Why Economic Costs May Not Be Of Interest In A National Health Scheme; Or, Costs Fairness And Reverse Order Analysis

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Abstract

Economic theory suggests that the criterion for including health services in a national health scheme (NHS) should be that, subject to considerations of fairness, health benefits should exceed net resource costs. It is argued here that this criterion may be wrong or, at best, misleading. Likewise, theory suggests that achieving economic efficiency is a self evidently desirable objective. This implies that health outcomes should be achieved at the lowest possible cost. In contrast, it is argued that this objective may also be inappropriate in a national health system in which the primary objective—the sine-qua-non for the regulation and financing of health services—is the achievement of fairness. In all its forms, fairness involves a comparison of each person’s situation with the situation of others. By contrast, the achievement of efficiency takes no account of the relative health or financial status of patients and for this reason it may be in direct conflict with the achievement of social justice defined according to a variety of ethical theories.

In principle, this conclusion is neither surprising nor problematical. It calls for a trade-off to be made between efficiency and equity. Unlike the trade-off normally envisaged, however, the analysis here suggests that certain costs may need to be ignored or discounted, other costs included at face value and some transfer payments included in the decision algorithm.

The need for a trade-off between equity and efficiency is not the primary theme of the present article. Rather, it is argued that the unbalanced emphasis upon efficiency has resulted in a particular orientation of the analytical framework which might now be described as an 'efficiency first' methodology or paradigm, in which the requirements of efficiency are met first and considerations of fairness added on as an analytical afterthought. It is argued that the result of this approach is a different perspective and interpretation of evidence than would emerge from a ‘reverse order’ or ‘fairness first’ analysis or paradigm in which fairness—the primary reason for creating an NHS—was the initial objective to be considered.

These assertions are supported by reversing the usual order of analysis, commencing with issues involving fairness and contrasting conclusions with the more usual conclusions implied by an efficiency-first analysis. For simplicity, fairness is equated with only one dimension of fairness, namely, the distribution of costs and benefits. The inclusion of different theories of social justice in the analysis might, of course, lead to a third set of results.

The second conclusion from this discussion — is that a reverse order—fairness first—analysis may refocus—alter the apparent significance of some empirical observations and theoretical issues. This is illustrated by a re-examination of (i) the importance of transfer payments; (ii) the 'conceptual problem' concerning the inclusion and exclusion of unrelated costs in an economic evaluation; and (iii) moral hazard and the alleged dead weight loss arising from health insurance.

The article concludes that the ‘fairness first’ paradigm may correspond more closely with social values than the perspective and framework adopted by economists.
Why Economic Costs May Not Be Of Interest In A National Health Scheme; Or Costs Fairness And Reverse Order Analysis

Why do (public utility) regulators, and even the public generally, find it so hard to accept and apply the principles of economic efficiency—principles that are so obvious to trained economists… My continued immersion in public utility regulation has gradually led me away from the ‘the public is illiterate’ view and more towards the ‘economists are deaf’ view (Zajac, 1995, quoted in Hurley J 1998)

1 Introduction

Economics is usually defined as the discipline which seeks to explain the allocation of resources, the production and distribution of goods and services and which explains how these tasks can be carried out in a way which maximises social welfare. In view of the latter objective it is remarkable how little empirical investigation of social objectives has been carried out. Orthodox welfare economics simply assumes that social welfare is a function of individual utility (welfarism) and that a redistribution of initial wealth should satisfy concerns about social justice.

In contrast, health economics has recognised that this narrow concept of equity-fairness cannot satisfactorily explain social concerns about health and health care and there is now a significant literature on the measurement of equity in health system financing and delivery (Wagstaff and Von Doorslaer, 2000) and on the various theories of social justice and fairness (Williams and Cookson, 2000). The latter literature has primarily adopted the methodology of ethics, namely, a priori theorising about what social values are or should be (the normative and positive analyses often intertwine). As elsewhere, however, surprisingly little empirical investigation has been carried out into the social preferences of the population.

This situation has changed recently with the publication of a number of such empirical studies. These have commonly used trade-off techniques to quantify the strength of the public’s preference for the special treatment of a particular group of patients because of some patient related or systemic attribute. These attributes have included (i) the patient’s age; (ii) the severity of the patient’s initial health state (as distinct from the improvement achieved by an intervention); (iii) the patient’s capacity to improve their health status (non discrimination against long term invalids); (iv) maintenance of hope; (v) universality of population coverage to remove uncertainty concerning eligibility for a procedure; (vi) smoker versus non smoker status; (vii) parent/non

An incomplete list includes:
parent; carer/non carer status; (viii) response to a dramatic effect— the so called ‘rule of rescue’; (ix) the number of patients sharing a benefit; (x) social class; (xi) the equity of financing; and (xii) the responsiveness and equity of responsiveness in a system.

While the implied methodology for resolving ethical issues has been challenged[^2], the empirical studies of social values are likely to become of increasing importance. This is illustrated by the inclusion of age weights in the WHO Burden of Disease study (Murray and Lopez 1996) and the use of importance weights for the distributive fairness of health and health financing, the responsiveness and the equity of the responsiveness in the WHO evaluation of health system performance (WHO 2000).

Almost all of the empirical studies to date have been concerned with issues related to health benefits—health outcomes, their distribution, the recipients and their characteristics. Generally, there has been an acceptance of the role of costs in economic evaluation. There have been, however, a small number of provocative studies.

1. In their article ‘Who cares about cost? Does economic analysis impose or reflect social values’ Nord and Richardson (1995) report that 81 percent and 87 percent respectively of a sample of 551 Australians would disregard direct costs and indirect production benefits respectively in prioritising health services. In a subsequent face-to-face interview with 119 of these respondents a statistically significant majority continued to reject cost minimisation despite a cross examination which included frequent repetition of the adverse consequences with respect to health outcome. During a third phase of the study 63 respondents were asked to allocate a budget across diseases with the same outcome but with different costs. The total number cured was clearly shown to increase as costs decreased. Only 6 percent selected the health maximising, cost minimising strategy recommended by economic theory.

2. In a similar study Abellan-Perpinan and Pinto (1999) asked respondents in a Spanish study to allocate a budget between two diseases with the same outcome but where the treatment cost of the first was double the cost of the second disease. Rather than allocate the entire budget to patients with the second disease, Funds were divided in the ratio 2:1 in a clear attempt to compensate for the additional cost of the first disease.

3. Ubel (2000) created the same dilemma for a sample of 169 American jurists by asking them to allocate a finite number of organs (the ‘budget’) to groups with a different prognosis. Rather than allocating to the group with the best prognosis—maximising health outcome—organs were allocated to each of the groups in a very similar way to the allocation of dollars in the Australian experiment, ie equity overrode allocative efficiency. In this example the (opportunity) cost of treating a patient in one group was the treatment of a patient from another group. By allocating organs to groups with low prognosis the jurists were allocating resources—organs—to interventions where the benefits were less than the (opportunity) costs.

[^2]: The usually unstated assumption of these empirical studies is that public social preferences should be incorporated in public policy. But this is arguably inappropriate. Hauserman (2000) has argued that ethical issues should not be determined by ‘voting’ and that complex ethical issues cannot sensibly be determined in this way. In response Richardson (2001) has suggested the adoption of a procedure, described as ‘Empirical Ethics’ which involves the interplay of ‘deliberative’ surveys—surveys employing techniques to provoke deliberation—ethical argument and Delphi-like feedback to the public. It is argued that in common with all empirical methods this will not achieve certainty but that the procedure should lead to the acceptance of ‘best available (ethical) hypotheses concerning social values and subject to validation studies be accepted as the basis for social policy.'
4. Commenting on similar empirical results, Olsen and Richardson (1999) argued that as the indirect benefits of a treatment necessarily favour the rich they may be an example of a proposed category of ‘socially irrelevant benefits’. The irrelevant indirect benefits should then be discounted in the social welfare function. The authors pointed to an unambiguous example of unfairness in the prioritising of life saving procedures which would occur if production gains are not treated as being socially irrelevant. As a person’s income (from their own effort) rises, indirect benefits rise and the ‘net resource cost’ of treatment falls. However the individual consumes most of this income. Thus, others in the society are expected to pay more for the cure of a person because that person is then able to spend more upon themselves. The component of indirect benefits which, may, arguably be included in an economic evaluation is tax payments which will flow to the community. But this is defensible because they are a redistribution back from the beneficiary to the society and which therefore affects the distribution of benefits and costs.

It is argued below that these apparent anomalies are symptomatic of an uncritical acceptance of the role and importance of net resource costs defined here as the net affect of a health program upon the resources available for other purposes, in the context of a national health scheme established primarily to achieve the objectives related to social justice which would not be achieved in a simple market. The argument proceeds as follows. First, the objectives of a national health system are dichotomised into the achievement of a low net resource cost per unit of health outcome (efficiency) and the achievement of social justice or fairness. It is argued in Section 2 that the order in which these objectives are implemented and analysed will result in different outcomes. In Section 3 some of the implications of a reverse order—fairness first—analysis are explored and, it is suggested that some of these may conflict with the implications of an efficiency first analysis. More generally, it is argued that the reverse order framework will lead to a different form of argument and policy prescription. This is illustrated in Section 4 by a consideration of the policy importance of transfer payments, unrelated costs and the dead weight loss arising from the moral hazard associated with health insurance. It is concluded, that since national health schemes were established to achieve various objectives associated with social justice, the issue of fairness should permeate health sector analyses to a greater extent than it has done to date. This implies a very large research agenda before we achieve a satisfactory understanding of social preferences and their implications.

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3 As tax payments rise with income, part or all of them may also be deemed ‘socially irrelevant’. The treatment of taxes would depend upon a society’s commitment to strict egalitarian principles.

4 Definitions: Names change and have done so in this area. In CEA the criterion of interest is the minimisation of the (net) cost to outcome ratio defined as $(C_1 + C_2 + C_3 - S_1 - S_2 - S_3)/\text{Outcome}$ (Drummond et al 1997) where $C_1$, $C_2$, $C_3$ are costs/resources used in the health sector ($C_1$) by patients, families or friends ($C_2$) and from last output from employment ($C_3$). $S_1$, $S_2$, $S_3$ are savings arising from the intervention including averted costs in the health sector ($S_1$), savings for families, friends and the patients ($S_2$) and from benefits arising from subsequent increased production ($S_3$). Both Drummond et al (1997) and the Washington Panel (Gold et al 1996) introduce new terminology for the definition of the impact of health programs upon production benefits. Indirect (ie production) costs and benefits are included as costs and savings b Drummond et al - $C_3$ and $S_3$. The Washington Panel subsume them in their ‘time costs’.
2 Welfare Theory, Order Effects and Cost

Social welfare is a function of both net material benefits and social justice, the latter consisting of procedural fairness (access, respect, responsiveness, etc) and distributive fairness (the distribution of health related benefits). Orthodox welfare theory considers only one benefit and one facet of social justice, namely, utility and its distribution. Following an appropriate redistribution of initial assets the competitive model of welfare theory shows how efficiency plus the desired distribution of utility may be simultaneously determined or, more correctly, it demonstrates that an equilibrium point exists which achieves efficiency with any given distribution of initial resources. By assumption, and not because of empirical observation, it excludes the possibility of the numerous other facets of fairness whose importance may vary between individuals and between nations. The argument below, however, is confined to the orthodox element of fairness, namely the distribution of material costs and benefits.

Since the welfare model is an ‘existence theorem’ it does not consider the dynamics of the economy when there is an impediment to the achievement of the fair and efficient equilibrium. But in practise impediments are the norm rather than the exception. At the macro level, excessively generous social welfare payments which erode the incentives to work may be hard to reform because of the influence of the welfare lobby. Excessively high wages arbitrated to achieve a particular distribution of income will be difficult to lower because of union power. Of greatest relevance here, measures to achieve efficiency — lower tariffs, lower wages, lower subsidies to rural areas, globalising the economy, etc—may require compensatory payments to losers. But this requires higher taxes and there is a powerful constituency which opposes this as its members are beneficiaries of lower taxation. There is also a theoretically alluring argument to defend low taxation that has been provided by the very profession that has suggested the policies which lead to the need for compensation, namely economics!

The theoretical counterpart of these institutional impediments is the absence of theories which demonstrate how the global optima of welfare theory can be achieved.

At the level of ‘applied theory’ there is no simultaneously determined general equilibrium but a series of normative and positive theories concerning social objectives and the constraints upon their achievement. There is no objective basis for selecting these theories. Rather, theorists hypothesise on the basis of their intuition which, in turn, is determined by a number of factors including the intellectual tradition or paradigm in which they have been trained. Consequently, it is both possible and probable that any given tradition will emphasise particular elements more than others. The central thesis of this article is that efficiency—the minimising of costs for a given level of benefit—has been given precedence over issues of equity and fairness; that economic journals are replete with articles focused upon efficiency while practical issues concerning the measurement and policy ramifications of population social values are marginalised; and that while positive economics has a well developed theoretical basis and set of rules for the achievement of efficiency there is no equipment theory and toolkit for identifying and achieving fairness as defined by the population’s social preference.

Because of institutional impediments and the paucity of relevant theory the order in which policies are implemented may be of great significance. This is illustrated simply in Figures 1 and 2 which represent the utility possibility frontier for two people, M and N. The social welfare function (SWF) is shown as a set of social indifference curves, SWF, which indicate the level of social
welfare and the combinations of individual utilities, $U_M$, $U_N$, which result in this level of social welfare.

Four outcomes are possible. If efficiency is sought first and fairness blocked then the loss of social welfare might be (i) small; (ii) large. If fairness is considered first and the subsequent trade-off blocked, the loss of social welfare may be either (iii) small; or (iv) large.

Figure 1 is the conventional ‘utility’ possibility frontier which depicts the various ways in which utility may be distributed between 2 individuals, A and B. Economies of scale in production plus egalitarian ownership of assets result in a positive slope at each end of the frontier, but the expected trade-off between the utility if scarce resources exists elsewhere.

**Figure 1 The Social Welfare Function and Utility Possibility Frontier**

![Diagram](image)

**Key:**
- F: Fairness Optimised: $U_M = U_N$
- E: Efficiency (Utilitarian) Maximised

Figure 1 can be used to illustrate outcomes 1 and 3 above. Point F is where fairness is optimised (in our simplified case of extreme egalitarianism) and where the utility received by each person is equal. Point E is where the combined utilities are maximised and therefore represents maximum efficiency when there are utilitarian values (which is also the simplest example of welfarism). Case 1 would occur if efficiency was first sought and achieved—Point E; if the SWF was strictly egalitarian implying a social optima at F; and if adjustment from E to F was blocked. Conversely, Case 3 would occur if fairness was first sought and achieved—Point F; if the social optima was at E but adjustment could not be achieved. In both Case 1 and Case 3 the effect of the blockage on social welfare would be small.
Figure 2 illustrates the remaining two cases. In the figure, the utility possibility frontier is constructed to illustrate four archetypal social values; viz, point F—egalitarianism (the example of ‘fairness’ used here); point R—the Rawlsian maxi-min point (maximum utility for the least well off person, M); point E—the ‘efficient outcome’ in a utilitarian world; and ‘Elite’—the point which maximises the utility of the most well off (elitist) person M. Case 2 would occur if efficiency was achieved (point E), adjustment blocked and the desired optima was the point of extreme egalitarianism, F. Achieving fairness—F—with no subsequent adjustment when the true social optimum was at E represents case 4. In these last two cases the effect of the blockage is to create a very large loss of social welfare\(^5\).

Despite these potential problems, it may seem improbable that the pivotal status of costs in an economic evaluation could be challenged. Blockages may warrant a more careful implementation of policy, but reducing costs per unit of production increases efficiency which is, surely, self evidently desirable. But as efficiency means minimising costs per unit of output the latter statement, while tautologically true, is uninteresting. The normative argument for efficiency is that it creates a surplus which may be used to advantage some members of the community and, if no one is made worse off then Pareto efficiency will be achieved and social welfare increased. If efficiency means a redistribution of benefits—for example some may become unemployed

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\(^5\) It is tempting to think of these scenarios as representing early capitalism (efficiency first, equity blocked) and communism (equity first, efficiency blocked).
temporarily or re-employed in a less productive industry and at a lower rate of pay then the Kaldor-Hicks criterion can be invoked. An outcome may be considered to be superior if there is the potential for compensating those who are disadvantaged while leaving others better off. It is commonly argued that the decision to compensate is political and economists cannot be held responsible for political decisions.

Of course, as stated above, the Kaldor-Hicks criterion is misleading. The situation described is only potentially superior. At best the Kaldor-Hicks criterion provides an arguable basis for blame shifting. At worst it side-steps the essence of useful political economy; viz, operating within the realm of the politically feasible. Compensation for those who lose as a result of a health program is at the extreme end of the politically and technically infeasible. With a narrow perspective which views the health budget as being more or less fixed, the opportunity costs of programs that are implemented are the benefits of the next best programs that are not implemented. If loses die, compensation is impossible. If health is seriously impaired, compensation may, once again, be infeasible. With a broader perspective, the proximate losers from health expenditures are healthy taxpayers. But there has never been a suggestion that the beneficiaries of health program expenditures—the sick and disabled—should be subject to a levy in order to compensate taxpayers. To the contrary, the redistribution of financial costs to taxpayers is the primary purpose of a national health scheme. This implies that there is a head-on-head conflict between the achievement of Pareto efficiency and the *raison detra* for government intervention in the health sector.

There are, however, other arguments for economic efficiency. If a health budget is fixed then it may seem that the selection of health programs with the lowest cost per life year or QALY will lead to the largest number of life years or QALYs. The argument is unambiguously wrong. If hypothetically, a budget was rigidly capped then the ratio which would result in the largest benefits has net benefits in the numerator and *budgetary expenditures in the denominator* (Richardson 1991; Linnard 1992). More fundamentally, budgets are not fixed. At the national level we could double health expenditures. Institutional expenditures may change slowly but here is no immediate ceiling fixed by economic considerations. The task of general economists is to recommend increased or decreased expenditures as determined by economic evaluation and not to limit expenditures to the level of an arbitrary budget.

The more general argument for efficiency is that it results in a higher ratio of benefits to costs and that, in general terms, as resources are limited, it is desirable to maximise benefits from the use of these resources, ie from costs. But does this general dictum translate into a logically compelling argument for maximising the benefit to cost ratio *within a national health scheme*? Should the resource costs to the individual, the taxpayer, the employer, and the patient’s friends and relatives be treated equally? Likewise, should the importance weight on each of these costs be equal to the importance weight on indirect benefits? The most common answer to these questions is ‘yes’. It is argued that economists should adopt a ‘social perspective’. But as the adoption of a social perspective means that all costs and benefits are included with an equal weight this particular argument is circular.

A second justification is to argue that we should adopt utilitarian (or ‘quasi utilitarian’) values and maximise total utility (or units of health) and efficiency is a necessary condition for achieving this objective. However it is self-evidently untrue that the population has simple utilitarian principles. With rare exceptions, people give a greater importance weight to their own utility, to that of their family, their friends and then to others in an order governed by a variety of principles. It was to
overcome this problem that the concept of Pareto efficiency was introduced and subsequently shored up by the Kaldor-Hicks criterion. With the demise of this principle utilitarianism is placed in an untenable position. It is difficult to defend a principle which virtually everyone rejects. Many of the alternative theories of social justice may well be a response to the recognition of self interest and the adoption of a set of injunctions to protect those who would suffer in a society characterised by moral anarchy.

Finally it might be argued, that *ceteris paribus*, conventional economic efficiency is desirable because of the overall long run effect upon the benefits we obtain from our resources and that the achievement of efficiency in all contexts will eventually benefit the entire population; productivity will rise and there will be a ‘trickle down’ effect to the entire population. This rather nebulous argument is not compelling. *Ceteris* is very seldom *paribus*. Evidence from the macro performance of the economy indicates that the achievement of efficiency is consistent with a redistribution of benefits—income—that would not be universally accepted as fair. Achieving allocative efficiency in the health sector involves the funding of some but not other projects. Consequently, benefits will be bestowed upon one group and not another and those who have not received services, albeit costly and inefficient services, will not necessarily benefit in the long run—especially if they are dead.

The conclusion from this discussion is that in a publicly funded health scheme which is justified on the grounds of fairness the case for conventional economic efficiency is surprisingly flimsy. This is not to say that efficiency plays no role. A government department should certainly seek to achieve its objectives efficiently. But these objectives may not include the economist’s concept of economic efficiency defined from a social perspective. Rather, the decision algorithm for such a department should be to achieve *its objectives at lowest cost to its budget*. These objectives will include equity and social justice, health services and some, but not necessarily all, economic costs.

3 Reverse order analysis

The first conclusion which may be drawn from a reverse order—fairness first—policy is that it need not result in an optimal point which is on the utility possibility frontier; that is, the optimal point may not be Pareto efficient. This is illustrated in Figure 3(a) which depicts a society with strongly egalitarian principles. This results in a SWF which wraps around the line of perfect egalitarianism (the 45 degree line, $U_A = U_B$). Comparing points X and Y on one such indifference curve indicates that ‘strict egalitarianism’, as depicted here, is inconsistent with ‘economic efficiency’. At X, persons A and B would be better off; X would normally be considered to dominate Y, and should be unambiguously preferred. This illustrates one of the concealed assumptions of the efficiency-first analysis. It implicitly assumes that in such a case resource based benefits dominate distributional considerations. The example also illustrates a motivation which economists generally eschew, viz, envy. Despite the generally positive connotations of the term ‘egalitarian’, point Z can only be superior to point X if the unequal distribution of benefits at X is a source of disutility to A (or, less probably, B). An efficiency first policy which results in point X may achieve a lower level of social welfare than an equity first analysis which results in point Z.

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6 The Pareto principle could be defined so that envy or any other (dis)satisfaction was included in the definition of a ‘person’s utility’. While this might insulate the principle from the implied criticism above, viz, its lack of universality it also eliminates any possibility of applying the principle. Resource based combinations of wellbeing can, in principle, be observed. Envy cannot. Any possible source of lost welfare would be defined as relevant to individual utility and the truth of the principle would be tautological.
In contrast with the envy depicted in Figure 3(a), the indifference curves in Figure 3(b) incorporate non-envy: the Pareto principle and a less strict form of egalitarianism apply. Comparing points X and Y, this form of egalitarianism heavily discounts the large increase in utility obtained by B at point X or, conversely, places great emphasis upon the low level of A’s utility. With this more benign form of egalitarianism normal and reverse order analyses might both imply the same optimal point, but envy is an all-pervasive and powerful human trait and the social welfare function may well be better described by Figure 3(a) than 3(b).

Figure 3  The egalitarian SWF

In this simplified schema it would be possible to envisage an equivalent to the Pareto principle—a Pareto fairness principle. This could state that social welfare is increased if there is any increase in fairness (egalitarianism) in any sub-set of the population without increasing unfairness to others. It may also be possible to envisage a state of global ‘fairness optimality’ where there was no further possibility of increasing Pareto fairness. It is, however, highly unlikely that such a state would be achieved by any general redistributive rule. As any redistribution is likely to trigger envy or a relativity-based change in an individual’s wellbeing, the pattern of redistribution and compensation needed for optimality would depend upon the initial distribution of benefits. Consequently, a given level of social welfare could correspond with a large number of combinations of material wellbeing with each combination corresponding with a different initial distribution of welfare, each of which would create a different pattern of envy following the implementation of redistributive policy. Further breaking the nexus between material and total (social) welfare, the envy response could depend upon a variety of contextual factors which have remained (inappropriately) within the sole domain of cognitive psychology and not economics.

In both of the representations of egalitarianism there is the possibility of a trade-off between fairness and utility. In both figures point Z is less egalitarian than point Y, yet it represents higher social welfare. Commencing at point Y economists might be required to determine the
quantitative effect of a program to increase efficiency upon an index of egalitarianism. Subsequently, other options which reduce the index could be considered and either presented to decision makers for adjudication or incorporated in a formula which embodied the acceptable trade-off between egalitarianism and material based benefits; that is, a formula representing a country’s social welfare function.

In more concrete terms a reverse order analysis based primarily upon distributional considerations might lead to a set of prescriptions which differ significantly in emphasis and outcome from those normally included in an economic evaluation which commences with the objective of maximising net benefits. A possible set of questions and likely answers are as follows.

1. Is it fair that a steady increase in the cost of disease should, initially, be fully compensated—the size of the dollar subsidy to the individual patient increased—until a threshold is reached, at which point the benefit is abruptly terminated leaving the patient to bare the full cost or to suffer? Is the pattern of benefits and out-of-pocket patient costs shown in the last two rows of Table 1 fair? Answer: No, as a minimum the subsidy should be held constant or phased out as in other cases of social assistance.

Table 1 Disease cost and fairness (Distributional consequences of a threshold = $40,000)

<table>
<thead>
<tr>
<th>Disease</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit of cure</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Cost/person</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Social spending</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Personal out-of-pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>

2. Is it fair that taxpayers pay increased taxation so that a given individual’s consumption may rise as occurs with the inclusion of indirect benefits (production gains) in economic evaluation? Answer: No, this is not fair. At most, the preservation of an individual’s consumption may be justified as a form of social insurance against risk. But this is an issue of social policy and a particular form of income transfer rather than an issue of efficiency. Further, as such an income maintenance scheme would additionally provide more expensive services to wealthier patients the proposal is unfair.

3. Is it fair that taxpayers should pay more for the health care of high income than low income patients because the former generate greater savings which are invested in the economy, and therefore increase economic growth and future GDP. Answer: No, the return on investment overwhelmingly benefits the individual later in life or the individual’s heirs. It is unfair for society to cross subsidise specific interests and in proportion to their initial income.

4. Is it fair to pay more for the health of high income patients because their taxes are higher and these are returned to the general community? Answer: This issue is more difficult. If the value of future taxes is less than the cost of treatment the answer may be no for the reasons given above. However this is not certain. Medical costs net of taxation may now be sufficiently low that society considers it acceptable to permit the high income individual preferential treatment.
5. Is it fair to pay more for the health of high income individuals when their taxation more than compensates for the cost of health services? *Answer:* Once again the answer is ambiguous. In the scenario depicted in Figure 3(b) society would give preferential treatment to the wealthy. This outcome would be Pareto efficient in the original sense of the term. In the case depicted by Figure 3(a) the answer remains ambiguous. The dislike of unequal treatment—higher priority and quality of care for the wealthy—may be greater than the benefit of additional taxes. That is, envy may override material self interest.

6. Is it fair that we should pay a pension to a person who cannot compensate society but requires this pension to achieve a normal life? If so, should this expenditure be included in an economic evaluation? *Answer:* Yes. We are obliged as an ethical imperative—as a matter of fairness—to keep people above a minimum threshold of poverty induced misery.

7. In this latter example is it relevant that the cost to the taxpayer is possibly greater than the cost of a life saving service discarded from the health scheme because of its cost? *Answer:* The answer depends upon social values but most societies have a safety net for the unemployed and disabled which is sufficiently high that the present value of future payments would significantly exceed the marginal cost of life saving in the health sector.

The arguments incorporated above may all be depicted in Figure 4. Each of the questions concerns a financial flow between the patient and other members of society. The relevant fairness question is *whether or not a particular financial flow is considered to be fair:* The fact that each of the flows is a result of a direct cost or benefit to a patient is not itself of relevance. Distributive fairness depends upon a patient’s final situation relative to other members of society and it is the financial flow, not ‘economic costs’ or benefits which alter the patients relative position in the social hierarchy. Consequently it is financial flows which determine fairness and these often do not correspond with economic costs.

First, disabled patients receive a pension which is a transfer payment, not a cost. Cure of the medical problem may result in the cessation of the pension payments which unambiguously benefits taxpayers. (Transfers are discussed further in Section 4.)

Second, there are costs to the patient, the patient’s family and friends which are not included in the health scheme and additional compensatory payments from taxpayers may not be considered important for the achievement of fairness. Third, additional income arising from health care which benefits only the patient may also be considered unimportant for fairness. Finally, and for the reasons discussed earlier, it is possible that some financial flows may be included in a decision algorithm at less than their face value. Thus, for example, societies with uncompromising egalitarian principles may not include tax benefits in their decision algorithm. Societies with a lesser commitment to egalitarianism may allow some fraction of taxation to be included. If societies exist with simple utilitarian values then all of the indirect benefits of health care may be included in decision rules.

The flow of health and financial benefits between taxpayers and patients shown in Figure 4 may be viewed as the outcome of an implied social contract. With a particular set of social values taxpayer-citizens may consider that patients have entitlements for some classes of benefits but not for others. The contract may include the provision of necessary health services and a minimum standard of material wellbeing. In contrast, there may be no contractual obligation to help an individual further their own self interest. Such a contractarian perspective parenthesises the peripheral role of economic costs in the determination of social justice. Conversely, if social justice is the primary objective then it is social values which determine the social contract and not
issues of economic efficiency. The significance of the figure is that it parenthesises the fact that fairness is determined by the relevant flows between taxpayers and patients. The economist’s task in a fairness first economy would commence with the measurement of each of these financial flows and any others dictated by community values.

Figure 4  The determinants of distributive justice

4  Some implications of a reverse order analysis

It was suggested earlier that a reverse order analysis would not simply result in a clearer idea of the equity-efficiency trade-off. Additionally, it might refocus perspectives in a way which alters the interpretation of evidence and the formation of hypotheses. On a more macro scale this is what appears to have happened in the post war period. While welfare theory did not change substantially, the focus of attention and theory underwent a radical transformation. Until the mid 1970s market failure and the observation of social hardship dominated applied welfare economics and resulted in the recommendation of large scale social intervention in markets. A large body of ‘welfare theory’ evolved describing the manifestations of market failure. From the mid 1970s the same markets and similar governments were seen differently. Government and not market failure dominated the empirical and theoretical literature. The change in focus illustrates a more general point. There is no objective basis for determining the type of hypotheses or the historical facts that are of importance and no objective basis for their interpretation. A change of perspective may significantly alter the hypotheses that are investigated and the interpretation of empirical data.

Three examples are given below of contentious issues where the adoption of a fairness first perspective may significantly alter the perspective and the interpretation of otherwise relatively uncontroversial evidence. The examples are: (i) the treatment of transfer payments; (ii) the relevance of unrelated medical costs; and (iii) the interpretation of the demand curve and the ‘dead weight loss of moral hazard’.

Pensions and transfer payments
In economic theory pensions are treated as transfer payments—redistributions—from the taxpayer to the recipient. In the context of a national health service and the payment of disability or sickness allowances a reverse order analysis might properly regard such transfer payments as equivalent to health costs in the decision algorithm. Applying the fairness first principle highlights an important fact. There is no developed country (with the possible exception of parts of the USA) which will allow its citizens' standard of living to fall below a (country specific) minimum level as a result of ill health. Patients who do not receive effective medical care and who would not be able to maintain a minimum level of consumption receive a pension or some form of income support. Consequently, in the evaluation of a medical program which will return patients to the workforce, the option of withholding the program cannot be assessed on the assumption that there will be no relevant consequences from this decision. To the contrary, patients will immediately qualify for a pension.

The argument may be illustrated using Figure 5. A national health service has two options with respect to a patient. First, health services may be provided and second they may be withheld. There is no option with respect to consumption. Irrespective of the decision concerning service provision, a minimum level of consumption must be provided. In the first case the cost to the taxpayer is the cost of health care and there is a real cost as medical resources are used. With the second option, if a patient remains disabled through the withholding or failure of a medical service, a disability pension will be provided to maintain the minimum standard of living. Real resources will again be used, this time to maintain a minimum level of consumption as required by considerations of fairness. There may be greater resource use with the first option as both medical care and consumer goods are used and in exchange there may be more benefits—from consumption and from good health. But this does not imply that the second option uses no resources.

**Figure 5 Transfer Payments**

5a Resource Use

<table>
<thead>
<tr>
<th>Option</th>
<th>Resource Use</th>
<th>Transmission mechanism</th>
<th>Opportunity Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Service</td>
<td>Medical services Consumption</td>
<td>Tax Patient income</td>
<td>Taxpayer consumption Other consumption or resource</td>
</tr>
<tr>
<td>2. No service</td>
<td>Consumption</td>
<td>Tax and pension</td>
<td>Taxpayer consumption</td>
</tr>
</tbody>
</table>

5b Taxpayer perspective

<table>
<thead>
<tr>
<th>Option</th>
<th>Cost to taxpayer</th>
<th>Benefits to Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Service</td>
<td>Health care</td>
<td>Good Health (own income)</td>
</tr>
<tr>
<td>2. No service</td>
<td>Pension</td>
<td>Pension (Income)</td>
</tr>
</tbody>
</table>
Restating this argument, the case for disregarding pensions in the decision algorithm depends upon an artificial analytical separation of two decisions. The first is whether or not a service is cost effective. If it is not, the service is not provided and we pretend there are no subsequent consequences. The baseline for subsequent decision making is a state of the world in which an ill or disabled person remains ill or disabled and has no form of income support. Presumably some would starve if this unobserved consequence was allowed to occur. The second question is whether or not an ill or disabled person should receive a pension. If so, we pretend this is nothing more than a ‘transfer’ from the taxpayer, not a cost, since the benefit received is treated as being equal to the benefit lost by the taxpayer. However when the need for a pension is a direct consequence of a lack of medical care then this analytical separation is inappropriate and misleading. The baseline state of the world from which subsequent decisions may be made is one in which an ill or disabled person receives a pension and uses it to consume goods and services. The preservation of a minimum standard of living uses real resources as does the provision of medical care. From the perspective of the taxpayer there is no distinction between a diminished income due to taxes for health care and a diminished income due to taxes for pension payments and consequently there is no good reason for treating the flow of expenditures differently in a decision algorithm designed to achieve a fair distribution of costs and benefits: an additional benefit has not been redistributed from the taxpayer to the patient as compared with any other feasible option. Put yet another way, a country has two options for maintaining a patient’s minimum income; cure the patient or provide a pension. Both options are a burden on the taxpayer and both result in the use of resources namely health services or consumption.

The consequences of this argument are illustrated in Table 2 which shows the impact of the two options, namely, the inclusion of a service from a National Health Service (Option A) or its exclusion (Option B). In the latter case there are neither direct costs nor health related benefits. However individuals who do not receive the services in question remain as invalids and receive an invalid pension which compensates for their loss of income and amenity arising from the invalidity. Option A generates health benefits and returns individuals to the workforce which eliminates the need for a pension. Nevertheless the net benefits from increased health and production only have a numerical value of 40 which is less than the direct costs of the program. Applying the logic of cost benefit theory, program A would not be included in a national health service. Option B results in a net benefit of zero which is greater than the net benefit of -10 arising from program A. However following this logic results in a net ‘cost’ to the taxpayer of 90 which significantly exceeds the cost of the medical program.
Why Economic Costs May Not Be Of Interest In A National Health Scheme;  
Or Costs Fairness And Reverse Order Analysis

Table 2  The present value of health program costs and benefits, invalidity pensions and health related taxation

<table>
<thead>
<tr>
<th>Option</th>
<th>Direct Cost</th>
<th>Health benefits</th>
<th>Production gain = income</th>
<th>Net (ben-cost) ($)</th>
<th>Pension (PV)</th>
<th>Tax = cost + pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50</td>
<td>20</td>
<td>20</td>
<td>-10</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-90</td>
<td>90</td>
</tr>
</tbody>
</table>

Conclude: Not intervening → Tax ↑

A possible objection to this illustration is that the clarity of the conclusion depends upon an unrealistically high pension. However it is the logic of the argument which is of significance and not the relative magnitudes. According to normal economic reasoning the magnitude of the pension would be irrelevant.

The inclusion of disability pensions in the decision algorithm and the inclusion or exclusion of parts of the production gain attributable to medical care may clearly alter the rank order in which programs should be adopted. This is illustrated in Appendix 1 in which the inclusion or exclusion of pensions and some part of tax benefits lead to six division algorithms. These, in turn, lead to five different rankings of the four programs considered.

Once the relevance of transfer payments is acknowledged there is a further argument which must be considered. This is that the pensions to be included in the evaluation should not be limited to invalidity pensions but should include all forms of transfers including aged pensions. The possible consequence of this is illustrated in Figure 6. The three cases represented in the figure represent three sets of choices between medical programs. In each case the options are labelled ‘A’ and ‘B’. The vertical arrows indicate the impact of the program upon the quality of life. In Cases 2 and 3 the programs are life saving and increase utility from zero to some other level. In Cases 1 and 3 the same number of patients are treated in the two programs and the improvement in the quality of life is the same. Consequently in Cases 1 and 3 the benefits of programs A and B are equal. In Case 2 the benefit of program A is only one half the benefit of program B but twice the number of patients are treated and, consequently, the benefits of the two programs are again identical.
Case 1 illustrates an earlier example. Program A benefits patients who previously received a disability pension and, because of the treatment, will enter the workforce and no longer receive the pension. In contrast, the improvement resulting from program B leaves patients disabled and requiring a pension. Program A will therefore reduce pension payments and program B will not. Clearly the inclusion of these payments may reverse the program ranking if the initial cost of A exceeds the cost of B.

In Case 2 both programs save the lives of patients who are receiving an aged pension. Program A saves the life of twice the number of patients and therefore pension payments are twice those arising from Program B and the inclusion of this information in an evaluation might again reverse the ranking of the programs. Finally, in Case 3 the same number of lives are saved and extended for the same number of years. However program B saves the lives of people who require a pension and, consequently, imposes a greater financial burden on the community.

These conclusions are based upon overt ethical judgements which may or may not be acceptable. This caveat almost certainly applies in Case 3 where the receipt of an aged pension may adversely affect the likelihood of receiving medical care. But this simply reinforces the importance of overt value judgements. It is undoubtedly true (by the construction of the example) that the elderly (Persons B) represent a greater drain on communal resources and that a net benefit criterion would give preference to the treatment of the younger patient. To avoid the
consequences of these facts it is better to acknowledge the overtly normative nature of the
decision rule rather than to contort ‘economic theory’ until an undesirable consequence is
eliminated.

The benefit of avoiding the payment of a pension is very similar to the benefit measured in the
human capital approach to the evaluation of life. This is most obvious in the final case in Figure
6. Beneficiaries of program A are productive; those benefiting from program B are not. There
are however, two differences in the analyses. In case 3 and in previous similar examples, the
disadvantage facing the unproductive patient is limited to the value of the pension. Secondly, the
conclusions drawn from the reverse order analysis are overtly and deliberately the consequence
of different concepts of fairness. There is no pretence that some objective, value free, concept of
'value' is being measured. Consequently, if the results of a particular decision algorithm are
considered to be unfair then the algorithm is defective and requires revision.

With the inclusion of pension payments there is a second potential inequity. If the individual who
has not received medical care does not need to receive a pension because their previous savings
and investments generate an income flow that is sufficient to maintain their quality of life, then the
cost to taxpayers of excluding the medical service from a NHS is less and, perversely, the
likelihood of the services being provided may be reduced. That is, if the medical services are not
provided, taxpayers will not have to provide a pension and this might lead to discrimination
against the relatively affluent! The appropriate response again depends, not upon economic
principles, but upon notions of fairness. In order to prevent discrimination against those on low
incomes it was argued that some or all indirect benefits may have to be considered as 'socially
irrelevant benefits'. In the present case, either discrimination against the wealthy must be
permitted (perhaps in the knowledge that their assets may be used to purchase the health care
excluded from a NHS) or a notional pension may have to be included in the decision algorithm.
Once again, the appropriate response depends, not upon technical economic relationships
embedded in ‘theory’ but upon an ethical judgement of what is deemed fair and unfair.

Unrelated Future Costs

Whether or not aged pensions should be included in the assessment of medical programs is a
similar problem to the controversial issue of whether or not an economic assessment should
include the cost of future unrelated illnesses. An initial focus upon fairness—a reverse order
analysis—helps clarify the ‘conceptual problem’ which arises, according to some economists,
when we seek the ‘theoretically correct’ answer. This is illustrated in Table 3 in which individuals
A and B are, respectively, aged 60 and 70. Both have the possibility of a life extending procedure
with a direct cost of $100,000. A (being Australian) does not have any other medical problem (or
does not know she has it!). The cost (to the taxpayer) is $10,000 per life year gained. B (being
English) is miserably ill for the rest of her life (largely psychosomatic but costly!). The total cost to
the taxpayer is $20,000 per life year gained. The policy question is whether or not the unrelated
‘other medical’ expenses should influence the provision of the initial service when the ‘other
medical’ expenses are ‘normal’; that is, should person B be penalised for being English (or
derelatively affluent)?

While it is arguable that the other medical expenses cannot be attributed to disease X it is an
inescapable fact—by construction of the example—that the treatment decision affects medical
resource worth, not $100,000, but $200,000 and it is possible that if this latter cost was
attributable to a single disease there would be an unambiguous decision to exclude the service
from the health scheme. A variety of arguments might be used in support of the case to withhold or to proceed with the treatment of disease X in case B. The point here, however, is that these arguments do not involve any principle of economic efficiency as the facts of the case are straightforward. The issue is entirely one of fairness and whether or not, in the second case, a person should have unrelated events ‘held against them’.

### Table 3  Unrelated consequences

<table>
<thead>
<tr>
<th>Individual</th>
<th>Provide Service for Disease X</th>
<th>Age</th>
<th>Life Exp.</th>
<th>Benefits</th>
<th>Costs (PV $000)</th>
<th>Cost/LY ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Direct Medical</td>
<td>Other Medical</td>
<td>(a) Direct</td>
</tr>
<tr>
<td>A</td>
<td>Yes</td>
<td>60</td>
<td>10y</td>
<td>100,000</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>Yes</td>
<td>70</td>
<td>10y</td>
<td>100,000</td>
<td>100,000</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>Yes</td>
<td>60</td>
<td>10y</td>
<td>100,000</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

In contrast to this simple argument there has been a presumption in the literature that there is a technically, ‘correct’ treatment of unrelated medical costs (Gold et al 1996)\(^7\). This is based upon an unstated assumption that causal links have ethical significance! Thus, it is argued that if and only if the present illness generates future health costs then these costs should (sic) be included in the evaluation. But if future costs are not so attributable then they should not (sic) be included in the evaluation. The argument is simply wrong as a matter of elementary logic. Causation does not carry any ethical imperative with respect to which voluntary action we should adopt. If it did, then we would almost certainly be committed to allowing some low birth weight children to die. But this is not an ethical imperative. Likewise a mother who inadvertently gives her child food which provokes a lethal allergic reaction would have, without doubt, caused the child’s death.

\(^7\) In their detailed examination of such issues Gold, Segal, Russell and Weinstein (1996)—The Washington Panel—separate future costs that are (a) medical and related to an intervention; (b) medical and unrelated; and (c) non-medical but incurred in the additional years of life attributable to an intervention. A variety of arguments are considered in each case and, finally, it is argued that ‘theoretically, these (latter) costs should be included if health care costs in added years of life are included’ (p48). Despite the breadth of the issues canvassed one startling fact stands out. At no stage is it suggested that the issues are ethical and that considerations of fairness are relevant. Rather, they are technical. There is a (positive) theory which, when clarified, demands our obeisance. The theory is not, of course, arbitrary. The implied rule is that the analyst should strive to establish a causal sequence between an intervention and its consequences. These consequences, it is argued, should then be included in the initial analysis.
But this does not imply blame and an ethical imperative with respect to punishment. The confusion surrounding this ‘conceptual’ problem arises because of the inappropriate attempt to replace ethical with technical analysis. (It is interesting to note that this case is the mirror image of the (in)famous ‘double jeopardy’ case which arose from the ‘Oregon experiment’.

Case C is a reconsideration of case A. C is the same person but additional information is available. C is a wealthy newspaper magnate, Frank Murdoch and, shortly before the decision concerning his eligibility for treatment there was a double tragedy. First, his heirs and successors were killed in an air accident and, secondly, he missed the plane that day. The unique medical facilities required for the necessary treatment may be used for a second patient who similarly has a life threatening illness. A decision must therefore be made concerning the cost and the benefits of treating each patient. The facts of the decision are clear and simple. The treatment will cost the taxpayer $100,000 directly and $40 million in the resources which, if treated, the magnate will consume and which would otherwise revert to society. Subject to minor caveats society will be much better off if C dies. More generally, the extension of the life of people who have ceased to contribute to society results in the use of resources. Whether or not they are related to medical care is entirely irrelevant to this conclusion. If the individual was not to use them they would be available for other members of the society. The fact that we would probably never contemplate bringing this evidence into an ‘economic evaluation’ simply underscores the ethical and distributional nature of the analysis. In the limit, laws prescribe and proscribe certain behaviours. The need to extend such decisions beyond the framework of the legal system does not alter the quintessentially ethical nature of the analysis.

Demand, moral hazard and the dead weight loss of insurance

In orthodox theory demand is derived from the marginal utility of a product to a consumer and the quantity purchased will then be determined by the product’s price which represents the marginal cost to the consumer. When these are equal—point Q1 in Figure 7a—it is argued that there is ‘efficiency’: the marginal cost of production—the marginal opportunity cost of the product in a competitive market—is just equal to the marginal benefits obtained. In one of the most influential articles in health economics, Pauly (1968) argued that health insurance would induce a dead weight loss. If, for example, it reduced the patient co-payment to zero, demand would increase from Q1 to Q2 and the cost of producing medical care would exceed the benefits and generate a dead weight loss equal to Q2 ef. Several assumptions are necessary to conclude that this dead weight loss represents a reduction in social wellbeing. There must be enough information for patients to evaluate the product. The willingness to pay must be a satisfactory measure of

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8 The term ‘double jeopardy’ refers to the fact that a disabled person faces a ‘single jeopardy’ when they have a life threatening illness but that jeopardy is exacerbated if it is successfully argued that their treatment should have a lower priority than the treatment of a person who might return to full health. They face, in effect, a second—double—jeopardy. The facts of the argument are relatively uncontroversial. Even allowing for adaptation, it is true that a disabled person will receive a smaller increase in their quality of life when their life is saved. Despite this, in Oregon the person’s personal history was held to be of moral significance (and the use of QALYs was found to violate anti discrimination legislation). It was successfully argued that the long term disability should be treated as ‘socially irrelevant data’ and that the social value of the health improvement for the disabled and for the otherwise normal patient should be treated as equivalent. Consistent with this, Ubel, Richardson and Pinto (2000) found that a group of survey respondents gave the same priority to the long term disabled and the otherwise normal yet respondents would discriminate between normal patients returning to full health and those who became disabled because of an illness.

In the present case a parallel argument might be that the existence of future costs should not be held against a person and that the ill health of person B in Table 3 would represent a ‘double jeopardy’ if it was taken into account. The argument is not conclusive as the two contexts are different and it is likely that the force of the ethical arguments in both cases is context dependent.
marginal utility (or, marginal utility must be defined by WTP). Importantly here, income does not play a role in this analysis. Income effects may be abstracted from substitution effects but Pauly's argument applies to every individual and it is the change in demand not the reason for its absolute level that is important.

Figure 7 Two interpretations of the demand curve

A reverse order analysis might lead to a different emphasis. In this the relationship between demand and income would be of primary importance as income influences the access to services and this is an important determinant of fairness. Since demand is a function of both income and net price the demand curve of the 'average consumer' shown in Figure 7(a) would be replaced by the set of demand curves shown in Figure 7(b) in which each curve represents the demand of a separate income group. As shown, the equilibrium price excludes person 1 (low income) and results in individuals with income $Y_6$ receiving six times the number of units of the product as those with income $Y_2$. As the price rises, people with incomes $Y_2$, $Y_3$, $Y_4$, etc cease purchasing the product: consumption becomes increasingly concentrated amongst high income groups.

From this latter, reverse order perspective, the demand curve in Figure 1 is very largely concerned with the distribution of the product, with higher prices corresponding with an increasingly skewed distribution of benefits. The 'deadweight' loss of a collectively financed insurance system represents the loss to those with higher incomes (whose consumption would be largely unaffected by the insurance) when the pooling of funding results in a cross-subsidy to those who would not otherwise purchase as many services because of their lower income.

In the case where income effects are of great importance the 'demand curve' might be better viewed as the curve which distributes the product, with elitist and egalitarian distributions corresponding with high and low prices respectively. The apparent objectivity of the measure of consumer benefits (the area under the demand curve) and the apparent objectivity of the dead weight loss in Figure 7(a) is replaced by an overtly value laden interpretation of demand.
In practice, demand will vary for two reasons; viz, the varying valuation of the product by individual consumers and the income effect emphasised in Figure 2. The usefulness of the two perspectives reflected in Figures 7(a) and 7(b) depends upon the mix of these causal factors and upon social values. At one extreme is the product envisaged in the simple market model where there are easily divisible products, at least some of which may be purchased by most consumers. Some individual medical services clearly fall into this category. At the other extreme are one-off services such as organ transplantation where medical benefits and the impact upon the quality of life are not related to income and where the concept of diminishing marginal utility (interpreted as wellbeing) has limited, if any, applicability. In such a case, envisaged in Figure 7(c) the quantity of services becomes identically equal to the number of people receiving the service. In this case the concept of the dead weight loss has little meaning and the demand curve represents the accessibility of services and quantity is directly proportional to access.

5 Discussion

The central suggestion in this paper is that, if the essential reason for a national health scheme is fairness, then the analytical framework for selecting the optimal scheme and the services to include in it might need to be explicitly fairness-focussed and, in contrast with present theory and practice, these questions may require a ‘reverse order analysis’. It has been suggested that the result of such a framework might be a re-evaluation of the elements to be compared with health benefits.

It may, at first, appear inconceivable that something as intuitively obvious as ‘costs’ could be dethroned from the numerator of the cost benefit ratio. How could such an error go undetected? The answer to this is very simple. First, and most fundamentally, there is no empirical test of the validity of a conceptual framework. If it is wrong, a bridge or stock exchange does not collapse. Rather, the framework is accepted because of the authority of economics and (by implication) a (relatively) uncritical acceptance of the orthodox framework by economists. The technical presentation of even simple economic concepts to the public is sufficiently opaque to deflect serious criticism from outside the profession. Secondly, the orthodox framework is perfectly acceptable in the general economy where private, and not communitarian, values predominate. It is unsurprising that the successful theoretical schema underpinning this framework should be transferred across to the health sector albeit with some important caveats concerning fairness.

In the general economy there is a rational basis for the ‘maximise GDP’ rule. The Kaldor-Hicks potential compensation principle may legitimately be invoked in many contexts as a conceptually defensible basis for blame shifting. It is the government’s fault if the distribution of income is poor. More importantly (and altogether ignored by simple welfare theory) attempts to maximise GDP and, more specifically, the growth of GDP in the long run are likely to lead to a long run dynamism in the economy which will eventually cause a trickle down effect which benefits the entire population.
In the health sector there is no analogous argument. Maximised health cannot be redistributed and Kaldor-Hicks does not provide a sensible basis for blame shifting. Consequently it is altogether reasonable that fairness should become of paramount importance\(^9\).

The failure of the Kaldor-Hicks principle, and more importantly, the failure of the efficiency-first framework is most obvious when, even in principle, it is impossible to separate fairness and net benefits/costs. This occurs in a significant number of cases; viz, when life is lost, when net resource cost is a negative function of income (taxes recouped) and when the cost to the taxpayer takes the form of a pension payment to disabled patients. The benefit to recipients in this latter case—income maintenance—cannot be redistributed back to losers as the redistribution would identically offset the benefit!

The benefit-fairness nexus is almost as inseparable in other cases where health benefits are bestowed. Allocative efficiency, as normally conceived, implies that one group of patients—those with illnesses amenable to cost effective interventions—receive health services while another group of patients—those with illnesses with cost ineffective therapies—receive no care. The possibility of taxing the recipients of successful health care in order to compensate the taxpayers who initially funded the health service has probably never been suggested, not simply on the grounds of fairness, but because of the impracticality of extracting significant sums of money from low income health care beneficiaries.

What do the conclusions here imply for economic evaluation? This is an interesting and largely empirical research question and, as suggested earlier, the answer will probably vary by country. Consequently, the following comments are necessarily speculative. First, it is to be expected that many of the suggestions of economic theory would be consistent with a notion of fairness. Thus, for example, it is likely that there will be a higher social willingness to pay when, all else equal, health benefits were greater. Likewise, the social willingness to pay will almost certainly rise with the numbers of beneficiaries. The theme of this paper is not that health costs and benefits are unimportant but that the maximisation of net benefits is likely to be of less importance than their distribution and that this issue is more complex than the selection of a simple trade-off. Rather, there are likely to be contexts in which distributive rules conflict with the achievement of health maximisation. As discussed, for example, the allocation of resources to a disease from a fixed budget may well increase, not decrease, when the cost of that disease increases. That is, those unlucky enough to have a high cost disease will be at least partially compensated.

Secondly, it is possible that some of the orthodox rules of economic theory that have been challenged here would not be discarded but simply modified. Indirect benefits which take the form of increased consumption by the patient may be largely, but not fully, discounted. For example, uncompromising economic theory suggests that health expenditures should increase by any amount up to a dollar if this results in an additional dollar of indirect benefits. A compromise rule might increase expenditure according to some ‘generosity weight’: the amount society is willing to outlay to bestow an additional benefit on a single identified beneficiary. In aggregate,

\(^9\) One possible defence of the orthodox treatment of costs and benefits is that it would maximise the expected benefits from behind a ‘veil of ignorance’ and this perspective is commonly recommended by ethicists. However, it is usually argued that from behind the veil of ignorance people will adopt a maxi-min principle and maximise the wellbeing of the worst possible state which they might enter when the veil of ignorance is removed. This differs from the usual concept of efficiency, namely the maximum realised outcome. A more important consideration, as judged by the implicit criterion in most empirical studies, it is highly unlikely that the population would accept the ‘veil of ignorance’ perspective; that is the veil of ignorance may be used to mount a normative argument but it is unlikely to describe the ethical values that prevail in society.
this represents a form of income insurance. Likewise, health services which indirectly result in additional tax revenue may be preferred but the additional social willingness to pay may, again, be only some fraction of the incremental taxes recouped in order to reduce any preferential treatment of high income earners.

Both of these suggestions indicate that different categories of net resource cost may be treated differently. Direct health expenditures may receive a unitary weight. Indirect benefits (negative resource cost) may receive a differing weight depending on whether they result in additional consumption, saving or taxation and depending upon the ‘generosity weight’ applied to them. The weight would be further varied if the recouped tax benefits were related to a patient’s income. The variation would reflect the social commitment to egalitarianism.

This latter conclusion also suggests that the overall social willingness to pay for health services will be ‘a function of costs, health benefits, their distribution and of social values’. Thus, the decision algorithm for selecting medical services would not involve the simple addition of unweighted costs and benefits (when these were denominated in dollars). As the nature of the function is almost certainly country specific and probably dependant upon a number of contextual issues it is, at present, unknown and the point at which benefits equal costs consequently has no particular significance.

The discussion here may convey a sense of unreality. The inclusion or exclusion of costs, the use of cost weights and the exploration of particular distributive rules are not topics that have been discussed in the literature and it is unlikely that anyone is aware of a loss of social welfare because of the shortcomings of orthodox theory per se that have been asserted here: Few appear to be dissatisfied with the orthodox treatment of costs (except, perhaps, the general public and other non-economists). Can there be a loss of social welfare when no one is aware of the problem?

The answer to this rhetorical question is undoubtedly ‘yes’. Before they were explicitly examined there was no widespread dissatisfaction with the omission of quality of life or age and severity weights from economic theory. Before the publication of the relevant research there was relatively little concern amongst economists or epidemiologists about socio economic gradients in health status, the erratic levels of access to care and the widespread misallocation of resources. These issues are not of concern until research indicates that there is a problem. But the explicit recognition of the problems has undoubtedly resulted in theory and policy which have the potential for improving social wellbeing.
7 Conclusion

The pivotal error that I hypothesise that economists have made is that the framework we have accepted focuses primarily upon net material benefits whereas the rationale for government intervention in the health care market and for a national health system are overwhelmingly to do with fairness. Welfare theory acknowledges the existence of a trade-off between efficiency and equity but there has been remarkably little empirical enquiry into the nature and importance of social values. With an efficiency first framework the primary concern has been the maximisation of net benefits. The pivotal assumption behind this pivotal error is that when net benefits are maximised they may be redistributed so that everyone is better off. This is clearly impossible in the case where the opportunity cost of one program is the loss of a second program and a resulting loss of life. It is also unthinkable in the context of a National Health Scheme. It would imply that those who have been ill and cured using NHS resources should be taxed to compensate the original taxpayers who funded medical care. A second, broad assumption is that all costs and benefits must be included and equally valued by an amorphous ‘society’. But benefits and costs may be socially irrelevant or discounted depending upon their distribution, the recipient and the context.

The chief recommendation in this paper is that there is a need for ‘reverse order’ or ‘fairness first’ analyses. It has been suggested that this will not simply identify the importance of particular dimensions of fairness but will result in a reinterpretation of some theory and evidence. Three examples have been given here, viz, the treatment of indirect—production—benefits; the distinction between costs and transfers and, finally, the interpretation of the demand curve and the ‘dead weight loss’ which many assert is associated with health insurance.

One effect of such a reverse order analysis which recognises that benefits cannot be redistributed to losers and which focuses upon fairness is likely to be a quantum jump in interest in the magnitude of the subjective benefits to low income individuals when they receive a pension and the loss of subjective benefits to middle and high income taxpayers. No one seriously believes that transfer payments are welfare neutral and a focus upon fairness would parenthesise the importance of this information.

If the central conjecture of this paper is correct then there is a major empirical research question concerning the nature of social preferences and a major ethical research task to determine which of these should be considered as an appropriate basis for the allocation of health resources. The discussion here has assumed that distribution is the only issue of social justice. A satisfactory fairness oriented framework must necessarily commence with a detailed understanding of the notion of social justice that a society wishes to incorporate in its health scheme. It is perhaps symptomatic of the secondary status of social justice that this issue has not been properly investigated. But without this information it is not possible to determine which conventional costs and transfer payments will be included, discounted or excluded from the framework.

It has also been suggested that reverse order analysis may result in a different focus or perspective on the significance of particular observations. In this context, the interpretation of the demand curve, as discussed in Section 4 is is particularly revealing. Economists have a magnetic-like attraction to the use of co-payments to improve economic efficiency (which, if the
Pauly analysis was fully accepted would result in no health insurance at all. In contrast, social welfare groups, politicians and the public are adamant that co-payments represent a barrier to access and are unfair. The same facts are seen through completely different glasses. This is consistent with the hypothesis that economists are operating from within a different paradigm in the Kuhnsian sense of this term. Economists interpret evidence firstly in terms of efficiency. The remainder of the population interpret the same evidence firstly in terms of fairness and, as predicted by Kuhn, communication between the paradigms appears to be very difficult. As judged by the evidence presented by psychologists the latter and not the former paradigm may have greater importance for marginal subjective wellbeing in affluent societies (Kahneman et al 1999). More to the point, economics purport to assist with the achievement of society’s objectives. It does not have the responsibility or the authority to replace them.

In sum, the focus in the theory of economic evaluation in the context of a national health scheme may be misplaced. The ramifications for economic theory of the context in which the theory is to apply—the context of a fairness focused national health scheme—may have been underrated. The argument here is that the fairness focus should permeate all parts of the theory. Our health service is designed to redistribute to those in need. It is not designed to maximise net benefits irrespective of their distribution. ‘Theory’ represents a carefully articulated guess. Economists may have got this one wrong!

References


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10 Elsewhere the author has argued that the ‘deadweight loss’ caused by moral hazard only arises because of the artificial separation of the ex ante benefits of risk avoidance and the expost consequences of a lower price. With full information the ex ante decision would take account of both the ex ante benefits and the expost consequences (Richardson 1984).


Appendix 1  Pensions, indirect benefits and program rank

The inclusion of disability pensions in the decision algorithm and the inclusion or exclusion of parts of the production gain (indirect benefits) arising from medical care may clearly alter the rank order in which programs should be adopted. This is illustrated in Table A.2. In this the QALY gain for each of four programs is the same (100) and the total medical costs (TC) which are paid entirely by the government increase from 100 to 130 as shown in Column 2. Production gains (Y) in Column 3 are equal to the consumption by patients (C) and the taxes they pay to the government (T) as shown in Columns 3-5. For reasons discussed earlier the full value of consumption may not be included in the calculation of social benefits and two assumptions are represented in columns 6 and 7. These are that consumption to some minimum level (40) are included but no consumption above this level. Secondly—column 7—a minimum value of 40 is accepted but also 50 percent of consumption above this level. (This represents a, presently, unrealistic level of sophistication but a decision rule which could evolve as a result of greater attention to issues of fairness.) The pension shown in Column 9 is designed to achieve a minimum value of consumption (40).

Columns 9-14 show six sets of data each arising from a different decision algorithm. These rules are to compare QALY gains with (i) total medical costs; (ii) total costs less production gains; (iii) total costs less tax payments from production gain; (iv) total cost less socially relevant consumption (column 7); (v) total cost less tax contribution plus pension (column 13); (vi) as for (v), less socially relevant consumption (column 14). The rank order of these data are shown in columns 15-20. These reveal little pattern except for a broad reversal of the rank order when production gains are taken into account. If these were calculated using the frictional cost rather than human capital approach then even this pattern might break down.

The unsurprising conclusion from this table is that the normative basis of evaluation—the ethical judgement about what is and is not socially relevant—is of pivotal importance. There is a (stronger or weaker) argument for each of the options shown in Table A.1 and for the various additional bases which could result from a different formula for socially relevant consumption and from the introduction of the concept of socially relevant taxation (specific to this context!).
### Table A1  Ranking options with various normative bases

<table>
<thead>
<tr>
<th>Column</th>
<th>Program</th>
<th>QALYs</th>
<th>Gov Paid Med Costs (TC)</th>
<th>Prod Gain + Income (Y) = Consumption (C) + Tax Paid (T)</th>
<th>Socially Relevant (SR) Consumptions ≤ 40</th>
<th>Socially Relevant (SR) Consumptions ≤ 40 + ½ (60 - C)</th>
<th>Pensions ≤ 40 - C Tax</th>
<th>Outcome of 6 decision algorithms</th>
<th>Gov Cost = Tax Burden</th>
<th>Rank from Column</th>
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<td>1 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4</td>
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<tr>
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<td>110</td>
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<td>20</td>
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<td>2 3 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td>
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</tr>
<tr>
<td>C</td>
<td>3</td>
<td>100</td>
<td>120</td>
<td>50 30 20</td>
<td>40 45</td>
<td>120 20 100 75</td>
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<td>130 50 105 72.5</td>
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