

## DEREGULATION, OR REGULATION REFORM?

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*ABSTRACT:* This paper examines issues involved in an appraisal of government regulation. Various categories of regulation are identified:

- (1) regulation which makes everyone better off and/or provides the necessary set of rules for the orderly conduct of economic and non-economic activities;
- (2) regulation which is necessary because different economic actors with different objectives provide complementary outputs;
- (3) regulation which makes everyone worse off and exists because of ignorance and
- (4) regulation which benefits some and imposes costs on others.

Major emphasis is given to the latter category. Attention is drawn to the various interests which may be affected by the presence or absence of regulation and the implications for economic evaluation of how property rights in regulation are viewed. It is argued that it is not usually appropriate to evaluate regulation (or its removal) solely in terms of the Kaldor-Hicks efficiency test. Other criteria need to be invoked (e.g. income redistribution). The conventional wisdom of using the competitive outcome as a basis for estimating efficiency losses is also subject to critical examination.

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### Introduction and Outline

A great volume of literature has, in the recent past, focussed on critical assessment of regulation. All too frequently, there have been inadequate definitions of what is meant by regulation, and, in particular, what its objectives were. The conclusion frequently reached was that regulation was "bad", because the economic efficiency of a non-regulated, perfectly competitive outcome was clearly superior to the regulatory outcome. Our criticisms of regulation extend to the definition of the concept, to the relevance of the perfectly competitive outcome, and to the assumed dominance of criteria of economic efficiency as encompassed by the Kaldor-Hicks criterion of a welfare improvement.

Section 2 examines problems associated with defining "regulation". We draw attention to different forms of regulation, some of which are non-controversial in the sense that one alternative is as good as another and which merely provide the necessary rules, or because they make everyone better off. A second category consists of regulation which is necessary because complementary services were supplied by agencies with different objectives, e.g. road supply and road haulage. A third category consists of regulation which is not required for the first two objectives, and has the effect of making everyone worse off. This is likely to be an empty box in the long run. The fourth category is of greatest interest, and consists of regulation which makes some people better off at the same time as it makes others worse off. It is this category which we explore in some detail in subsequent sections.

Section 3 discusses the various reasons for the existence of regulation. In addition to the traditional reasons, such as externalities, public goods, monopoly, uncertainty, we give some attention to regulation which becomes necessary because of particular institutional relationships, including government ownership.

Section 4 examines the interests which may be affected by regulation or by its removal. The Public Interest concept receives some attention, because of its frequent but ambiguous use. The Private Interest, by contrast, is well understood and clearly defined. This also applies to the Sectional Interest. The Government Interest is argued to be different from the Public Interest, since the electoral market place requires that private and sectional interests be given due weight, without necessarily being similar to the interests of the public at large. Governments may (and do) have other objectives which reflect the interests of their members (and in some cases, of the opposition as well), and we argue that so long as such objectives can be pursued without dominating the set of political objectives, this will be done.

Section 5 tackles the theoretical problems associated with more, less or different regulation of the conflict type. Once the idea is given up that removal of such regulation leads to a perfectly competitive outcome as the only alternative, a wide range of policy options become available. We reach the conclusion that regulation and its effects cannot be evaluated without separating out the two major categories of effects: re-distribution, and economic efficiency. Any change in regulation of this type affects these categories in opposite directions, and the usual trade-off solution becomes necessary. Since regulation also has a cost, this must be included in the evaluation. The potential for piece-meal reform under second-best conditions is examined very briefly in Section 6. There is, alas, no alternative to the piece-meal approach, allowing for second-best consideration. The result is a far cry from the elegant theoretical models discussed in the literature. Section 7 is a summary and conclusion.

### Definitions of Regulation

The major problem with a definition of regulation is that it may, on the one hand, be so broad as to include almost everything, including the common law and statute law, the Constitution, and all forms of intervention in the workings of the economy, no matter what their objectives. On the other hand, it may be so narrow that it restricts itself entirely to acts which are prescriptive, and traditionally applied to public utilities and regulatory agencies. Neither of these ends of the regulatory spectrum would be very useful for any purpose other than listing and description. The social scientist, and especially the economist, requires something which enables tests of performance in the achievement of an objective or objectives to be applied. The definition is likely to be strongly influenced by what questions are to be asked. Thus if it is a question of maximum personal liberty, to the exclusion of anything else, the answer is automatically that regulation is acceptable only to the extent to which it promotes that end. In fact, there will usually be a bundle of objectives, with trade-offs within the bundle, which regulation will try to achieve. Any proposal for a change in existing regulation may promote all the objectives more or less equally, or promote one or some objectives at the expense of another or others. Regulation of the former type does not give rise to conflict, and, over time, becomes built into society's basic institutions because it reflects a harmony of interests. Examples are some rules relating to the use of roads, some (indeed much or most) of the common law, and many other institutionalised forms of control over the behaviour of members of the community. For the other type of regulation, it is the conflict between the various parts of a bundle of objectives which dominates both the reasons for and the type of regulation. It is thus unlikely that a single definition acceptable for analytical purposes can be established.

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Instead, we propose to advance four classifications of "regulation" to reflect the basic characteristics of harmony or conflict between objectives. Harmony is here defined to mean that the achievement of any of the bundle of objectives either facilitates all the others in the same bundle, or, at the limit, does not lessen the achievement of any of the others.

Many rules of the game are not in dispute. Any rule which is in dispute is not part of the "no conflict" category of regulation. While there may be argument about the level of disputation which must exist before a long established rule is subjected to examination, it is clearly not feasible to attack all rules simultaneously. The piece-meal examination of rules is justified by pragmatic (feasibility) considerations, as well as by all the arguments used to enable examination of particular firms, industries, or sectors without looking at the whole economy in the same detail.

There may be regulation which either does not achieve its objectives and actually ensures achievement of both less efficiency and equity, or areas in which regulation could achieve both more efficiency and equity but does not exist. In both cases it must be assumed that there is ignorance about the actual consequences (effects) of either the presence or the absence of regulation.

In attempting to cope with these problems, the definition of regulation may be divided into the following categories:-

1. Government intervention which affects the level of welfare of all members of the community in such a way that all community objectives are better achieved than they would otherwise be, i.e. all are better off, or at least no-one is worse off. This includes the non-controversial rules of the game.
2. Government intervention which is necessary because complementary services are supplied by agencies having different objectives.
3. Government intervention which affects the level of welfare of all members of the community in such a way that all community objectives are less well achieved than they would otherwise be, i.e. all or some members are made worse off, none is made better off.
4. Government intervention which affects members of the community in such a way that while some community objectives are better achieved than they would be without it, this is possible only at the cost of lower levels of achievement of some other community objectives, i.e. some members are made better off, some are made worse off.

If this classification of regulation is to be useful, it must be possible to determine the category into which existing (and potential) regulation fits. While this may be possible in some cases on a priori considerations, for others this will be possible only after some preliminary investigation. This would take the form of an examination of the costs and benefits from alternative methods of regulation to achieve a particular objective, including no regulation at all. Where such an examination yields similar results for all feasible alternatives (e.g. driving on the right or the left hand side of the road), no further investigation is required.

Included in category 1 is the wide range of legal and institutional arrangements whose function is to provide an effective environment within which economic and other activities take place. Such regulation provides the rules of the game which are necessary if the game is to be played under a consistent set of circumstances to which the players can readily adapt. The certainty which it generates is an essential ingredient of efficient and effective game playing. This is not to deny that such rules will be questioned, or changed in response to fundamental social and technological changes. But it is only in response to such fundamental, and fairly long-run, changes that such rules will be subjected to inquiry and evaluation.

Category 2 regulation has not received much attention in the literature, and is discussed further in section 3 below.

Category 3 regulation is rarely found in practice, since it is in no-one's interest. It may exist because there has been a lag in adjustment of regulation to changed circumstances. It represents obsolete regulation.

Category 4 regulation raises all the problems associated with achievement of optimal outcomes, and is therefore amenable to examination by using standard economic tools of inquiry. Conflict resolution is not only the essence of the theory of economic policy, but also basic to all economic theory. Thus, supply and demand conflicts are resolved by the market mechanism, whether efficiently or not. Under perfect competition, the class of actors labelled consumers consists of actors not in conflict with each other, while the class of actors labelled producers is similarly homogeneous; yet the two classes are in conflict with each other when Category 4 regulation is under consideration. Restricting entry into an industry to protect producers will usually harm customers.

A change will produce losers and gainers. In theoretical welfare economics, this problem is solved in two stages: the first stage is to determine whether those who gain could compensate all those who lose and still have something left as a net gain; the second is the question of whether that compensation should be paid or not. Strictly

speaking, only if compensation is actually paid and no-one is made worse off while some are made better off, can it be claimed that a relatively unambiguous improvement has been achieved. If a value judgement about income distribution is explicitly permitted, it is possible to argue that a change in an income distribution which is judged to be "good" should not be compensated for. (Little (1960)).

This raises the important question of what property rights in regulation exist for those who gain from it. If a regulated business, say a taxi, is purchased at a price which reflects the earning capacity under the existing regulation, is the purchaser entitled to compensation if the regulation is removed? There are two possibilities:-

- (i) If compensation represents a cost which exceeds the benefit, although it can be shown that, without compensation, the situation without regulation is clearly superior to that with regulation. It then turns on how property rights are viewed. The legal position is quite clear. The losers would not be able to sue the State for compensation. But for welfare economists, there are ambiguities. The Kaldor-Hicks criterion does not clarify this problem. It merely says that the gainers should be able to compensate the losers, and still have something left over. If monopoly rents are earned (say as a result of regulation), and these are reduced or removed by a change in policy, how are the gains and losses to be counted? The answer to this question is of great importance, since a great deal of regulatory reform may become feasible only if no compensation is paid for the losses of the monopoly rents. Furthermore, suppose that those protected by the regulation are poorer than those who lost from it. Would it be consistent with other government policies and community preferences to say that they should not be compensated. There is no escape from making value judgements here. The solution depends on the view taken about property rights and of the resulting income re-distribution.
- (ii) If, after regulation removal or reform, it will be possible to make everyone better off, even if compensation is paid. The case for regulation reform is then unambiguous, and is separate from the question of whether to compensate or not, which again depends on a value judgement about the relative wealth of those who lose and those who gain.

In practice, in Australia, property rights in regulation seem to have been accepted in the past. Dairy industry compensation schemes received considerable attention when regulation was removed. Special assistance was available to those disadvantaged by the tariff cut in 1974. On the other hand, road hauliers were not compensated for subsidies paid to railways, indicating that property rights tend to be accepted only where specific regulation is involved.

What about the secondary effects of regulation, including compensatory measures for existing regulations, e.g. tariff compensation. If the regulation is to be changed, how are we to treat the recipients of such compensation? Fortunately, this is not a problem. The net value of the benefit of a change in regulation is the gross value minus the compensation paid under the previous regulatory regime. How far should benefit and cost assessment pursue the secondary benefits? Marshall used the analogy of the ripples from a stone dropped into a pond. Although theoretically they continue almost indefinitely, they very soon become so small that they are overcome by all the other disturbances to the pond's surface. So it is with regulation, and changes in regulation. At some stage the effects will be too small to be worth calculating, and will be overcome by the effects of other disturbances to equilibrium in the economy. While this still requires exercise of judgement, the partial equilibrium arguments used in industry studies can be applied here with no less validity than in the rest of micro-economics.

These arguments lead us to a conclusion not very different from that reached in other discussions of the relevance of welfare economics to public policy: unless the excess of benefits over costs is great enough to leave no doubt about the desirability of the proposed change, it is best to leave the existing arrangements unaltered. This becomes even stronger when the costs of adjustment to any change, which are usually left out of consideration, are explicitly taken into account.

### Reasons for Regulation

It is frequently argued that, with appropriate assignment of property rights, and appropriate Trade Practices legislation, and in the absence of Public Good/Merit Good type arguments, the industry would operate under conditions of near-perfect or pure competition. Yet there is no evidence which suggests, or indeed reasons for supposing, that a competitive outcome would result (Levin, 1981). There is, however, considerable evidence for the contention that monopoly would not so readily disappear, and that general anti-monopoly legislation is not as effective as is believed. In some cases it is appropriate to have regulation which deals with specific industries because detailed knowledge of, and experience with, that particular industry is essential. The U.S. Interstate Commerce Commission (ICC) is an example of such specific industry regulation. It follows that

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regulation may still perform a useful function to reduce the powers of monopolists to pursue policies which, though they will be in their interests, will conflict with what would be regarded as optimal from society's point of view. At the very least, then, an examination of the costs and benefits, from society's point of view, of alternative bundles of regulation and monopoly is necessary. The argument between economists usually centres around the view they hold about the costs and benefits from regulation, with some apparently convinced that the costs are high and the benefits small, while others hold that the opposite is true.

There are other reasons for regulation which have not received any, or adequate, attention. Apart from that regulation which has as its only test that it be uniformly observed, for which any alternative is as good as any other so long as it is uniformly observed (Category 1), other regulation is a consequence of particular institutional relationships, and becomes necessary because of that (Category 2). A prime example is the regulation which becomes necessary when the supply of two or more complementary inputs is from entirely different agencies which are not motivated by the same objectives. So long as road supply is the responsibility of particular government agencies, while road vehicles are owned by private operators dominated by the profit maximising objective, specification of vehicle types/dimensions/weights/speeds is necessary. The alternative of putting both road and vehicle under the control of the same agency, pursuing the same objective is not a viable option. The airport-aircraft dichotomy of ownership provides another example. Where this dichotomy is not taken fully into the decision making process, non-optimal results are likely to occur (Little and MacLeod, 1972).

In addition, there are regulations with a primary purpose to constrain behaviour spurred only by the profit or utility maximisation motives which include, in particular, safety regulations of all kinds. It would be difficult to assert that the price mechanism, with appropriate insurance requirements, would provide feasible, or rather, acceptable, solutions. Society holds views about the value of safety which may differ greatly from those which are reflected in the workings of the unfettered price mechanism.

There is also the problem, associated with unregulated markets, of uncertainty about future freight rates. As in other markets, removal of uncertainty is something for which users and producers are willing to pay. If the cost of removing uncertainty through regulation is less than the value placed on uncertainty, this must be included in the benefit-cost appraisal. It may be argued that a futures market would emerge in an unregulated environment if it is true that benefits exceed costs. However, we have no evidence at this stage that an effective futures market would emerge in road and rail freight transport after regulation is removed.

The conclusion of this brief excursion into the reasons for regulation is that a policy of complete de-regulation can be unambiguously supported only for obsolete (category 3) regulation. For conflict-type (category 4) regulation, de-regulation is far from the panacea which some of its proponents seem to believe. The existing system of property rights ensures that there are plenty of externalities, positive and negative, which the price mechanism cannot handle efficiently, and there is persistent monopoly in many industries with sufficient power to effectively inhibit attainment of the Pareto-type optimum even with general (rather than industry-specific) attempts to control trade practices. Regulation for institutional reasons (category 2) is necessary because there are fundamental differences between the objectives of different agencies which, for institutional or technical reasons, make it impossible to achieve efficient results by the sole use of the price mechanism. Regulation which provides the rules of the game (category 1) is also necessary.

The problem of "regulation" is thus more complex than has been acknowledged in the literature. It is not sufficient to make comparisons between with-or-without regulation models, even if the with-or-without comparison acknowledges the existence of market imperfections in the without case (Levin, 1981). Instead it is necessary to identify those areas of regulation for which meaningful and fruitful alternatives can be examined. Where such alternatives do exist, they are to be compared on the usual basis of all their costs and benefits.

Finally, in the Australian context it is frequently not clear what is meant by removal of "regulation". As we have pointed out elsewhere (Docwra and Kolsen, 1977), government ownership is itself a form of regulation. So long as the objectives of the government-owned entity are different from those of privately owned competitors, de-regulation of the private sector will not necessarily improve the efficiency with which resources are used between modes. This aspect has been overlooked by those who treat the Hughes and Vale (1953/4) decisions as evidence of de-regulation (Nelson, 1980).

The term "regulation" is used here from now on only in the conflict or category 4 sense. However, it must always be remembered that the other categories do exist. In particular, category 2 type regulation (complementarity) is usually overlooked, and requires careful investigation because it is frequently confused with the other regulation categories.

## "Regulation" Who Gains and Who Loses

### The Public Interest

The so-called Public Interest seems to be a concept which was adapted from the legal sphere, where it was used to give recognition to the possible clash between private and

Public interests. Gentle (1975, p.5) observed that the term "...has been interpreted from a variety of viewpoints involving questions of ideology, justice, morality, and fairness, as well as economic concepts of welfare". While economists are able to distinguish between the concept of public policy, which is any intervention by governments, which may be judged to be "good" or "bad", lawyers tend to regard public policy and public interest as synonymous. "Anything is said to be contrary to public policy which is deemed, according to the standard of morality of the time, to be detrimental to the interests of the public in general" (Pixley, 1930, p.846). The concept of "public benefit" has been used by the Trade Practices Tribunal: "This (public benefit) we see as anything of value to the community generally, any contribution to the aims pursued by the society including as one of its principal elements (in the context of trade practices legislation) the achievement of the economic goals of efficiency and progress" (Taperell, Vermeesch & Harland, 1978, p.425).

Applied economists, and in particular economists examining transport regulation, almost invariably by-pass the problem by defining the public interest as synonymous with Pareto-type efficiency in resource allocation. While this has the virtue of simplicity and, to some extent, testability, it ignores any other values which society may hold. Implicitly, the assumption is that fulfilling the Pareto conditions maximises welfare, when what is really meant is that, ceteris paribus, economic welfare will be maximised. Society at large does not share this view, and insists on achieving other objectives, such as income re-distribution, security of employment, stability of rates, and in general prefer controls which increase the predictability of their future environment. Furthermore, economists have a strong preference for quantifiable concepts. Many of the other social objectives are not so readily quantifiable. The result is, all too frequently, the failure to recognise interdependencies between objectives so that the economists' prescriptions are, in isolation, unacceptable to society.

### The Private Interest

This is the most clearly defined interest concept. Individuals seek to maximise their welfare. Any public policy alternatives are evaluated by individuals by this criterion. "Welfare" does not, however, mean the same things to all men, as does "economic welfare" to the economist. It means whatever the individual prefers. Thus if he prefers security and predictability of his economic environment to higher rates of economic growth with insecurity and unpredictability, that is all one can say. He simply prefers it. Undoubtedly there are trade-offs, so that comparisons must be made (by him) between different levels of security and growth. This is similar to the concept of the "consumer" used in demand theory. His preferences are taken as given. Efforts can and are made to change his preferences. Advertising seeks to do this for his demand, various sources of information and (mis-information) affect his non-market preferences.

While economists have accepted given preferences for consumers in the market place (allowing for advertising), they have been much more reluctant to do the same for individual preferences in matters related to public policy. This inconsistency has been observed, and defended by references to paternalism, myopia, externalities, public goods, merit goods, all of which assert that the consumer does not, in some cases cannot, know what is good for him. This in turn provides a major reason for government intervention. Demand for government intervention (public policy) is met by supply in the political market place. If the supply of intervention differs from what individuals demand, a competitive supplier is available in the opposition party. Since the demand for intervention is not only for intervention which promotes Pareto efficiency, but also for intervention for pursuit of the objectives of security, certainly, et al., the result is that government does not, cannot, undertake intervention which pursues only the Pareto efficiency objective.

The issue of uncertainty, and the value placed on reductions on it, has received relatively little attention in the recent literature on regulation. The existence of futures markets, insurance, portfolio management and diversification, all provide evidence that economic actors are prepared to pay for reductions in uncertainty. Since regulation does, either directly or incidentally, reduce uncertainty, one benefit from regulation may be the supply of more certainty in markets where other methods of reducing uncertainty are not available. Much will depend on the kind of regulation imposed. If it prevents the regulated industries from utilising some of the other options for reducing uncertainty (e.g. by preventing diversification, as has been said of the ICC (Eads, 1974)), the overall effect might well be to increase uncertainty. Appropriate regulation, designed to reduce uncertainty, will produce a benefit for which producers and consumers are willing to pay. It is then necessary to estimate how much they are willing to pay in order to determine whether regulation costs more or less than this sum. "optimal" regulation would then produce reductions in uncertainty up to that point at which further reductions will cost more than they will produce in benefits, where such benefits are measured by what producers and consumers are willing to pay for them.

Since regulation will not be, in most cases, designed to supply only reductions in uncertainty, but will be designed to achieve other (e.g. safety, technical specifications) objectives, the additional costs of supplying reduced uncertainty may be quite low. With such scale economies in the supply of regulation, the probability that regulation will be the lower cost supplier of reduced uncertainty is likely to be high. The supply of regulation is thus a multi-product business, which may be analysed in a manner similar to other multiproduct businesses. It has separable and non-separable costs, and an output for which the product characteristics can be varied. An "optimal" outcome would be reached if the familiar conditions for such entities are met, i.e. that the separable costs are equal to or less than the associated separable benefits, and that the sum of the costs is equal to or less than the sum of benefits.

The Sectional Interest

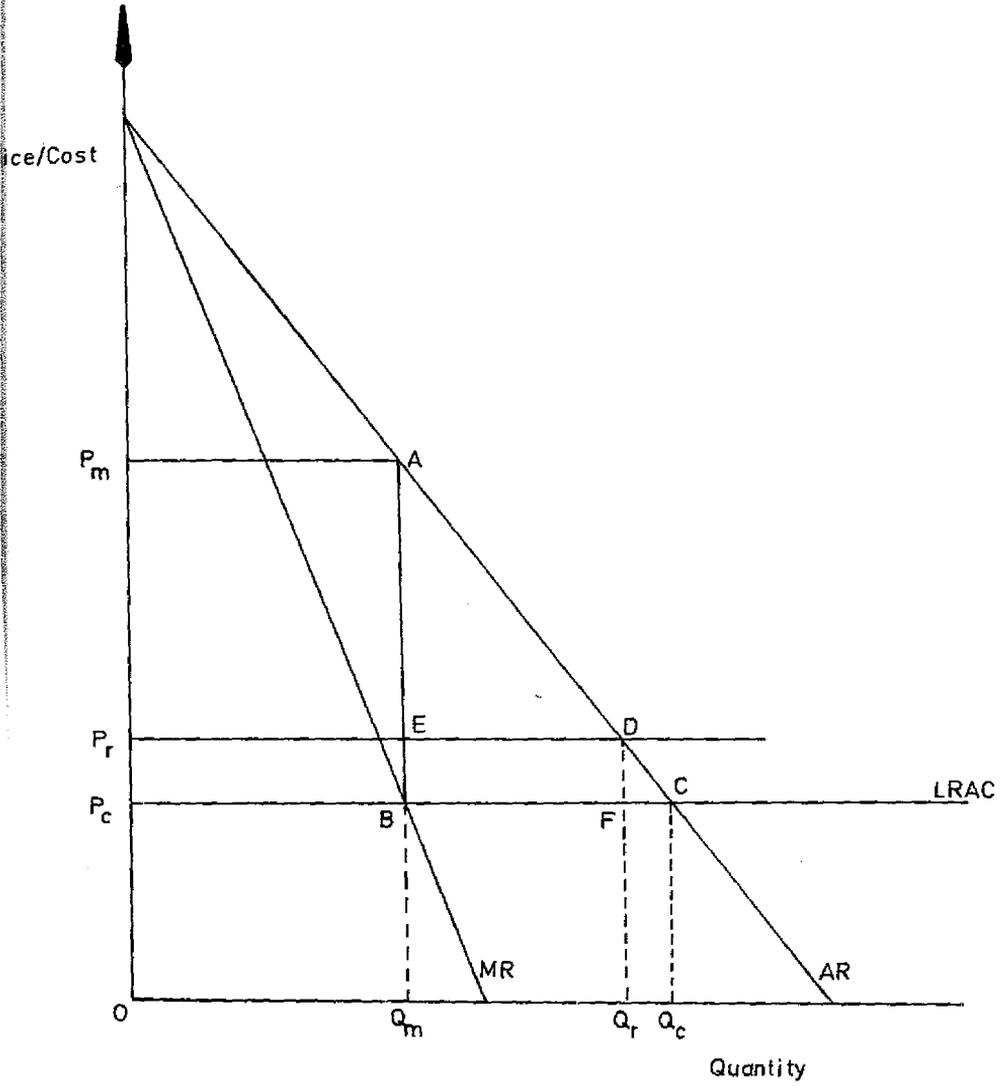
Recognition of the individual's lack of power to achieve his objectives gives rise to the creation of organised groups of individuals pursuing similar objectives. The market place producer cartel finds its counterpart in the market for government intervention. Where the probabilistic values of the costs and the benefits make it worthwhile, sectional interest groups will be formed to seek government intervention. This has been examined in detail by Peltzman (1976). Once again, however, the objectives of the groups which are examined are only those favoured by economists. While most groups seeking intervention may fit this model, there would be difficulty in fitting others in. Environmental protectionist groups, religious groups, anti-abortionists, supporters of under-privileged and racial groups/minorities, are some which do not fit readily into this model, but which lead to intervention which has economic effects.

It is necessary to repeat the argument we have consistently maintained: that it is not true that the existence of all sectional groups can be explained solely in terms of benefits and costs as calculated by individuals motivated solely by their income and wealth objectives. If we seem to be over-emphasising this point, it is only because it has been sadly neglected in the literature on government intervention. One result is that an analysis of government intervention based only on income and wealth criteria will not yield explanations for all manner and types of government intervention. To show that intervention is inefficient in meeting purely economic objectives is therefore not necessarily sufficient for the assertion that the intervention ought to be changed.

The Government Interest

It is naive to assume that there is identity between the government interest and the public interest. If the objective of greatest, over-riding, importance to governments is to remain in government, their policies will be responsive to pressures from individuals and groups. They will be conscious of the existence of an alternative government which, if it is more attuned to the desires of the electors, will be elected at the next opportunity. They will respond to the variety of individual and sectional interests in such a way as to maximise the probability of their own re-election. They do not have to be fully informed about the complex preference patterns of individuals and groups, nor to be able to work out all the conflicts between them. It is sufficient that they do so slightly better than their opponents. Since there are objectives other than economic efficiency, any government offering only policies which pass the economic efficiency test will be opposed by a competitor offering policies more adapted to the preferences of individuals and groups, i.e. including non-economic objectives, and those offering only economic efficiency policies would lose the next election.

FIGURE 1



Consumer demand theory is based on given consumer preferences, which are not themselves subjected to any further examination. If a consumer chooses to buy a large car and eat no steak, we think no less of him than if he travelled by public transport and ate caviar. Similarly if, in the market place for intervention, individuals and groups place little weight on economic efficiency, but much more weight on security and predictability, it is no function of the positive economist to say that they are wrong. Consequently, economists must test the efficiency of intervention by reference to the objectives which can be inferred from other evidence as being those of the electors. Thus, just as was concluded under 4.2., regulation can again be viewed as an output with many characteristics, none of which is necessarily dominant.

In addition, governments may (and do) have objectives other than those which reflect sectional interest, or which reflect the objectives of the electors at large. Governments may (and do) have objectives based on "beliefs", ideologies, and other preferences which have not and will not be tested in the electoral market place. Some reasons for the ability of governments to pursue such objectives without serious electoral risks are (i) non-dominance of one or more policies within a bundle of many, with voting only on the bundle as a whole; (ii) ignorance of electors (imperfections in the market for dissemination of information); (iii) long times between elections or (iv) some combinations of these. Some examples may be cited: some environmental issues; ministerial limousines; politicians' superannuation; maintenance of ministerial powers; and a variety of paternalistic beliefs. Many of these non-dominant objectives are pursued without being submitted to the electoral market test, because all political parties see them as being of common interest to them.

#### Regulatory Reform: More, Less, or Different, Regulation

It is, in nearly all cases, useless to compare any existing regulatory situation with what would occur under universal perfect competition. The only outcome, also available a priori anyway, is that regulation imposes a deadweight loss. No empirical study is necessary to prove that point, although many have been undertaken. The efficiency issue may be clarified by the use of a diagram (see Figure 1).

Assume for simplicity that (i) there is no question of demand being insufficient at any relevant price to require output units to be less than minimum optimal at any relevant price to require output units to be less than minimum optimal size, so that LRAC are constant over the relevant range; (ii) that regulation was originally imposed because of the existence of monopoly; (iii) that the level of x-inefficiency is the same with or without regulation; (iv) that demand is not perfectly elastic; (v) that input prices are equal to their opportunity costs. As shown on Diagram 1, one possible outcome is a pre-regulation monopoly price of  $P_m$ , associated with output  $Q_m$ ; with a gain to the monopolist equal to

$P_c P_m \times P_m A$ , and a loss to consumers of  $P_c P_m \times P_m A + \frac{1}{2}(AB \times BC)$ . The rectangle  $P_c P_m \times P_m A$  is a transfer from consumers to producers, while the triangle  $\frac{1}{2}(AB \times BC)$  is the deadweight loss. Now suppose that regulation is able to force price and quantity to their competitive levels (i.e. suppose regulation is costless). Consumers gain  $P_c P_m \times P_m A + \frac{1}{2}(AB \times BC)$ , while producers lose only  $P_c P_m \times P_m A$ . So long as the costs of regulation are less than the increase in consumer surplus, regulation is unambiguously more efficient than the monopoly outcome because the consumers could always compensate the producers and still be better off. In the diagram, the costs of regulation are added to the LRAC curve, amounting, say, to  $P_c P_r \times P_r D$ . Since we are only comparing the non-regulated monopoly outcome with the regulated outcome (the competitive outcome not being attainable without the regulatory costs), the question of whether regulation is to be preferred to the monopoly outcome on economic efficiency grounds depends entirely on whether the cost of regulation is less or greater than the deadweight loss which results from monopoly, i.e. whether  $P_c P_r \times P_r D$  is smaller or greater than  $\frac{1}{2}(AE \times ED)$ . This depends on the elasticity of demand in the relevant range and the costs of regulation.

The diagram also makes it clear that regulation cannot improve the situation if its costs are positive and there is perfect competition without regulation. For given costs of regulation, the closer to perfect competition without regulation, the less likely is it that regulation can effect an efficiency improvement.

If regulation is only concerned with resource allocation, and not with income distribution, so that the transfers between producers and consumers are ignored, the more elastic the demand curve, the greater the deadweight loss from monopoly. However, if the total impact of regulation is measured by the sum of the transfer effects and the resource allocation effects, the less elastic the demand curve, the greater the transfer effects and the smaller the allocation effects. Hence if only the allocation effect is quantified, the benefits from regulation, paradoxically, are greater the more elastic the demand curve in the relevant range (the competitive and the monopoly price).

Using an extreme example (given that no unregulated monopoly will set prices in the inelastic range of its demand curve), the argument might be put differently: a regulated monopoly facing a perfectly inelastic section of its demand curve (say Telecom) will not produce any efficiency gains if it is forced by that regulation to lower its price. What is lost by the producers is equal to what is gained by the consumers. The gainers could not compensate the losers and still have something left over.

All this is clearly at variance with most actual economic regulation. Regulated public utilities and public enterprises do not necessarily produce goods for which demand is relatively elastic in the relevant range. This apparent

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paradox disappears when transfers (income re-distribution) are included as objectives for regulation. Transfer effects become more important the less elastic the demand curve. Care must be taken to refer to the industry demand curve in this context. Both transfer and allocation effects are in fact taken into account by governments considering the imposition or removal (or change) of regulation.

Welfare economics has followed two paths: The first is the so-called Kaldor-Hicks criterion, which ignores income distribution, and therefore the re-distributive effects of any change. The other, represented by Little (1960) is to bring in a value judgement about the re-distribution. Governments do not, however, allow income re-distributive goals to be entered in a consistent manner, but whether such effects are consistently pursued or not, governments are unable to ignore the political importance of income distributive effects. And that, we believe, is one of the main reasons why Kaldor-Hicks type assessments of regulation are unlikely to consistently produce politically acceptable recommendations.

Whether there should be more, less, or different regulation thus has been shown to depend on the circumstances surrounding each particular case. The balance of transfer and allocation effects, and the costs of regulation to achieve them, provide the rationale for assessment. This also implies that there may be industry situations in which the perfectly competitive outcome, even if feasible without regulation, may not be acceptable. The resulting inefficiencies in resource allocation from regulation may be more than outweighed by the values placed on the achievement of the other objectives. This is aptly demonstrated by regulation of such industries as taxi services, agricultural industries and others which lack the traditional characteristics of economies of scale and monopoly.

### Piece-Meal Reform and Second-Best

Second-best considerations also make it clear that achieving perfectly competitive outcomes in a piece-meal fashion will not result in maximum economic efficiency. It would be useful if all other industries, except the industry under consideration, are in fact perfectly competitive. Since deviations from perfect competition are the norm, there is no theoretical basis for taking perfect competition as a relevant bench-mark. At (second) best, similar price/marginal cost ratios in industries closely related to each other by high cross-elasticities can be used as a relevant bench-mark. We have discussed this elsewhere (Kolsen and Docwra, 1981, Kolsen, 1979) and, despite many qualifications, are unable to think of anything which would more readily achieve greater efficiency in resource use (see also Iaplin, 1980).

Introduction of objectives other than pure economic efficiency then adds a further dimension to the problem of piece-meal regulation: consistent evaluation of all other objectives in all industries closely related to each other by

high cross-elasticities for their outputs. Such objectives can still be achieved more or less efficiently, even if they are not themselves purely economic objectives. If, for example, it is judged to be desirable to use transport prices to re-distribute income from those who live in urban areas to those who live in country areas, this objective will achieve the maximum re-distribution benefits per dollar of efficiency loss only if all transport modes are treated similarly - i.e. that there is no presumption by policy makers that one mode is necessarily better in achieving this objective.

The economist is therefore still required to examine the consistency with which the various objectives are being achieved, whether he agrees with the objectives or not. He may also be useful in pointing out alternatives which have not been considered. However, there is no real alternative to the piece-meal approach.

### Summary and Conclusions

We have argued that regulation is concerned with more than just achievement of the objective of pure economic efficiency in the Kaldor-Hicks sense. Explanations for existing forms of regulation cannot be given if this version of economic efficiency is seen as the sole objective. Regulation of the type which makes some people better and some worse off compared with the non-regulation alternative, or with other regulatory alternatives, necessarily brings re-distributive effects into the calculus. The use of the competitive outcome as a bench-mark is a dubious procedure where removal of regulation would merely return the situation to an imperfectly competitive or monopolistic alternative. It is a question of fact, determined by examination of the industry concerned, whether a near-perfectly competitive outcome can be regarded as a feasible alternative. If it can be shown that, in the absence of regulation, the industry would operate highly competitively, then the perfectly competitive bench-mark may be relevant.

However, even under such circumstances it cannot be asserted that regulation merely imposes dead-weight losses. The reason for this is that such dead-weight losses are defined in Kaldor-Hicks type economic efficiency terms. Where re-distributive effects are considered to be dominant, the Kaldor-Hicks criterion will not be sufficient to reach the conclusion that complete regulation is the best solution. We have argued that the effects of regulation can be decomposed into a number of elements which, for analytical convenience, can be divided into efficiency and re-distributional effects. An increase in economic efficiency of the Kaldor-Hicks type will usually be associated with a change in income distribution which may or may not be regarded as desirable. In some cases, the income re-distribution effect is regarded as dominant, and is the main objective of regulation. Any detrimental effects on efficiency are then weighed against the value of achieving the income re-distributive objective. The taxi industry and some agricultural industries were cited as examples of regulation of this type.

## DEREGULATION OR REGULATION REFORM

In other cases, thought to be more representative of regulated industries which would reach a monopolistic outcome in the absence of regulation, both types of objectives may be complementary. Within the relevant range of possible outcomes, more efficiency may also result in the achievement of a preferred income distribution. While economists have directed their attention to regulation almost exclusively to the Kaldor-Hicks type of economic efficiency, the suppliers of regulation, governments, have taken the re-distributive effects directly into the evaluation of alternative situations. Pressures of sectional interests may ensure that the distributional effects of alternative forms of regulation are not necessarily (or even usually) included in a consistent manner. But they are included nevertheless, and therefore cannot be ignored.

The inevitable conclusion is that while there is a theory of regulation which states the conditions under which alternative outcomes are to be evaluated, it is only in part composed of the theory of economic efficiency. The other essential component deals with income distribution, and cannot be handled as effectively by the traditional tools used by economists. The political market plays a part which may well be seen to be efficient in terms of the rules within which that market operates. The economists' role is then to examine particular economic environments in order to draw attention to the efficiency effects of particular regulatory alternatives, to show who gains and who loses, and what the costs of regulation necessary to achieve any particular end result will be.

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