressure. The demand for conservation goods is apparently spread over many people and is a demand for a diverse range of goods. Many of the benefits of conservation accrue off-site as existence values for species, habitats and forests or as quasi-option values. The people who receive such benefits may be many in number and are not easily identifiable. The individual benefits from conservation may be small relative to the cost which a conservation group will incur in identifying, contacting and extracting a campaign contribution from beneficiaries. Such factors would make efficient development of pressure unlikely. It would seem particularly difficult to limit free riding on the activities of conservation groups.

In terms of apparent success in developing pressure, the reality appears much different to the simple interpretation of the Becker prediction. There has been a strong tendency toward continued reservation of more native forest areas for purely conservation purposes.

A broader view of policy choice

It would be unwise to offer too strong a judgment of the simplest interpretation of private interest theory. The Becker model of competitive operation of pressure groups is made without any specific assumptions about the rules under which such groups operate. The realities of the forest debate involve particular voting patterns within states. However, even given the lack of specific analysis, it seems unlikely that the simple Becker predictions are borne out in the forest debate. Conservation groups with large and scattered membership have been quite successful. Smaller industry groups have not been so successful. It may be that the group taxed by the removal of public forest land from commercial use — those in the general community who do not value forest preservation highly — is large relative to the conservation group. But that is unclear. Importantly it appears that there is room for improvement in the efficiency of decisions made by the provision of better information on gains and losses from policy change.

Votes and representatives

Models of competing pressure groups such as that produced by Becker (1983) and extended by Cairns (1989) account for only one aspect of the development of public choice theory relevant to the forest policy debate. Much work has also been done on modelling political systems and voting behaviour within those systems. For example, Peltzman (1984) finds evident constituent interest to provide an empirical explanation for much of the US congressional voting pattern. Macey (1988) argues that, while constituent interests are important, politicians are also entrepreneurs in the sense that they create ideas and trade among competing groups. Such theories of political activity are still predictive rather than normative. Brennan and Buchanan (1985) argue that, at the level of designing constitutional rules, economists can make a normative contribution.

Such work, while of obvious relevance to the forest debate, is beyond the scope of this paper. Some aspects of the incentives facing, and strategic behaviour of, competing groups are, however, important to gain an appreciation of the prospect for further useful policy change.

Rules, trade and information

The idea, central to the models developed by Becker, Cairns and others, that competition among groups will lead to efficient taxation has obvious appeal to an economics profession

steeped in a conviction that competitive markets are efficient. But markets are only efficient under particular circumstances. The same may be true of competitive lobbying.

The efficient lobbying argument conflicts starkly with some of the work on rent seeking and work on institutional design. Tullock (1980) demonstrates that, in some circumstances, individually rational rent-seekers competing for a fixed pool of revenue may spend more in total than the available revenue. Tullock's results are consistent with Farrell's (1987) finding that when people have different information sets, negotiation will not be efficient. Farrell argues that economists can contribute in two broad areas. First, there are opportunities to design property rights, regulations and the negotiating environment in ways that facilitate efficient negotiation or trade. Second, providing common information to participants in trade will enhance the efficiency of trade (leaving aside costs of providing the information). Some specific aspects of these opportunities are discussed below.

Property rights and incentives

Conservation and wood using groups face apparently quite different incentives regarding public forests to those faced with respect to private forests. Conservation benefits may well be as great from some areas of private forest as from public forest. But it may be much more difficult for a conservation pressure group to prevent activities which conflict with conservation objectives in private forest than in public forest. In the public forest the conservation group will generally have only wood users to compete with. The owners of the forest, the members of the community at large, are diverse and may each have little at stake in the decision to change forest use. Some, who value conservation goods highly, may be net gainers from increased conservation and decreased commercial returns from forests. Others, who do not value conservation highly or value some other government provided goods highly, may be net losers. But the individual gains and losses may be small, so the incentive to object to change may be minimal.

On the other hand, private forests have single owners or, in the corporate case, strong organisations with explicit responsibility for defending the owners' interests. So, in the case of each private forest, there is an owner, or owner's representative with a strong interest in defending existing rights to use the forest and forest land. The returns to effort by conservation groups are likely to be much less for attempts to control private forest use than for attempts to control public forest use. This observation is quite consistent with the much greater effort on public forests. To the extent that private forests have been targeted, the

emphasis has been on regulation, rather than purchase. Such an emphasis allows the costs of achieving conservation objectives to be hidden to some extent.

It may be implied from these observations that assigning private property or use rights to public forest land will provide a more efficient solution than current public ownership. The public goods nature of many conservation goods may mean that some form of public ownership should continue. However, providing private users with appropriate incentives will be important. Leaving aside the conservation question, there are other aspects of institutional design which have important efficiency implications. ABARE (1990b) and O'Regan and Bhati (1991) argue that the efficiency of wood production and allocation activities by state forest agencies has been hampered by the imposition of an ill-defined and often conflicting set of objectives on those agencies. Clear definitions of commercial objectives and development of effective incentives would have produced more efficient performance, regardless of the particular conservation regime.

Information

Martin (1990) argues that the prospects for strategic behaviour by pressure groups, and the existence of externalities reflected in the differential levels and qualities of information available to different pressure groups may provide a role for economists as rational sources of information. He does admit that the creative use of 'information' by pressure groups may make it difficult for groups providing more objective information to be heard. Carron (1985) cites the generic use of the term 'rainforest' by conservation groups to describe a wide range of forests (including types with no resemblance to rainforest) in the Terania Creek debate as an example of effective blurring of information. Mosely (1988), in the context of mining versus conservation debate, suggests that conservation groups have learned to argue issues in all or nothing terms to avoid losing ground on complex issues.

While much information has been produced about the nature of conservation, little has been produced about the strength or structure of individual preference or of the distribution of preference patterns across the community. The emphasis has been on preservation of particular areas of forest, rather than on forest management to maximise conservation benefits.

One response to the general information problem has been to seek empirical estimates of the values of non-market goods using non-market valuation techniques such as contingent valuation. While there may well be a case for such activities in some circumstance, it seems

that there are substantial dangers in doing so without first having a clear idea of what people value, how many people value it, and what the management options are. Imber, Stevenson and Wilks (1991) report the results of a contingent valuation survey of the Kakadu Conservation Zone. They claim that the survey results mean that Australians would be willing to pay $647 million a year over ten years to include the Zone in Kakadu National Park (the survey was undertaken before the decision to include the Zone in the Park was taken). It is argued by ABARE (1991) that the results are better interpreted as those of a yes/no poll than as estimates of willingness to pay. Importantly, if there is any question about the validity of the willingness to pay estimate there is nothing else from the survey which tells us about people's conservation preferences. The concentration on estimating willingness to pay means that little else was learned from the survey about where the Kakadu Conservation Zone fitted in to people's overall preference functions.

It seems that economists potentially can contribute to a clarification of forest use issues. They can do that by avoiding the all or nothing claims to public forest and maintaining the logical separation of values developed in economic theory. Distinctions between off-site and on-site values are likely to be incorporated. Similarly distinctions might usefully be made between values which are site dependent and those which may, potentially, be delivered at a number of sites or through a number of forest management alternatives. Appealing to general economic concepts of marginal cost and benefits may also be important. As Smith (1991) points out, defining the extent of the market for conservation goods will also be an important challenge.

Concluding comments

A simple comparison of general trends in forest management with the predictions of the Becker model of competitive pressure groups does not provide a fair assessment of the power of public choice theory to predict forest policy changes. It is likely that a selection from existing public choice models could be made which would explain far more of modern forest policy developments than does the anecdotal test of Becker's propositions above. But it is unlikely that such a process would suggest a purely positive role for the progression. The economics profession can make a major contribution to rational forest policy development in two broad areas; in examining the incentive effects of different property rights and regulatory regimes and in providing objective information to the policy making process.

There are potential gains to be made from more carefully considering the direct costs and incentive effects of conservation regulations. Design of the structure and objectives of

forest management agencies is also important. Both institutional design and conservation regulations will be influenced by pressure groups. But it is not evident that pressure from such groups will always dominate objective advice.

Similarly, objective information provided by the profession will have to compete with other information supplies. But there would seem to be a place for a careful examination of what people value in forest conservation and how many people value it.

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