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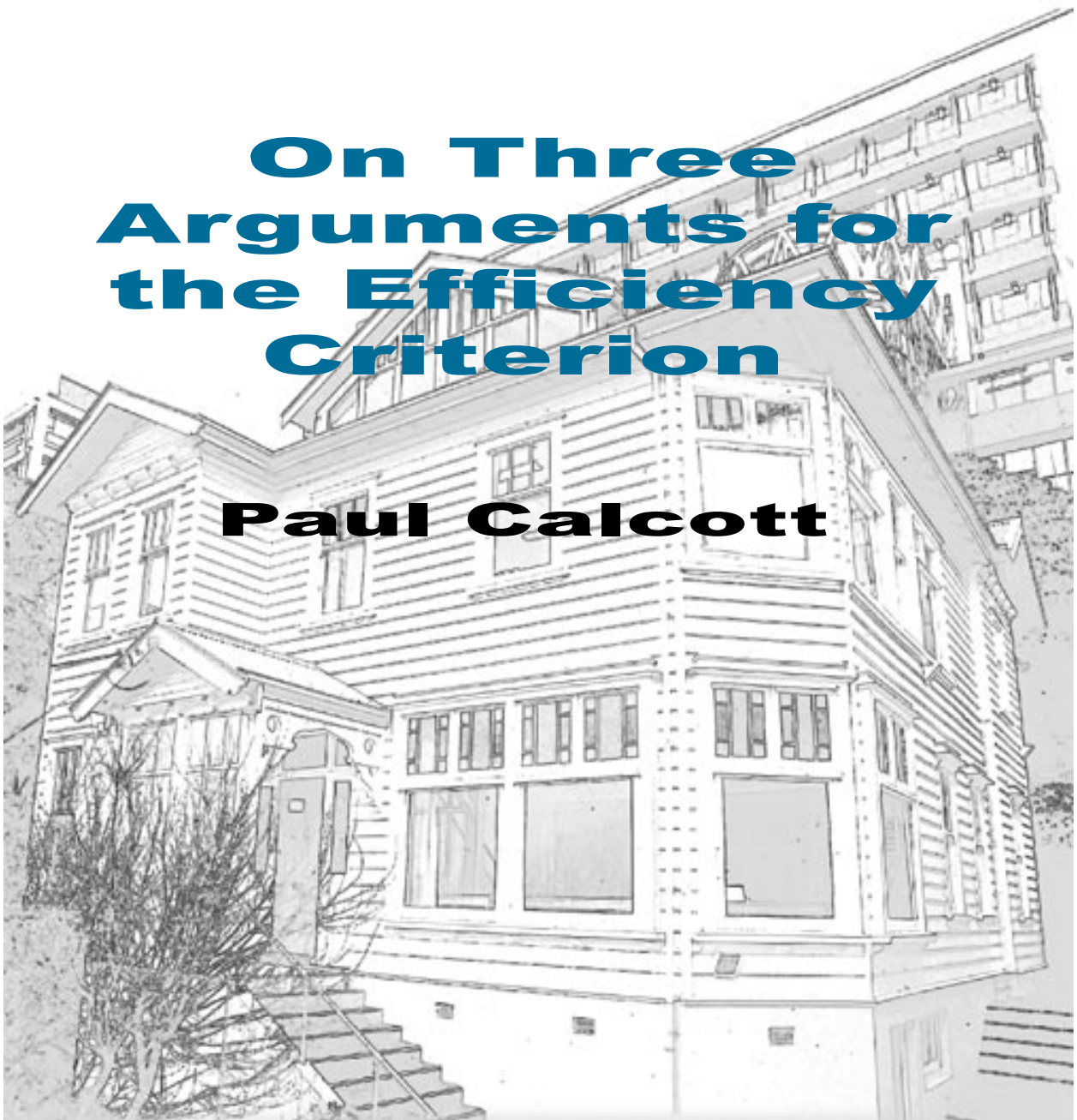
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On Three Arguments for the Efficiency Criterion

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on three arguments for the efficiency criterion

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Abstract

Economists often suggest that the goal of government policies should be economic efficiency – interpreted in terms of consumer plus producer surplus. This paper evaluates three arguments for this goal: (i) the rule-based argument (Hotelling, 1938), the separability argument (Kaldor, 1939) and (iii) the direct argument (Posner, 1985). None of these arguments provides a compelling reason to adopt efficiency as the only goal of policy. However, they do help to identify situations in which it is a reasonable guide.

1. Introduction

Many economists are in the business of evaluating government policy. They typically assess policies in terms of economic efficiency. In particular, a policy is judged to be beneficial if it leads to an increase in total surplus – consumer plus producer surplus. Sometimes economists complain that governments too often ignore these judgements – perhaps because public sector agents serve private rather than public interests. But recent New Zealand policy seems to have been motivated by efficiency to a remarkable extent (Evans et al, 1996). Although the desirability of increasing efficiency is often

asserted, and sometimes acted on, the rationale for this value judgement is rarely spelled out in any depth.

The rationale for efficiency is also neglected in teaching economics. Students of introductory microeconomics can expect to learn how to apply the concept of total surplus, but are not often told why they should. This concept might be illustrated in criticisms of rent controls and tariffs on imports – both are argued to imply reductions in total surplus. A continuing student might be exposed to some refinements of the concept of consumer surplus. He or she may learn about compensating and equivalent variation, and perhaps also about the money metric utility function. But although the student learns more sophisticated interpretations, he or she is unlikely to be exposed to an in-depth account of the reasons why total surplus may or may not be a suitable goal for government policy or for law.

It is the purpose of this paper to review and assess three arguments for the efficiency criterion. These arguments – the direct argument (Posner, 1985), the separability argument (Kaldor, 1939) and the rule-based argument (Hotelling, 1938) – are outlined in section 2. Objections are considered in sections 3 to 5. There is a vast literature on the normative foundations of the efficiency criterion, which spans eight decades, and I will make no attempt to provide a comprehensive survey. Some narrowing of focus can be achieved by concentrating on normative perspectives that are orthodox in economics – little consideration will be given to objections that draw on paternalism, extra-welfarism or concerns about relative standing. Furthermore, some issues have been well surveyed elsewhere, and only require light coverage below. For example, the paradoxes involving reversals and intransitivities and the problems with refinements of monetary measures of benefits are well known (e.g. Little, 1957; Graaf, 1967; Chipman and Moore, 1978; Blackorby and Donaldson, 1990), and will be briefly outlined in section 3. I will argue that these paradoxes and problems are more serious for the direct argument – which was advanced later – than they are for the earlier two arguments, which pre-dated their discovery. The reason is that the direct argument takes a different interpretation of efficiency to the other two arguments.

More recent developments in optimal tax theory and public choice theory raise more telling problems for the

separability argument, and these developments will be surveyed in section 4. The rule-based argument has received less attention, and in section 5 I will suggest my own objections, rather than survey existing criticisms. In section 6, I will conclude with an assessment that although the arguments are ultimately not successful, they do suggest some circumstances in which efficiency should be taken seriously.

2. The Concept of an Increase in Efficiency

The principle that I am calling the ‘efficiency criterion’ proposes that government policies be evaluated according to their effects on total surplus.¹ Total surplus provides us with a specific interpretation of the idea of economic efficiency.² If people would together be willing to pay more for (say) protection of endangered species than it would cost to provide, then we would say that such protection would be efficient.

Total surplus is consumer plus producer surplus, broadly conceived. Although the standard version of consumer surplus is known to have theoretical limitations, two related measures – compensating variation (CV) and equivalent variation (EV) – are sometimes suggested as defensible alternatives. Your CV for a proposed change is the amount of money (positive or negative) that you would have to pay to undo totally the effect of the change on your utility. For example, imagine that regulations were proposed that would reduce the level of air pollution. Your CV for the decrease in pollution is the maximum amount of money that you would be willing to pay to get it. Now, in order to define EV, assume that pollution will not be reduced. Your EV is the amount of money you would have to receive, in order to bring you to the level of utility that cleaner air would have brought you to. The thought experiment behind EV is that you receive a payment instead of, and equivalent to, the proposed decrease in pollution.

At this stage I will not choose either CV or EV as the correct monetary measure of individual benefit. The reason is that the choice of a measure may depend on the specific rationale for adopting an efficiency criterion. Specific arguments will be discussed in sections 3 to 5 below and so further discussion will be postponed until section 3.

It is one thing to propose a goal for policy that is

phrased in terms of monetary units. But it is another to describe this goal as a measure of efficiency. The implication seems to be that total surplus is an extension to the concept of Pareto efficiency. The definition of a Pareto efficient state of affairs is fairly straightforward. An efficient state is one from which it is not possible to make anyone better off without making someone worse off. But this definition does not really give us a clear idea as to what counts as an *increase* in efficiency. A Pareto improvement is a clear case, but it only gives us a (very) partial ranking over states of affairs. When a proposed change makes some people better off and some worse off, how are we to decide whether it is an increase in efficiency or not? We could stay with a criterion which is agnostic about such changes. But this would effectively disqualify economists from policy advice, as most policy changes would have some gainers and some losers.³ Alternatively we could try to construct an index of efficiency which allowed for a more complete ranking of outcomes.

Total surplus provides a ranking, in which monetary units of measurement are used to compare different benefits and costs. Consequently, we would expect a measure of total surplus to satisfy the following two conditions. The first condition is that it should be consistent with the Pareto criterion. A proposed change that would make someone better off, but not reduce anyone else’s utility, should be reflected as an increase in that person’s surplus but no decrease to others’ surpluses. The second condition is that the measure should use monetary units as the standard of social value – or in Ng’s (1984) phrase – it should treat a dollar as a dollar.

There are two ways to interpret total surplus as an elaboration of the concept of a Pareto improvement. The first interpretation is that total surplus represents a more complete ordering of social value than Pareto dominance. In order to assess policies that have both gainers and losers, we need to weigh gains to some people against losses to others. Total surplus provides such a ranking, in which monetary gains to different people are given the same social weight.

A second interpretation of total surplus (Kaldor, 1939) is as an assessment of the *potential* of the economy to deliver desirable outcomes, rather than a judgement on the desirability of the actual outcome. If a change

brings an increase in total surplus, the change is not necessarily beneficial. But it does provide the opportunity for a beneficial change – in particular, the opportunity for a Pareto improvement. One way to think about this is with a metaphor of a pie. The idea is that we want to make the ‘pie’ as big as possible. A bigger pie represents the potential for everyone to get a bigger slice. And the idea is that an increase in total surplus is the counterpart of a larger pie.

According to the first of these two interpretations, higher total surplus is beneficial in its own right. An argument for the criterion under this interpretation would be direct – it would make the claim that efficiency embodies the correct value judgements. However, the second interpretation allows for indirect arguments for efficiency. An indirect argument would suggest that government policies be determined by efficiency, even if other values are important. In the remainder of this section, three arguments will be presented – the direct argument and two indirect ones. The implications of these arguments for monetary measures of benefit will be examined in following sections.

(a) The direct argument (Posner, 1981, 1985)

Efficiency is the only value that should guide policy (or law). For example, Posner argues that alternatives such as ‘individualism’ and utilitarianism are both too extreme, and efficiency is the appropriate compromise. He suggests that the efficiency criterion is preferable to utilitarianism because it requires less redistribution to the poor. An alternative suggestion to Posner’s is that utilitarianism is the ‘correct’ value framework, and it is equivalent to the efficiency criterion if the marginal utility of income is constant.

(b) The separability argument (Kaldor, 1939; Ng, 1984)

Efficiency is not the only value important for a good society. However, other values (such as equity) can be accounted for separately. They can and should be dealt with by the redistributive arm of the state. Other branches of the state should confine their attention to potential Pareto improvements, which will (combined with the efforts of the redistributive branch) result in unambiguous improvements (Kaldor). Taxes and welfare benefits

can achieve these other goals just as well as other policy instruments can, and furthermore they introduce fewer distortions (Ng).

(c) The rule based argument (Hotelling, 1938; Hicks, 1941)

If we implement every possible increase in efficiency that arises, then eventually everyone will be better off, even if individual changes make people worse off.

3. The Direct Argument

A direct argument is one that directly identifies efficiency with social value. Other values such as rights, desert or equity only have claims on policy to the extent that they are reflected in efficiency. The direct argument seems to require total surplus to be an ethical theory in its own right. And so we would require a coherent monetary measure of benefit that entails plausible value judgements. First we consider the prospects for coherency. Then we turn to plausibility.

(i) *Monetary measures of benefit*

are a variety of possible measures of total surplus. Which measure should we use? Surely our choice of a specific measure should reflect our reasons for adopting the total surplus approach. Recall that the direct argument seeks to provide such reasons without appeal to associated changes (such as redistribution or future applications of the principle) to deal with other values. Therefore, the criterion should be applicable to individual policy changes, without reference to consequent changes that may compensate for any losses.

We require a measure of benefit that provides a Pareto consistent ranking of possible outcomes, and satisfies the principle that a dollar is a dollar. Consider aggregate compensating variation. This measure is neither coherent nor Pareto consistent. CV is not Pareto consistent because it is not preference respecting. If someone prefers A to B, then her measure of benefit for A should be higher than for B. But this is not necessarily true if benefits are measured as CV. The definition of CV involves a hypothetical compensation. But in a direct argument, it is not suggested that any compensation will actually be paid. If compensation is not made, then the EV measure is preference respecting but the CV measure

is not (Hause, 1975). CVs fail to be preference respecting because it is possible to prefer A to B if you do not have to pay for them, but if you had to pay enough (compensation) you would (being poorer) prefer B to A.⁴

It seems that an adherent of the direct argument should favour EVs over CVs. However, neither measure guarantees coherent orderings when aggregated over different people. A principle is incoherent if when in A, it recommends a change to B, but when in B recommends a change to A (or has implications that are otherwise intransitive). Incoherence has been demonstrated for the EV principle, the CV principle, the principle that potential Pareto improvements should be implemented and for a variety of related criteria (the Scitovsky/Hicks paradoxes).⁵ This is because they are defined in terms of changing reference points. The reference state changes when the status quo changes.

Problems with coherency can be avoided if the EV measure is amended, by adopting a fixed reference point rather than using the status quo. The result is the so-called ‘money metric utility function’. Money metric utility functions can deliver coherent and Pareto consistent rankings. However, the resulting measures are somewhat arbitrary. And more importantly, they do not define benefits that are commensurable with costs measured in monetary units.

First consider the charge that the benefits defined by money metric utility are arbitrary. The problem is the choice of the reference point. A past, present or possible state of affairs provides the benchmark by which changes are assessed, and different reference points will be favourable to different individuals. I know of no attempt to provide a framework by which reference states should be chosen.⁶

Second, consider the representation of benefits and costs. It is straightforward to express the benefits of a change to an individual with money metric utility. These benefits will be in monetary units, but they refer to money received in the reference state rather than the actual state of affairs. If the marginal value of extra money differs between the two states, then the measured benefit will not be directly comparable to monetary costs that are incurred in the actual state of the world. Moreover, if a person’s marginal utility of income varies across different situations, then it is impossible to construct a

measure of value that is preference respecting and which attributes the same value to extra income irrespective of the situation in which it is received (Morley, 1984). But both are core requirements for a measure of total surplus.

The prospects for a direct argument for efficiency seem bleak. We seem to be faced with a choice between giving up Pareto consistency and giving up the principle that a dollar is a dollar. However, it may be possible to defend the efficiency criterion. One defence is to argue that the marginal utility of income can be assumed to be constant – and thus that we are not driven to accept that the social value of money is variable. This proposal will be examined in the following subsection. A second response is to concede that total surplus will involve occasional incoherence and failure to be preference respecting, but to argue that these will be only minor problems in practice.

Perhaps violations of coherency are uncommon, small and unsystematic. The idea is that the efficiency criterion might provide a reasonable rule of thumb even though it does not tell us exactly what we should do in all cases. This defence would not be very compelling unless we had some idea of what it was a rule of thumb for. Presumably there would be some coherent underlying principle, which would not be an efficiency criterion itself, but would have very similar implications to some interpretation of the efficiency criterion for most practical decisions. The direct argument for the efficiency criterion should provide some account of this underlying principle, as it would presumably appeal to the moral considerations that really constitute social value. Two such accounts will be assessed in the following subsection.

(ii) *Normative issues*

The direct argument proposes the ethical judgement that total surplus incorporates all the values that are relevant to the choice of government policy. There may be some people who agree with this view, but there are certainly many who disagree. One objection to the total surplus criterion is that it conflicts with equity. The criterion would suggest that even a small increase in total surplus is justified, even if all the gains are appropriated by those in the highest income brackets and people with lower incomes become worse off. But there is a more alarming implication. The problem is that for ‘normal’ goods, people are willing to pay more when they have more

money to pay with. Aggregate CV attributes more ‘dollar votes’ to richer people. For example, if we wanted to build a motorway extension, the total surplus principle would favour a route that caused as little damage as possible to existing residents. And damage would be measured in terms of the money that people would be willing to pay to prevent it. The consequence is that the principle would tend to favour routes through poor neighbourhoods. There is a rather cynical joke about this – that the hardest thing about building a motorway is finding enough poor people who live in a straight line.

Take the case of health care. Some people think that access to health care should not be determined by ability to pay. Indeed, health economics is one branch of the discipline in which the total surplus principle is very contentious. Other people are happy for rich people to get better treatment if they are willing to pay for it. But perhaps this is only when richer people really do have to pay more for premium treatment. It is a rather uncomfortable implication of the total surplus criterion, that rich people should get better treatment, *even when medical care is free!* It seems that the efficiency criterion has implications that most people would disagree with.

I know of two ways that the apparent inequities suggested by the efficiency criterion could be justified in a direct argument. The first is to appeal to desert and the second is to claim that everyone has the same marginal utility of income. The appeal to desert makes the claim that the well-being of richer people should be a higher priority because they deserve more. This suggestion is actually made by Posner (1981, 1985). In particular, he argues that wealth is due to productivity, and those who are more productive should be entitled to more consideration.

I do not wish to argue that it is impossible to construct a productivity-based theory of entitlement. However, I cannot see how Posner’s appeal to productivity can rehabilitate the efficiency criterion. One reason is that his conception of productivity inherits any incoherence that the efficiency criterion has. This is because he identifies productivity with wealth creation and identifies more wealth in society with increased efficiency. So productivity does not provide an independent and coherent metric of value that efficiency can approximate.

The second problem with Posner’s account is that a person’s productivity does not have a very close

association with his or her wealth. This means that the efficiency criterion would fail to approximate a productivity-based principle of desert (Dworkin, 1980, p 211). Posner recognises that luck also plays a role in determining income. More seriously, so does redistribution by the state. If we are to take Posner’s appeal to productivity seriously, we would have to launder out the impact of progressive taxes and welfare benefits on income in assessing social value. If citizens really deserve rewards proportional to their productivity, then redistribution of income to poorer people would not be justified. But if it *was* redistributed, then the CVs of the most productive people would be biased down by the decrease in their incomes. According to the total surplus principle, monetary measures of benefit such as CV are to be accepted at face value. Consequently, the efficiency criterion would have a systematic bias against the rich! Total surplus would be such a major departure from entitlement that it could be in no way considered a reasonable approximation – except perhaps when there is no redistribution of income.

By 1985, Posner had conceded that most people have ethical views which conflict with his proposal. However, he did not think that the problems with coherency were serious. By 1998, he had abandoned the project of defending efficiency – or any other value – as a societal goal.

A Paretian SWF is another possible underlying framework that total surplus might be a rule of thumb for. From this perspective, the efficiency criterion would be an approximation that involved errors to the extent that different people had different (social) marginal utilities of income. Actually, if each individual had a fixed marginal utility of income, many of the problems raised in the previous subsection would not arise.

The position that people have constant marginal utilities of income is not plausible.⁷ For example, marginal utility of income will generally be affected by price changes. Prices determine to a large degree what can be purchased with income. Another problem is raised by the example of insurance. The demand for insurance is conventionally explained with reference to risk aversion, which implies that an individual would have a different marginal utility of income in different states. If the value of extra money was as high during misfortune as in other occasions, then there would be

little point in buying insurance. But even risk neutrality does not imply that an extra dollar has the same value in every situation. If well-being can be represented as expected utility, then the marginal (expected) utility of income depends on the probability of survival – unless extra money has as much value to us when we are dead!

The disregard of the interpersonal differences in the marginal utility of income is probably the most contentious feature of the efficiency criterion from the perspective of a SWF. It is often suggested that a dollar has a bigger impact on utility when received by a poor person than a rich one. The implications for redistribution should be qualified to account for any distortions and costs with redistribution of income. But unless the system of taxes and welfare benefits is social welfare maximizing, there will be some bias in applying the efficiency criterion.

It is difficult to find someone who is willing to claim that actual taxes are at their welfare maximising rates. Indeed, as tax and benefit rates are changed as governments change, a general statement that they are optimal would seem naïve. Some voters may believe that tax schedules and benefit rates are currently acceptably close to the ideal, so that the marginal social value of a dollar is approximately equal for all people. But others will disagree. Furthermore, some policy changes may have significant effects on marginal utilities of income. Consequently, tax rates may be suboptimal after a change even if they were optimal before.

It seems that voters should not find direct arguments persuasive, unless they believe that their values will be reflected in the government's redistributive policies. But the government is in a different position. If officials propose certain policies, on the grounds that they would increase efficiency, then it would seem capricious to reject such advice on the grounds that tax rates are suboptimal. If the government really believes taxes and benefits should redistribute more, less or differently, then presumably it has the power to remedy this directly.

Although we have not found an argument that a voter must find persuasive, we have the beginnings of an argument with some cogency for government politicians. However, the argument is far from complete. Furthermore, as it appeals to associated changes (i.e. the redistribution of income), it is an indirect

argument. Indirect arguments are addressed in the following two sections.

4. The Separability Argument

The separability argument, unlike the direct argument, does not rule out values that are independent of efficiency. But it suggests that they be dealt with separately – with monetary redistribution. This argument is addressed to people (or at least to governments) who subscribe to a variety of different values. We might disagree about how progressive the income tax schedule should be. But according to the argument, we should agree that tort law, the provision of public goods and the decision to privatise should all be determined by efficiency alone.

(i) *Separability in first best worlds*

The core of the separability argument can be expressed with the metaphor of the pie. Increasing total surplus is described as 'making the pie bigger'. The division of the pie is viewed as a separate issue. A bigger pie makes a new division possible, in which everyone gets a bigger slice than they otherwise would have. If the division of the pie (redistribution of income) can be entrusted to someone who will make correct decisions, then we do not need to know what these decisions are, in order to accept that a larger pie will be beneficial.

With the separability argument, the metaphor of a larger pie is interpreted as a 'potential Pareto improvement' (PPI) – a change that if combined with a suitable redistribution of income, would leave everyone better off. Consequently, the separability argument has two steps – the identification of increases in efficiency with PPIs, and the identification of PPIs with increases in social welfare. These two steps are most straightforward when we assume that lump sum redistribution is possible and is entrusted to a perfectly benevolent agent. Neither assumption is plausible, but it will be useful to examine the structure of the argument under these assumptions, before relaxing them in the following subsection.

Consider the first step of the separability argument – the connection between improvements in social welfare and PPIs. Imagine that a policy was proposed, say a tariff cut, that would be a potential Pareto improvement. If the policy was adopted, then there may be adverse

distributional consequences. But a benevolent redistributer can be trusted to deal with such consequences. She will ensure that the highest possible level of social welfare will be reached, of all those that can be reached by redistributing income. And because the tariff cut is assumed to be a PPI, the highest level of social welfare that can be attained is at least as good as a Pareto improvement over the status quo. We do not require that a Pareto improvement over the status quo will actually result – there may be something even better than this. But there will be some improvement in social welfare as a consequence of the policy. The conclusion is that under the assumption of benevolent lump sum redistribution, any PPI will be beneficial.

Although any PPI is beneficial, it does not follow that any beneficial change is a PPI. This is because there are some increases in social welfare which are not Pareto improvements. Furthermore, just as with the direct argument, we have problems in defining a coherent measure of efficiency. PPIs are subject to the Scitovsky paradox – it is possible for a change from A to B to be a PPI, and the change back to A to also be one.

The difficulties with coherency are not as serious for the separability argument as they were for the earlier argument. The Scitovsky paradox relies on compensation not actually being paid. If the redistributer acted according to coherent Paretian values, then she would have redistributed from A or would do so from B (if the choice between A and B was subject to the Scitovsky paradox). Consequently, economists applying the efficiency criterion would not get a chance to reverse their recommendations (Little, 1957, p 98; Chipman and Moore, 1978, p 580).

The intransitivity of PPIs could, however, raise problems for the choice between two policy changes. It is possible for both changes to be PPIs over the status quo, and for both to be PPIs over each other. In such a case, appeal to the concept of a PPI cannot determine which of the options should be chosen. The conclusion appears to be that once we move away from the context of binary choices between the status quo and a single alternative, PPIs are neither necessary nor sufficient to establish which policy option is preferable. This weakens the first step of the separability argument.

Now consider the second step in the separability argument: the identification of PPIs with increases in

total surplus. What is the appropriate measure of surplus? The sum of EVs is not a plausible candidate, because unlike CVs, EVs are not defined with reference to compensation. As a PPI is defined in terms of compensation for losers (and gainers) the CV seems a more promising choice. If aggregate CVs are larger than costs, then this suggests that the gainers would be willing to pay enough to fully compensate any losers, as well as covering costs. But unfortunately, a PPI cannot be completely characterised in terms of standard CVs. This is Boadway's paradox.

The point of Boadway's paradox is that a policy change that would increase aggregate CV need not be a PPI (Boadway, 1974). The reason is that CVs are conventionally defined under the assumption that prices are fixed at levels that result from the policy change. But if compensation was actually made, prices may change (again) and anticipated purchases may not be affordable. So the aggregate CV criterion may be satisfied by a change that is not a PPI. It is possible, however, to define a monetary measure of value which is positive if and only if the proposed change is a PPI (Blackorby and Donaldson, 1990). But this measure is quite different from conventional measures of efficiency.

Both the first and the second steps of the separability argument seem problematic. Higher total surplus is neither necessary nor sufficient for higher social welfare to result. But these problems might not be too serious. The separability argument does not require total surplus to be a compelling ethical framework in its own right. It does require redistribution to be guided by such a framework, but we do not need to know what it is. The efficiency criterion would just be a guide to policy choice when monetary redistribution is conducted in an ideal fashion. Perhaps it is a more serious problem that the design and implementation of monetary redistribution falls short of the ideal suggested by the assumptions of lump sum taxes and benevolent redistribution. The consequences of relaxing these assumptions will now be considered.

(ii) *Separability in second best worlds*

Redistributers are not always able to identify the losers from policy changes. This is another reason that an increase in total surplus need not be a genuine PPI. For example, imagine that a 'user-pays' policy is introduced

for national parks. It may be a PPI if perfect lump-sum redistribution is possible. But if we cannot identify who the losers are (plausibly those with strong tastes for outdoor activities), then it may not be possible to compensate them (cf. Little, 1957, p 95). If compensation is offered, then people have an incentive to claim it, even though they had no desire to go hiking. Although there may be enough gains to compensate the losers if we know who they are, there is no guarantee that there is enough to provide compensation at the level that would restore a loser to her original level of utility, to everyone who claims it.

Of course, it could still be beneficial to introduce the user-pays policy. But to make that assessment, a further value judgement must be employed. In practice, policymakers will often make a judgement that there is not a strong case to protect the losers from a proposed change. For example, the government will not generally take it upon itself to redistribute from citizens who like green jellybeans to those who prefer red jellybeans. As a result, there would be no objection to removing subsidies on the red ones or taxes on the green ones.

More generally, the separability argument is weaker when we consider costs and distortions due to redistribution.⁸ Economists tend to view the use of distortionary taxes as being a result of the imperfect information available to tax authorities. But whatever the reason, the consequence is that the amount by which the size of the 'pie' will be increased depends on how much redistribution will accompany the change. In general, there is not a clean separation between efficiency and equity.

Although costs of redistribution do not strengthen the separability argument, it is possible to describe circumstances in which they do not weaken it either.⁹ Imagine that all citizens are identical except for their earning capacities. The government wishes to redistribute from those with higher abilities to those with lower abilities, but it does not know the ability of any given citizen. So instead of making taxes depend on ability, they depend on income. Effectively, the tax schedule is a menu of pre-tax and post-tax income combinations, where high ability citizens choose to earn higher incomes and so pay more tax.

Imagine further that there is another programme with a redistributive purpose – say, a free medical check-

up for everyone who earns under \$20,000. As citizens only differ by their levels of productivity, we might suppose that all citizens who earn income I_i will be identical. Let $CV(I_i)$ be their CV for losing a free medical visit. If this in-kind redistribution does not meet the aggregate CV test, then the programme should be terminated and replaced with an amended income-tax schedule. The tax bill for anyone who earns I should be reduced by $CV(I_i)$ if I_i is under \$20,000 and unchanged otherwise. By definition, this will leave no-one worse off. Furthermore, so long as one's CV is not affected by one's productivity, there will be no effect on labour supply incentives. But government revenues will be higher after the change. So a Pareto improvement should be possible.

This example involves some strong assumptions – that productivity does not affect CVs, that citizens are identical apart from productivity and that compensating for a terminated programme with tax cuts is politically possible.¹⁰ The first two of these assumptions will now be briefly discussed. The third assumption will be addressed in the following subsection.

The first assumption is that CVs are not affected by income earning ability. This means that the government programme would have the same value to high ability people (when earning low incomes) as to low ability people. In the standard model, in which income is only a function of ability and labour effort, this means that the programme does not provide a service that is complementary to labour effort. It is possible to argue that day care, basic health care and education are all complements to labour effort and that this provides a rationale for government programmes that provide them (Blomquist and Chritiansen, 1995; Boadway and Marchand, 1995; Cremer and Gahvari, 1997).¹¹

The second assumption is that productivity is the only difference between citizens. This is clearly implausible. However, as the jellybean example illustrates, not all differences between citizens are considered ethically relevant. But some differences have clear implications for well-being, and so may be considered relevant by those whose values can be represented by Paretian SWFs. Sen (1985), whose values cannot be represented with such a framework, argues that the consequences of commodities (and hence income) for well-being depend on a variety of factors. These

factors include health status, pregnancy, knowledge, location and social links (p17). How can these differences weaken the separability argument? Perhaps, income taxes are not the most effective way to redistribute between citizens of different types, when the different types are not different capacities for earning. There are at least three reasons why this might be so.

The first reason is that other policy instruments may be able to target different types of citizen in ways that income taxes cannot. Blackorby and Donaldson (1988) provide a simple example. They assume that individuals differ only according to their health status. In their model, health status does not affect labour supply decisions, and so redistribution through income taxes is ineffective. But unwell people signal their 'type' with their demand for health care. So a subsidy for medical treatment may be an effective way to redistribute to people with higher medical need. As Blackorby and Donaldson emphasise, optimal provision of health care will generally violate the efficiency criterion.

The second reason is that it may be clumsy to customize taxes in the light of information received about individual people. The scheme suggested by Blackorby and Donaldson, like simple income taxes, does not require direct information about citizens' types. Redistribution is tied to actions of the individual, such as earnings or health care utilisation. But direct information is sometimes available. Doctors, teachers, judges and social workers learn about the needs and situations of the people that they deal with. Perhaps they should use this information in their everyday decisions, so that specific forms of help are targeted to those who need it most (Calcott, 2000). In many cases it would be administratively costly and clumsy for this information to instead be relayed to the officials who administer income tax or welfare benefits.¹²

The third reason to use alternative instruments for redistribution is that sometimes it is best to use a mix of instruments. One consequence of heterogeneity within ability classes is that sometimes people of different abilities will earn the same amount of income. Even if we are only concerned to redistribute between ability types, it may not be prudent to use information only about pre-tax income. Income is a noisy signal of earning ability, as it is also affected by effort and job characteristics. A progressive income tax will redistribute not only from

someone who receives high pay in virtue of inherent talents, but also from someone who holds down two jobs, or who is paid a premium for dirty, dangerous or unpleasant work. Furthermore, not all income is declared to the tax authorities. As a result there may be a case for broadening redistributive efforts to a variety of instruments rather than only using income taxes and welfare benefits.¹³ For example, government programmes could be designed to provide more benefit to those who are less well off, and legal rules can be used to redistribute between individuals with different abilities (Sanchirico, 2001).

(iii) *Compensation and political economy*

Although the separability argument is not applicable in all cases, it does not seem credible that it *never* would be. Surely, heterogeneities and complementarities are not always crucial in defending policies that do not satisfy the efficiency criterion. Sometimes taxes and welfare benefits really are the best way to redistribute. This suggests that the separability argument, and hence the efficiency criterion, may be applicable to a subset of policies. However, it is possible to be nervous about even this limited application of the argument, because governments so infrequently adjust taxes and benefits to compensate for terminated programmes. Indeed, it is embarrassing to teach the separability argument to economics students, because it is so hard to find plausible examples where losses have been fully compensated. Is there some disadvantage with, or barrier to, compensation that the separability argument has neglected?

Goldfarb and Woglom (1974) suggest one possibility. They argue that the efficiency criterion is only appropriate when redistributive policies are continually updated. But as changes are (for institutional reasons) infrequent, the efficiency criterion should be amended. Another possibility is that it is important to keep income tax schedules simple, to ensure that they are easy to understand and difficult to 'game'. Perhaps the type of compensation envisaged in the separability argument is too complex to be practicable.¹⁴

In stating the separability argument above, an assumption was made that there was a 'benevolent' redistributer. This is not a reasonable assumption for citizens to make. But perhaps it is harmless metaphor for

the government to use, when it is trying to choose the most beneficial policies – including distributional policies. After all, the government can change the tax and benefit system if it so wishes. However, it is not an innocuous assumption if the government does not completely determine the implementation of policies. Public choice theorists have argued that principal agent problems restrict the ability of governments to implement policies. If bureaucrats are opportunistic, then it may sometimes be prudent to reject policies which would increase total surplus if implemented optimally. This complication does not constitute an objection to the efficiency criterion, only a caution that it should not be applied naively. However, this line of argument does suggest an objection. The traditional focus of the economics of bureaucrats is on opportunism in frustrating the efficiency goals of governments. But opportunism might also be a barrier to redistributive goals. And redistribution without opportunism might be necessary to justify some policies that would increase total surplus.

The ability of government actors to determine policies may be restricted, not only by the actions of bureaucrats, but also by other political actors such as voters, lobbyists and other politicians. For example, if a policy would require a future redistribution in order to justify it, the present government might refrain from the policy because it did not have confidence that future governments would implement the redistribution (Besley and Coate, 1998).

In the preceding discussion of political issues, we have drawn on public choice theory. But this theory is not a natural one in which to evaluate the efficiency criterion. Although founders of public choice theory have expressed doubts about the criterion (e.g. Buchanan, 1974), questions of policy evaluation are difficult to address meaningfully in this approach. The problem is that policy choices are endogenised in public choice theory – i.e. predicted rather than prescribed. However, some public choice theorists believe that their approach does permit a role for normative analysis – so long as it deals with the structure in which policy is determined rather than individual policy choices. One possibility is to adopt a constitutional framework in which policies would be adopted if (and only if) they satisfy the efficiency criterion. It is difficult to imagine that such a proposal

would be practicable. But in the following section, we examine whether it would be desirable.

5. The Rule-based Argument

Each individual application of the efficiency criterion can be expected to have losers as well as gainers. But the losers this time may be gainers next time. If we take every opportunity to increase total surplus, then perhaps everyone will be better off eventually. Consequently, it could be argued that the policy process should be organised according to the rule that policies be adopted if and only if they increase efficiency. This is the rule-based argument.

I have classified the rule-based argument as indirect as it does not suggest that increases in efficiency are desirable in themselves. Rather, it is Pareto improvements that are considered intrinsically beneficial. Although an individual increase in efficiency may not be desirable, losses may be compensated by future gains. As the size of the ‘pie’ is increasing with every step, the portion that any given individual can expect to get after many steps, may plausibly be bigger than it was originally.

This is a pragmatic argument. As a result, it is not particularly vulnerable to the problems that the efficiency criterion has with coherency – so long as they are minor. In some cases the rule may be frustrated because of reversals. We might interpret the rule as indeterminate in such cases. But if the Scitovsky paradox applies to a sufficiently small proportion of the PPIs that we can implement, then they will eventually be swamped. We would still have a rule that was workable in most cases and which (hopefully) would lead to everyone being better off.

Although the rule-based argument does not require a perfectly coherent measure of surplus, the choice of a measure is not free of problems. The argument seems strongest when dealing with changes that unambiguously increase the productive capacity of the economy. We would not want to block technological advances every time there would be an adverse impact, however small, on anyone’s livelihood. But unambiguous advances are only a subset of possible increases in total surplus. Other types of change will also be classed as improvements in efficiency, and this is so whether we choose to measure benefits in terms of CV, EV or money metric utility functions.

Recall the metaphor of the pie. It is clear what it means for a pie to be bigger. It is not so clear for an economy. Consider an economy with uncrowded beaches and mountains but few theatres and restaurants. Does this represent a bigger or smaller 'pie' than one with thriving arts and restaurants, but an unprotected natural environment? That might depend on whether you prefer cultural activities or outdoor pursuits. Or under the total surplus interpretation, it depends on which form of recreation people would be willing to pay more for. But that means that a change in the distribution of income (or population shares) between different types of people could change which outcome was deemed more 'efficient'. Unlike the size of a pie, we do not have a way to characterise the total value of the economy, independent of how its rewards are distributed (Graaf, 1967).

Some worrying implications of the efficiency criterion were noted in section 3. It may increase total surplus to ensure that new roads are built through poor neighbourhoods and to redirect medical care to richer people. In section 4, it was at least conceivable that these apparent inequities would be compensated for with monetary redistribution. But now losers must be consoled with the prospect of further increases in total surplus – which may also be biased against those with low incomes.

The rule-based argument should not be persuasive to either governments or voters. It only deals with the choice between implementing no increases in efficiency and implementing them all. If we value equity, we might wish to implement some of these increases (those with costs in terms of equity that are not too high) but not others. Different normative perspectives could imply different 'filters' for proposed policies. The filter suggested by the direct argument may be preferable to filtering out all potential increases in efficiency. But it does not suggest a filter that people with a wide range of perspectives would agree to be best. Therefore voters and governments can reasonably reject the rule-based argument on egalitarian grounds.

Although the argument does not provide a reason to adopt the efficiency criterion which is compelling to people who subscribe to egalitarian values, it could conceivably be successful in its own terms. Perhaps the efficiency criterion would be the appropriate choice if we wished to abstain from specific judgements about

distributive justice, and were only confident to recommend Pareto improvements. For example, it might be believed that interpersonal comparisons of utility are not legitimate. Unfortunately, the rule-based argument does not succeed on these terms either.

If we wished to choose a criterion in order to maximise the chance of an (eventual) Pareto improvement, then the efficiency criterion would not be the best choice. The first problem is that if older people are among the losers in the first round of changes, then they may not survive long enough to benefit (sufficiently) from future gains. To increase the chance of a Pareto improvement, we should modify the efficiency criterion by putting a larger weight on losses to older persons. Secondly we should be wary of large or correlated redistributions of wealth (Little, 1957, p 95). For example, by dismantling the welfare state we might increase efficiency, but it is plausible that a significant number of people would incur such large losses, that any future gains would be insufficient to compensate. Thirdly, to increase the chance of an overall Pareto improvement, the well-being of those who incurred losses in earlier rounds, should have greater weight in subsequent rounds.¹⁵

Whether the choice of a policy framework is to be chosen with reference to a comprehensive ethical framework, or whether it is only to be designed to increase the probability of a Pareto improvement, the rule-based argument is unsuccessful.

6. Concluding Comments

In general, policy evaluation draws on both value judgements and predictions about consequences. The efficiency criterion offers the tempting prospect that consideration of value judgments can be radically simplified. In particular, it suggests that social value can be assessed in terms of an unweighted sum of private monetary valuations. However, such an approach does not provide a coherent framework in itself. It could still be an approximate guide, if it was supported by a more general framework. However, none of the arguments considered above provide a framework that suggests a compelling reason to adopt the efficiency criterion.

For some policy choices, the facts of the matter are so compelling that there would be agreement about the best choice from a wide variety of evaluative frameworks. In such cases, the use of the efficiency criterion would

not be problematic. But in other cases there is a range of widely-held value judgements that would suggest different policy choices. Consequently, advice about the efficiency consequences of the various options need not be crucial in determining policy choices.

Although none of the three arguments is successful in justifying the efficiency criterion, the two indirect arguments do make some important points. An important lesson from the separability argument is that redistribution is often best conducted explicitly with income taxes and welfare benefits. Governments might well examine this possibility before accepting a redistributive role for other policies. A lesson from the rule-based argument is that the redistributive impacts of different policies need not be judged in isolation from each other. The overall impact of a collection of policies may be benign, even if some of the individual policies have undesirable effects. However, neither lesson gives a reason to accept unqualified appeals to efficiency as compelling reasons to adopt proposed government policies.

References

- Besley, T and S Coate (1998) 'Sources of inefficiency in a representative democracy', *American Economic Review*, 88, pp 139-156
- Besley, T and S Coate (1999) *The public choice critique of welfare economics: an exploration*, NBER working paper 7085
- Blackorby, C and D Donaldson (1988) 'Cash versus kind, self-selection, and efficient transfers', *American Economic Review*, 78, pp 691-700
- Blackorby, C and D Donaldson, 'The case against the use of the sum of compensating variations in cost-benefit analysis', *Canadian Journal of Economics*, 1990, 23, pp 471-494
- Blomquist, S and V Christiansen (1995) 'Public provision of private goods as a redistributive device in an optimum income tax model', *Scandinavian Journal of Economics*, 97, pp 547-567
- Boadway, R (1974) 'The welfare foundations of cost-benefit analysis', *Economic Journal*, pp 926-939
- Boadway, R and M Marchand (1995) 'The use of public expenditures for redistributive purposes', *Oxford Economic Papers*, 47, pp 45-59
- Brekke, K (1997) 'The numéraire matters in cost-benefit analysis', *Journal of Public Economics*, 64, pp 117-123
- Buchanan, J (1974) 'Good economics – bad law', *Virginia Law Review*, 60, pp 483-492
- Calcott, P (2000) 'Health Care Evaluation, utilitarianism and distortionary taxes', *Journal of Health Economics*, 19, pp 719-730
- Chipman and Moore (1978) 'The new welfare economics 1939-74', *International Economic Review*, pp 547-584
- Cremer, H and F Gahvari (1997) 'In-kind transfers, self-selection and optimal tax policy', *European Economic Review*, 41, pp 97-114
- Dworkin (1980) 'Is wealth a value?' *Journal of Legal Studies*, 9, pp 191-226
- Evans, L, A Grimes and B Wilkinson with D Teece (1996) 'Economic reform in New Zealand 1984-95: The pursuit of efficiency', *Journal of Economic Literature*, 34, pp 1856-1902
- Goldfarb, R and G Woglom (1974) 'Government investment decisions and institutional constraints on income redistribution', *Journal of Public Economics*, 3, pp 171-180
- Graaf, J de (1967) *Theoretical Welfare Economics*, CUP
- Hause, J (1975) 'The theory of welfare cost measures', *Journal of Political Economy*, 83, pp 1145-1182
- Hicks, J (1939) 'Foundations of welfare economics', *Economic Journal*, pp 696-712
- Hicks, J (1941) 'The rehabilitation of consumers' surplus', *Review of Economic Studies*, pp 108-116
- Hotelling, H (1938) 'The general welfare in relation to problems of taxation and of railway and utility rates', *Econometrica*, 6, pp 242-269
- Hylland, A and R Zeckhauser (1979) 'Distributional objectives should affect taxes but not program choice or design', *Scandinavian Journal of Economics*, 81, pp 264-284
- Kaldor, N (1939) 'Welfare propositions of economics and interpersonal comparisons of utility', *Economic Journal*, 49, pp 549-552
- Kelsey, D (1988) 'Policies to achieve a better distribution of income: or is a dollar a dollar?', *Oxford Economic Papers*, 40, pp 577-583
- Kennedy, D (1981) 'Cost benefit analysis of entitlement problems: a critique', *Stanford Law Journal*, 33, pp 387-445
- Little, I (1957) *A critique of welfare economics*, 2nd ed., OUP
- Morley, E (1984) 'Confuser surplus' *American Economic Review*, 74, pp 163-173
- Ng, Y-K (1985) 'Equity and efficiency vs freedom and fairness: an inherent conflict', *Kyklos*, 38, pp 495-516
- Ng, Y-K (1984) 'Quasi-Pareto improvements', *American Economic Review*, 74, pp 1033-1050
- Ng, Y-K (1992) 'The older the more valuable: divergence between utility and dollar values as one ages', *Journal of Economics*, 55, pp 1-16
- Posner, R (1981) *The economics of justice*, Harvard University Press
- Posner, R (1985) 'Wealth maximization revisited', *Notre Dame Journal of Law, Ethics and Policy*, 2, pp 85-105
- Posner, R (1998) 'Problematics of moral and legal theory', *Harvard Law Review*, 11, pp 1637-1717
- Sanchirico, C (2001) 'Deconstructing the new efficiency rationale', *Cornell Law Review*,
- Sen, A (1985) *Commodities and capabilities*, Elsevier
- Shavell, S (1981) 'A note on efficiency vs distributional equity in legal rulemaking: should distributional

equity matter given optimal income taxation?,' *American Economic Review, Papers and Proceedings*, 71, pp 414-418

Tirole, J (1994) 'The internal organization of government', *Oxford Economic Papers*, 46, pp 1-29

Endnotes

- ¹ This issue is principally normative. It is quite a different issue, which policies will actually be adopted.
- ² Although I believe this is common usage, especially among economists, it is not universal. Sometimes the term 'efficiency' is used only to refer to Pareto optimality.
- ³ And in cases where there is a Pareto improvement, it may not be unique. There could be a variety of Pareto improvements from the status quo, none of which would be a Pareto improvement over the others.
- ⁴ For example, consider a person who is faced with the choice between a 1972 Chevrolet and a 1992 Toyota Corolla. He might favour the Chevy on aesthetic grounds, but the Corolla on the grounds of lower petrol and maintenance costs. If this person's income was too low, he might choose the Corolla if he had to pay for the car. But if he was to be gifted the car he might prefer the Chevy. The reason is that he could afford the petrol and upkeep costs if he had not spent money on a car.
- ⁵ The essence of the Scitovsky paradox is that the marginal utility of income may change. This is often motivated in terms of price changes. But the following example does not involve prices. Imagine that a nuclear plant must be built near either of two persons. Each has utility $(3-NP)\hat{\phi}(x-1)$, where NP is one if the plant is near and zero otherwise, and x is income. A person's income (x) is 8 if the nuclear plant is near, and 4 otherwise. Costless redistribution of income is possible. Imagine that the plant is to be built near person A. There is a positive aggregate CV for moving the plan to be near B. But then it would raise aggregate CV to move it back to A. See Little (1957) for a more extensive discussion.
- ⁶ Furthermore, it is not possible to define a reference state with perfect precision. This is a problem even when the status quo is the reference state, as Kennedy (1981) emphasises. Another way in which measures of total surplus are arbitrary is identified by Brekke (1997). His point is that a change in the numéraire can alter the conclusion about whether a proposed change is justified.
- ⁷ Ng, who is generally sympathetic to the efficiency criterion, has suggested two examples of plausible factors which could lead to variation of marginal utilities of income – one is age (1992) and the other is whether one lives in a rural or urban location (1985).
- ⁸ This was anticipated by Hicks 1939, p712.
- ⁹ Variations on the following argument have been

made by Hylland and Zeckhauser (1979), Shavell (1981) and Ng (1984).

- ¹⁰ The argument also assumes that the tax authorities know how CVs are affected by incomes. But if they do not know this, it is hard to imagine how they know that the programme is inefficient.
- ¹¹ However, this consideration might be balanced against the value of having clear unitary goals (missions) for institutions (Tirole, 1994).
- ¹² Furthermore, it would be naïve for such providers to assume that income taxes or welfare benefits would be adjusted in response to any change they made.
- ¹³ A related point is made by Kelsey (1988) who argues that when instruments have uncertain impact it is generally preferable to use a variety of them rather than just one. Sanchirico (2001) argues that it will be generally preferable to increase social welfare at more than one margin.
- ¹⁴ Another possibility is that the government gains political advantage by disguising redistribution in programmes, rather than making it explicit in income taxes. But this would not provide a clear ethical reason to use programmes rather than taxes.
- ¹⁵ In fact the concept of a Pareto improvement is not applicable if the composition of the population changes. It makes no sense to ask if someone would be better off in a state of affairs in which she didn't exist. But the adoption of the total surplus rule would certainly have an impact on which people will be born in the future.

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