Should economic costs be of interest in a national health scheme: or costs, fairness and reverse order analysis

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Abstract

In this paper we argue that the standard framework used for evaluating health services may need modification in the context of a National Health Scheme (NHS). Some costs and benefits may need to be ignored or discounted, others included at face value, and some transfer payments included in the decision algorithm. In contrast with the standard framework, we argue that economic evaluation in the context of a NHS should focus on 'social transfers' between taxpayers and beneficiaries, and that the nature and scope of these transfers is determined by the level of social generosity and the principles of fairness in a society. A revised framework might alter some notions of efficiency, including Pareto efficiency. Some of the implications of a modified framework are illustrated with a re-examination of (i) costs and transfer payments, (ii) unrelated costs, and (iii) moral hazard.

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1. Introduction

Health economists have generally recognised that the concept of fairness is particularly important in the health sector and there is a large literature on the distribution of health costs and benefits and on various theories of social justice (Wagstaff and van Doorslaer 2000; Williams and Cookson 2000). Empirical studies have commonly used trade-off techniques to determine and quantify the importance of various patient-related or systemic attributes (Dolan 2000). These have included: (i) the patient's age[1]; (ii) the severity of the patient's initial health state (as distinct from the improvement achieved by an intervention)[2]; (iii) the patient's potential for health improvement (non-discrimination against the permanently disabled and the chronically ill)[3]; (iv) the maintenance of hope and universality of population coverage (to remove uncertainty concerning eligibility for a procedure)[4]; (v) smoker/non-smoker, parent/non-parent, carer/non-carer status[5]; (vi) the number of patients sharing a benefit (i.e. the concentration and dispersion of health benefits)[6]; (vii) and the 'rule of rescue'[7].

1. (Charny, Lewis et al. 1989; Busschbach, Hessing et al. 1993; Cropper, Aydede et al. 1994; Nord, Street et al. 1996; Choudhry, Slaughter et al. 1997; Johannesson and Johansson 1997b; Rodríguez and Pinto 2000)

2. (Nord 1991; Nord, Richardson et al. 1993; Nord 1993a; Abelson, Lomas et al. 1995; Ubel, Loewenstein et al. 1996; Prades 1997; Ubel, Spranca et al. 1998; Ubel 1999b; Dolan and Tsuchiya 2005; Dolan and Tsuchiya Forthcoming; Nord Forthcoming)

3. (Patrick, Bush et al. 1973; Nord 1993d; Nord, Richardson et al. 1995a; Abellan-Perpiñán and Prades 1999; Dolan and Cookson 2000; Ubel, Richardson et al. 2002)

4. (Ubel and Loewenstein 1995; Nord, Richardson et al. 1995b; Ubel, DeKay et al. 1996b; Ubel and Loewenstein 1996b; Ratcliffe 2000)

5. (Charny, Lewis et al. 1989; Nord, Richardson et al. 1995b; Neuberger, Adams et al. 1998; Dolan, Cookson et al. 1999)

6. (Olsen 1994; Johannesson and Gerdtham 1996; Nord, Street et al. 1996; Choudhry, Slaughter et al. 1997; Prades and Lopez-Nicolás 1998; Andersson and Lyttkens 1999; Olsen 2000; Rodríguez-Míguez and Prades 2002)

7. (Jenni and Loewenstein 1997; McKie and Richardson 2003)

These studies have been influential. For example, the World Health Organization Burden of Disease study included explicit age weights (Murray and Lopez 1996), and its evaluation of health system performance used explicit equity weights to quantify the relative importance of health gain and several dimensions of fairness (World Health Organization 2000). Nevertheless, the measurement of social preferences represents a small and somewhat idiosyncratic part of the literature. Almost all of the empirical studies cited in the footnotes have been concerned with health benefits - health outcomes, their distribution, and the characteristics of the recipients. Generally, there has been an acceptance of the traditional role of costs in economic analyses. There have been, however, a small number of provocative studies that challenge this role.

For example, in an Australian study, Nord, Richardson et al reported that 81 per cent and 87 per cent of a sample of 551 respondents would downgrade the importance of direct costs and indirect production benefits respectively in prioritising health services (Nord, Richardson et al. 1995b). In subsequent face-to-face interviews with 119 of these respondents a statistically significant majority continued to reject cost minimisation for given benefits despite a cross-examination that included frequent repetition of the adverse consequences of not minimising costs. 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 per cent selected the health-maximising, cost-minimising strategy recommended by economic theory.

In a similar study, Abellan-Perpiñán and Pinto Prades 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 (Abellan-Perpiñán and Prades 1999). 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.

Ubel created a similar dilemma for a sample of 169 American jurists by asking them to allocate a finite number of organs (the 'budget') to groups with differing prognoses (Ubel 2000). In this exercise, the (opportunity) cost of treating a patient in one group was the treatment of a patient from another group. Consistent with the Australian and Spanish results, Ubel's respondents did not maximise lives saved but allocated some organs to each of the groups, including groups where the (opportunity) cost exceeded benefits.

It is argued below that these anomalies may arise because the equity-efficiency trade-off envisaged by economists does not incorporate notions of fairness widely held to be applicable in the health sector, and that these notions imply a somewhat different concept of 'cost'. It is also argued that while the simultaneous achievement of equity and efficiency objectives may be advocated in theory, in practice economic evaluation is characterised by an 'efficiency-first' approach, if this is judged by the time spent on issues of efficiency in the literature and by policy recommendations which commonly assume that distributive issues may be left to governments. Consistent with this argument, a recent literature review of Health Impact Assessment (HIA) studies (Harris-Roxas, Simpson et al. 2004), found that 'equity was not effectively addressed in the studies reviewed,' that 'the dimensions of "avoidability" [lack of community participation] and fairness are rarely explicitly examined' and that 'equity considerations, when they are made, are implicit rather than explicit'. Dolan, Shaw, et al (2005) reach a similar conclusion (Dolan, Shaw et al. 2005).

The argument below proceeds as follows. In Section 2 some of the implications of a 'fairness-based' framework are explored. This phrase refers to a framework that initially focuses upon fairness and subsequently trades off some part of the fairness to achieve efficiency objectives. It is suggested that some of the implications may conflict with the consequences of an 'efficiency-based' framework. This is illustrated 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. In section 3 it is argued that economic evaluation in the health sector should focus on 'social transfers' between taxpayers and beneficiaries, which are shaped by the level of generosity and the principles of fairness that predominate in the society. It is argued that by concentrating upon overall costs and benefits, orthodox economic theory excludes some relevant flows and includes others that are 'socially irrelevant'. In Section 4 it is suggested that the order in which efficiency and fairness considerations are analysed and implemented may result in different outcomes and that the reasons commonly adduced for a primary focus upon efficiency are flimsy: even the goal of Pareto efficiency may be contestable in the context of an NHS. It is suggested that an analytical framework that is explicitly fairness-focused may often be more appropriate for evaluating programs in the context of a NHS. In section 5 it is concluded that, since an important - possibly the most important – reason for a national health scheme is the achievement of social justice – as perceived in a country – fairness-related studies are surprisingly scarce in the literature and there is a large research agenda for rectifying this deficiency .

2. Some Implications of a 'Fairness-Based' Framework

Three examples are given below where the adoption of a fairness-based perspective may significantly alter the interpretation and policy implications of 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.

(a) Pensions and Transfer Payments

In economic theory pensions are treated as transfer payments – re-distributions - from the taxpayer to the recipient. As resources are not used they are excluded from economic evaluation studies which are primarily concerned with efficiency. However, a fairness-based analysis might properly regard such transfer payments as equivalent to health costs in particular contexts. There is no developed country that 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 cannot maintain a minimum level of consumption will receive a pension or some form of income support. Consequently, in the evaluation of a medical program, the option of withholding medical care cannot be assessed on the assumption that there will be no other relevant consequences from this decision. On the contrary, some patients will qualify for a pension.

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 in the usual analysis no further consequences are considered. The baseline for subsequent decision making is a state of the world in which a chronically 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 a chronically ill or disabled person should receive a pension. If so, this is treated as only a 'transfer' from the taxpayer, and the benefits received are treated as being equal to the benefits lost.[8] However, when the need for a pension is a direct consequence of a lack of medical care this analytical separation is inappropriate and misleading. In this example, the appropriate comparator is a state in which an ill or disabled person receives a pension and uses it to consume goods and services. Viewed from a 'fairness-first' perspective, which focuses upon transfers, the taxpayer loses resources and the recipient gains resources whichever option is adopted. The most important question for both is whether or not, under the circumstances, the transaction is fair. Net resource use is unlikely to interest either party. If complaint arises it is likely to be over the fairness of the share of the cost borne by the plaintive, not about the relative efficiency of the selected option judged from a 'societal perspective'.

(b) Unrelated Future Costs

The controversial issue of whether or not an economic assessment should include the cost of future unrelated illnesses raises similar issues, namely, what should or should not be included in the decision algorithm. Analysis of this question is commonly based upon an implicit or explicit assumption that there is a 'theoretically correct' answer. This phrase commonly implies that there is an efficiency maximising solution which is independent of the vagaries of social values (Weinstein and Stason 1977; Drummond, Stoddart et al. 1987; Gold, Siegal et

8. Note the following statement from a National Institutes of Health report: 'It is important to distinguish costs – net reductions in the value of economic resources available for other purposes – from monetary transfer payments such as disability and welfare payments. Such payments represent a transfer of purchasing power to the recipients from others (the general taxpayers), but do not represent net increases in the use of resources' (Kirschstein 2000).

al. 1996). This is illustrated in Table 1, in which individuals A and B are aged 60 and 70 respectively. Both have the possibility of a life-extending procedure with a direct cost of $100,000. Individual A has no other medical problem. The cost (to the taxpayer) is $10,000 per life year gained. The total cost (to the taxpayer) of treatment for B is $20,000 per life year gained, due to other medical expenses of $100,000. The policy question is whether or not these unrelated medical expenses should influence the provision of the initial service. Should person B be 'penalised' for their additional illness?[9]

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 decision to treat patient B results in real resource use of $200,000 not $100,000, and it is possible that if this higher cost was attributable to a single disease it would be excluded from the health scheme. A variety of arguments might be used in support of withholding or proceeding with the treatment of disease X for patient B. (For example: 'It would be morally outrageous to let someone die because in the future they will use communal resources - aged pensioners would all be allowed to die.') The salient point, however, is that these are moral arguments and do not involve any principle of economic efficiency. The issue is one of fairness, and deciding in which contexts a person should have unrelated costs 'held against them' and whether the taxpayer is prepared to forego $20,000 for this person in this context.

9. This is similar to the problem of 'double jeopardy'. If a chronically ill or permanently disabled person acquires an unrelated life-threatening illness, they may be considered a lower priority for treatment because, if successful, the treatment will only return them to their previous state of illness or disability. Thus, they suffer a "double jeopardy": they are disadvantaged by acquiring the life-threatening illness, and are also disadvantaged because treatment will not return them to full health. Some aruge that this is unfair (Harris 1985; Ubel, Richardson et al. 1999). In the example in the text, however, the focus is on the costs associated with the unrelated illness rather than the limited potential for health improvement it imposes.

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. This is based upon an unstated assumption that causal links have ethical significance. 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.[10] However, causation does not carry the ethical implications being imputed to it here. A mother who inadvertently gives her child food that provokes a lethal allergic reaction would have, without doubt, caused the child's death. But this does not indicate culpability on her part. Likewise, a person who refuses to help an injured motorist is morally culpable, even if they have not caused the accident. Ethical judgements cannot be 'read off' from causal, factual information (Williams 1985). Similarly, the question of how we should (*sic*) include unrelated future costs requires an independent ethical judgement. The 'complexity' of this 'conceptual' problem arises because of the inappropriate attempt to replace ethical with technical analysis.

The third case in Table 1 is a reconsideration of the first. C is the same individual but additional information is available. C is a multi millionaire with no living relatives who is expected to spend $40 million during his retirement. The unique medical facilities required for treatment may either be used for the multi millionaire or a second patient with the same

10. In their detailed examination of such issues Gold, Siegal, Russell and Weinstein - The Washington Panel - separate future costs that are (1) medical and related to an intervention; (2) medical and unrelated; and (3) non-medical but incurred in the additional years of life attributable to an intervention. A variety of arguments are considered in each case. Regarding the third category, for example, it is concluded: 'theoretically, these costs should be included, if health care costs in added years of life are included' (Gold, Siegal et al. 1996, p. 48). Despite the breadth of the issues canvassed one fact stands out: at no stage is it suggested that the issues are ethical and that considerations of fairness are relevant. Rather, they are treated as technical. The assumption is that there is a (positive) theory which, when clarified, demands our acceptance. 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, and only these consequences, should then be included in the initial analysis.

life-threatening illness. A decision must therefore be made concerning the costs and the benefits of treating each patient. The facts of the decision are clear and simple. The treatment of the magnate will cost the taxpayer $100,000 directly plus $40 million which, if treated, he will consume, but which would otherwise revert to society. Subject to minor caveats, taxpayers 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 those resources 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.

(c) Demand, Moral Hazard and the Dead-Weight Loss of Insurance

In consumer theory, demand is derived from the marginal utility of a product for a consumer. The quantity purchased is determined by comparing this with the product's price, which represents the marginal cost to the consumer. When these are equal - output Q_1 in Figure 1(a) - 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 argued that health insurance would induce a 'dead-weight loss' (Pauly 1968). If, for example, it reduced the patient co-payment to zero, demand would increase from Q_1 to Q_2 and the cost of producing medical care would exceed the benefits and generate a dead-weight loss equal to Q_2ef. Several assumptions are necessary to conclude that this dead-weight loss represents a

reduction in social well-being. There must be enough information for patients to evaluate the product. The willingness to pay must be a satisfactory measure of marginal utility (or, marginal utility must be defined by the WTP). Importantly here, income does not play a role in this analysis. It is the change in demand, not the reason for its absolute level, that is important.

A fairness-based analysis focuses upon different facts. From this perspective, 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 aggregate demand curve shown in Figure 1(a) might be replaced by the set of demand curves partially shown in Figure 1(b), in which each curve represents the demand of a separate income group. As indicated, at price P_e persons with income Y_1 (low income) receive no services and individuals with income Y_3 receive three times more services than those with income Y_2. Generalising, as the price rises, consumption becomes increasingly concentrated among high income groups, a conclusion supported by a review of the empirical evidence (Arhin-Tenkorang 2001).

From this latter, fairness-based perspective, the demand curve in Figure 1(a) is very largely concerned with the distribution of the product, with higher prices being associated with an increasingly skewed distribution of benefits. The 'dead-weight 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 collective 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 that 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 1(a), could be replaced by an overtly value-laden interpretation of demand, which is easily recognised from the fairness-based perspective.

3. Fairness and Financial Flows

Within a fairness-based framework the primary focus would be upon financial and other flows between people, not upon the relative size of the aggregate costs and benefits. The importance of this is illustrated in Table 2. As the cost of treating each disease increases, so does the size of the dollar subsidy to patients – until a threshold is reached, at which point the benefit is abruptly terminated leaving patients to bare the full cost or to suffer. The disparity in the subsidies in the last two rows of the table would strike many people as unfair, due to the abrupt termination of the financial flows and the implied termination of social support. This does not imply that the usual policy conclusion (as represented in Table 2) is wrong (or right). Rather, the example indicates that the question whether it is wrong (or right) is likely to be overlooked within an 'efficiency-first' framework, where the focus is on the level of net benefits.

Within this later framework the point where marginal costs and benefits are equal has special significance as it is the point where production is no longer efficient. This point need have no such significance in a 'fairness-first' framework. Decision makers who are prepared to pay

$40,000 to ensure that a benefit is obtained by a citizen with disease D may also be prepared to pay $50,000 to ensure the same benefit is received by a patient with disease E. The most significant consideration may be the receipt of the benefit, and the cost of achieving this may be of secondary significance (though not of no significance at all). Such an outcome is commonplace. Adding administrative expenses, charities necessarily incur a larger cost than the face value of the benefit they distribute and this is universally known and accepted, as there is often no alternative, cheaper mechanism for delivering the benefit.

The argument is further illustrated in Figure 2, which shows the pattern of flows between a patient and other members of society. The relevant fairness question is *whether or not a particular financial flow is considered to be fair,* taking into consideration its magnitude and direction. The fact that each of the flows is a result of a particular direct cost to society or benefit to a patient is not necessarily relevant. Distributive fairness depends upon a patient's final situation relative to other members of society and it is the financial flow, not the 'economic costs' or benefits, that alters the patient's relative position in the social hierarchy. Consequently, it is financial flows that determine fairness and these often do not correspond with economic costs. In Figure 2, it is likely that flows to and from taxpayers, dependants, and heirs will be regarded as having unequal significance with respect to fairness. As one example of this Olsen and Richardson argue that in the context of a NHS some indirect (production) benefits may be 'socially irrelevant' for prioritising services (Olsen and Richardson 1999). They argue that the inclusion of indirect benefits would have an anomalous outcome: for each additional dollar that the patient subsequently earned and *spent upon themselve* the taxpayer would be required to pay one additional dollar for the patient's cure.

Some economic costs may not be of interest in decision making in a national health scheme. These may include, for example, time and nursing costs borne by the patient's family and friends. While these are part of the total cost, additional compensatory payments from taxpayers may not be considered important for the achievement of fairness, which is likely to be concerned with the distribution of health outcome and the out-of-pocket financial costs borne by a patient or a patient's family. Other costs that are distributed more 'equitably' and borne by all patients may be deemed less important.

The flow of health and financial benefits between taxpayers and patients (and their dependents) may be viewed as the outcome of an implied social contract (Gauthier 1987). Taxpayer-citizens may consider that patients have entitlements for some classes of benefits but not for others (Anand and Wailoo 2000). Alternatively, they may recognise some 'communitarian claims' but not others (Mooney 1998b; Mooney 2005). These may include the provision of necessary health services and a minimum standard of material well-being, or support for family members in the case of death or permanent disability. In contrast, there may be no obligation to help an individual further their own self-interest, or for those with 'expensive tastes' (Cohen 1993; Keller 2002), or in the case of self-inflicted harm (Bowling 1996; Dolan, Cookson et al. 1999). The contractarian and communitarian perspectives highlight the peripheral role of economic costs per se in the determination of social justice, and the need to focus upon the relative - not absolute - welfare of the individual.

4. Fairness, Efficiency and Order Effects

The argument for a fairness-based framework is developed below by elaborating several themes that are already in the literature (see especially (Rice 2003)). In principle, the ideal framework would simultaneously consider efficiency and the full range of fairness-based theories - or, that subset which is relevant for a particular culture. As yet, however, this has not resulted in the development of an alternative framework that reflects the pivotal role of fairness in the context of an NHS. While efficiency is important, we argue below that the case for its dominating role in health-related economic analyses is surprisingly weak.

Social welfare is a function of both net material benefits and social justice, the latter consisting of procedural justice (access, respect, system responsiveness, and so on) and distributive justice (equity, desert, rights, and so on). Orthodox welfare theory considers only one benefit and one facet of social justice, namely, utility and its distribution, and this severely constrains the 'information basis' of normative analysis, a point driven home by Sen over several decades (Sen 1982; Sen 1985; Sen 1991; Sen 2005). Following an appropriate re-distribution 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 that achieves efficiency with any given distribution of initial resources. By assumption, and not because of empirical observation of population values, it excludes the possibility of the numerous other facets of fairness whose importance may vary between individuals and between nations.

The welfare model is almost exclusively concerned with the existence of equilibria, and neglects the dynamics of the economy when there are impediments to the achievement of fairness or efficiency. But in practise, impediments are the norm, not the exception. First, the assumptions of the model may be wrong: there may be increasing returns to scale,

externalities, and so forth. At the macro level, institutional impediments may prevent adjustment to a preferred equilibrium. At the micro level the compensation payments to potential losers from an economic policy may require higher taxes, which may be blocked by those who benefit from lower taxation.

As a consequence of these factors, the order in which objectives are analysed and implemented is potentially important. As Rice observes: 'Rather than saying, "we will take whatever the competitive market gives us, and then institute the necessary taxes and subsidies," a reasonable society might contend that "we will start with certain redistributive principles, and once they are established, allow the market to operate around these principles"' (Rice 2003, p. 60).

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 hypothesize 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 (Kuhn 1996). Consequently, it is both possible and probable that a particular tradition will emphasise certain elements more than others. The central thesis of this paper 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 which draw upon a well-developed framework but that there is no equivalent literature or theoretical framework for identifying and achieving social justice as defined by the population's social preferences. The examples in Section 2 illustrate the consequences of this asymmetrical emphasis in the literature.

Despite the potential impediments to adjustment, 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 appears to be self-evidently desirable. Efficiency creates a surplus that may be used to advantage some members of the community and, if no one is made worse off, Pareto efficiency will be achieved and social welfare increased.

This argument is most compelling in the case of technical or productive efficiency[11]. However, if policies to achieve efficiency result in a re-distribution of benefits - for example, some may become unemployed temporarily or re-employed in a less productive industry and at a lower rate of pay - then the Kaldor-Hicks criterion can be invoked. According to this criterion, one outcome is superior to another 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 (Ng 2004).

As stated above, the Kaldor-Hicks criterion is misleading. At best it identifies the outcome that is *potentially* superior, and provides an arguable basis for blame shifting. At worst it side-steps the essence of useful political economy; namely, operating within the realm of the politically feasible (Evans 1998; Hurley 1998; Reinhardt 1998; Rice 2003). Compensation for those who are disadvantaged by the implementation of a health policy is at the extreme

11. Even in these cases the argument for efficiency is value laden (although in most cases there would be widespread agreement with the values). Freed resources must be re-employed in a way that increases social welfare. Unemployed labour may not do this; increasing inequalities may off-set the proximate benefits (see Section 5).

end of the politically and technically unfeasible. 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 losers die, compensation is impossible. If health is seriously impaired, compensation may, again, be unfeasible. With a flexible budget, 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. Rather, the re-distribution of financial costs from the sick to taxpayers is often one of the objectives of a national health scheme. The virtual impossibility of compensation severs the logical link between re-distributive efficiency policies and most concepts of social welfare. Analyses which ignore this problem may well be rejected by a community for which fairness is a major concern.

The importance of this conclusion should not be underestimated. The apparently perverse results cited in Section 1, where respondents failed to select cost-minimising strategies, is almost certainly attributable to a recognition by respondents that these strategies imply a particular distribution of benefits, which they reject on grounds of fairness. In the study by Nord, Richardson, et al., for example, respondents explicitly agreed with the argument that, "It is unfair to discriminate against those who happen to have a high cost illness" (Nord, Richardson et al. 1995b, p. 84). This view can be challenged, and was challenged vigorously in the original survey. But the general point here is that the apparent anomaly is attributable to an "efficiency-first" perspective which does not satisfactorily encapsulate issues of fairness.

One way of defending the efficiency-first view is to ague that policy makers should adopt utilitarian (or 'quasi-utilitarian') values and maximise total utility (or units of health) and that efficiency is a necessary condition for achieving this objective. However, as well as staunch criticism of utilitarianism from philosophers (Ross 1930; Rawls 1971; Smart and Williams 1973; Gauthier 1987) there is a wealth of evidence against the view that the population has utilitarian values. Experimental economics has demonstrated consistently that people are prepared to forego personal utility gains, as well as the maximisation of total utility, for the sake of fairness, co-operation, reciprocity, and so on (Kagel and Roth 1995; Fehr and Gachter 1998; Fehr and Fischbacher 2004). In the health context, as indicated in Section 1, the majority of people will trade-off health to benefit certain groups, something which is consistent with all forms of welfarism except utilitarianism.[12] It is difficult to defend an analytical framework using a principle with such theoretical shortcomings and lacking widespread empirical support.

From a "fairness-first" perspective even the criterion of Pareto efficiency might be questioned. Figure 3(a) depicts a society with strong egalitarian principles. This result is a Social Welfare Function (SWF) that wraps around the line of perfect egalitarianism (the 45 degree line). Using the Pareto criterion, X dominates Z which dominates Y; that is, both A and B are better off at X than Z, and Z than Y. However, the SWF indicates that X and Y lead to the same social welfare and X is inferior to Z.

These results may initially appear paradoxical: How can A and B be better off but the society comprising A and B be worse off? There is however no paradox. Except in the case of

12. The social welfare function envisaged in welfare theory allows the marginal rate of substitution of one person's utility for anothers' to be greater or smaller than unity. Utilitarianism requires that the marginal rate of substitution along the SWF is always unity.

utilitarianism, a SWF combines utilities (or other arguments) into an index of social welfare that is not equal to the sum of individual utilities, because some utilities over some domains are valued more highly than other utilities. In the extreme example shown in Figure 3(a), utility gains that severely skew the distribution of utilities have a negative impact upon total social welfare.

The example also illustrates a class of motivations arising from social interactions that economists have tended to neglect, such as 'envy' and 'solidarity'. Point Z can only be superior to point X if the increase in B's utility at X leads to a loss of social welfare. Empirical evidence suggests that social preferences may, indeed, have the structure shown in Figure 3(a). For example, Zizzo and Oswald present evidence indicating that 62 per cent of their subjects would choose to reduce others' incomes and would forgo, personally, an amount up to 25 per cent of the reduction to achieve this result (Zizzo and Oswald 2001). Similarly, Fehr and Gachter conducted a public goods experiment which revealed that people are willing punish 'free riders' even when such punishment is costly for them, and yields no material gain (Fehr and Gachter 2002). Finally, Beckman, Formby et al. observed that opposition to Pareto optimality rose when subjects had information about their relative position in an experimental 'society' (Beckman, Formby et al. 2002). Opposition to Pareto optimality was 10.1 per cent when positions were unknown – when participants were placed behind a 'veil of ignorance' - and rose to 20.6 per cent when positions were known – when participants knew their relative position in 'society'.[13]

13. Of course, the Pareto principle could be defined so that envy, solidarity, or any other (dis)satisfaction is included in a person's 'utility'. While this might insulate the principle from the implied criticism in the text, as a general strategy it makes the principle tautologically true and uninteresting.

Figure 3(b) illustrates a weaker form of egalitarianism. Comparing points X and Y, this form of egalitarianism heavily discounts the increase in utility obtained by B at point X or, conversely, places great emphasis upon small increases in A's utility. With this more benign form of egalitarianism, efficiency-based and fairness-based analyses might imply the same optimal point. But envy and solidarity are pervasive and powerful human traits and, as noted, there is a growing body of experimental evidence which suggests that the social welfare function may be better described by Figure 3(a) than 3(b).

With both strong and weak egalitarianism there is the possibility of a trade-off between fairness and utility. In figures 3(a) and 3(b) point Z is less egalitarian than point Y, yet it represents higher social welfare. Commencing at point Y, within a fairness-based framework economists might be required to determine the quantitative effect of a program, involving an increase in efficiency, upon an index of egalitarianism. Subsequently, other options that reduce the index could be considered and either presented to decision makers for adjudication or incorporated in a formula that embodies the acceptable trade-off between egalitarianism and material-based benefits; that is, a formula representing a country's SWF.

The conclusion from this brief discussion is that in a publicly funded health scheme, which is justified on the grounds of fairness, the achievement of efficiency in the usual sense may be a relatively low priority, and may be overridden by considerations of fairness. This is not to say that efficiency plays no role. Government departments should aim to achieve their objectives at lowest cost to their budget. But these objectives, defined from a social perspective, need not include the economist's concept of economic efficiency. More realistically, they will include the achievement of equity and social justice, access to health services, the protection

of rights and opportunities, and the minimisation of some, but not necessarily all, economic costs.[14]

5. Discussion

The central suggestion in this paper is that, if the essential reason for a national health scheme is to ensure social justice, then the analytical framework for selecting the optimal scheme, and the services to include in it, need to be explicitly fairness-focussed. It has also been suggested that this framework may alter the relative importance of different issues and the research agenda associated with them.

It may appear inconceivable that such a well-established concept as 'economic cost' could be (partially) dethroned from its pivotal role in economic evaluation. How could its relative importance have been exaggerated for so long? There are several possible reasons. First, and most fundamentally, there is no straightforward empirical test of the validity of a conceptual framework. If it is flawed a bridge or stock exchange does not collapse. Moreover, discordant evidence, when interpreted from *within* a conceptual scheme, is commonly rejected because it conflicts with the scheme (Popper 1968; Kuhn 1996). Orthodox economics is largely sustained by the authority of economics itself. The technical presentation of even

14. Supporting this, Izerman et al. found that the results of economic evaluations, being focused on economic efficiency, are of only limited interest to decision makers in the Netherlands (Ijzerman, Reuzel et al. 2003). They were mainly interested in the results from clinical effectiveness studies and overall budget impact. This again calls into question the economist's view of the importance of costs in economic analyses in health care.

simple economic concepts to the public is sufficiently opaque to deflect serious criticism from outside the profession.

Second, the orthodox framework is appropriate in the general economy where private rather than communitarian values predominate. It is unsurprising that a successful framework in one context 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 focus on efficiency. The Kaldor-Hicks potential compensation principle may legitimately be invoked in many contexts as a conceptually defensible basis for shifting responsibility for the distribution of welfare to the government. Moreover, attempts to maximise GDP and, more specifically, the growth of GDP, may lead to a long-run dynamism in the economy that will eventually cause 'trickle-down' benefits for the entire population. In the health sector, however, there is no analogous argument. Maximised health cannot be re-distributed and the Kaldor-Hicks principle does not provide a sensible basis for blame shifting. Consequently, it is altogether reasonable that fairness should become of paramount importance[15].

The failure of the Kaldor-Hicks principle and, more importantly, the limitations of the 'efficiency-first' framework, are most obvious when, even in principle, it is impossible to separate fairness and net benefits and costs. This occurs in a significant number of cases; for example, when life is lost, when the net resource cost is a negative function of income (taxes

15. Another possible defence of the orthodox treatment of costs and benefits is that it would maximise the expected benefits from behind a 'veil of ignorance'. However, Rawls uses the veil of ignorance to defend the 'difference principle', which advocates maximising the position of the worst off (Rawls 1971). This differs from the usual concept of efficiency, namely maximising realised outcomes. A more important consideration, as judged by the implicit criterion in most empirical studies, is that it is highly unlikely that the population would accept the implications of 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. Finally, in general, the veil of ignorance device tends to elicit different recommendations from different commentators, depending on their prior ethical commitments, and this calls into question the usefulness of the device.

rise as incomes rise), and when the cost to the taxpayer takes the form of pension payments to disabled patients. The benefit to recipients in this latter case - income maintenance - cannot be re-distributed back to losers as the re-distribution would identically offset the benefit!

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 that take the form of increased consumption by the patient and which therefore favor wealthier patients may be largely, but not fully, discounted. For example, 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 even when this dollar is entirely spent by the patient, not the taxpayer. 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 beneficiary. In aggregate, this represents a form of income insurance. Likewise, health services that 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 the preferential treatment of high income earners.

In other words, subject to the practicality of the policy, different categories of net resource cost may be treated differently. Direct health expenditures may receive a unitary weight. Indirect benefits may receive different 'generosity weights' depending upon whether they result in additional consumption, savings, or taxation. The weight might be further varied if the recouped tax benefits are related to a patient's income. While there are practical constraints upon the implementation of such policies, the development of multi-attribute instruments for the measurement of the quality of life and the inclusion of age weights by the

WHO in the measurement of DALYs illustrates how a variety of values might be quantified and included in policy analysis.

The suggestions here may convey a sense of unreality. From the literature, few economists appear to be dissatisfied with the orthodox treatment of costs. 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 among economists or epidemiologists about socio-economic gradients in health status, the erratic levels of access to care and the widespread mis-allocation of resources. These issues may not have been of concern, but the explicit recognition of these and other problems has undoubtedly resulted in theory and policy that have the potential for improving social well-being.

6. Conclusion

The chief suggestion of this paper is that economists have focussed primarily upon net material benefits and that this may be inappropriate in the context of a national health scheme which has been established primarily to achieve fairness-related objectives. In all its forms, fairness involves a comparison of each person's situation with the situation of others. In contrast, the goal of allocative efficiency does not necessarily require this information, and for this reason it may sometimes be in direct conflict with the achievement of social justice.

Welfare theory acknowledges the existence of a trade-off between efficiency and equity but there has been remarkably little empirical enquiry into these issues. Within the efficiency-based framework the primary concern has been the maximisation of net benefits. A pivotal but implicit assumption behind this approach is that net benefits may be re-distributed to compensate losers. 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. Compensation is also impossible in the context of a NHS. It would require those who have been ill and cured using NHS resources to be taxed to compensate the original taxpayers who funded medical care. Taxing the sick has never been contemplated.

A second, broad assumption of the usual framework is that all costs and benefits must be included and equally valued by an amorphous 'society'. But for reasons of fairness benefits and costs may be socially irrelevant or discounted to various extents depending upon their distribution, the recipient and the context. While the textbook SWF also treats different utilities differently, the varying notions of fairness in different countries suggest a more complex pattern of value weights than shown in the simplified textbook account of social welfare. Moreover, the rationale for treating utilities differently is often perfunctory or missing. The focus is almost always on overall costs and benefits, rather than the fairness of the financial flows between patients and others.

The main recommendation of this paper is that economists should develop a fairness-based framework in the health area and undertake the implied empirical studies. It has been suggested that this will not simply quantify the importance of particular dimensions of fairness but that it will result in a re-interpretation of economic theory in the context of a fairness-motivated NHS. Three examples of this re-interpretation have been given, namely,

the distinction between costs and transfer payments, the treatment of unrelated future costs and, finally, the interpretation of the demand curve and the purported 'dead-weight loss' associated with health insurance.

If the principal conjecture of this paper is accepted, there is a major empirical research program yet to be undertaken concerning the nature of social preferences. The discussion has focused on only one issue of social justice, namely, distribution. A satisfactory framework must necessarily commence with a detailed understanding of the notion of social justice that a society wishes to incorporate in its health scheme, a process that has been described as 'Empirical Ethics' (Richardson 2002a). 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 should be included, discounted or excluded from the framework.

It has also been suggested that a fairness-oriented framework may result in a different understanding of the significance of particular observations. In this context, the interpretation of the demand curve, as discussed in Section 2, is particularly revealing. Economists are commonly attracted to the use of co-payments to improve economic efficiency. 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 a different lens. This is consistent with the hypothesis that economists are operating from within a different 'paradigm' in the Kuhnian sense of this term. Economists interpret evidence first in terms of efficiency. Most of the population interpret the same evidence first in terms of fairness. As predicted by Kuhn (Kuhn 1996), communication between the paradigms appears to be difficult. As judged by the evidence presented by psychologists, and experimental

economists, the latter and not the former paradigm may have a greater effect upon marginal subjective well-being in affluent societies: distribution and fairness, and not the absolute level of benefits, may be of greatest importance for social welfare (Loewenstein, Thompson et al. 1989; Bolton 1991; Amiel and Cowell 1994; Bewley 1998; Kahneman, Diener et al. 1999). More to the point, economics purports to assist with the achievement of society's objectives. It does not have the responsibility or the authority to replace them.

Table 1: Unrelated Consequences

Individual	Service for:		Benefits	Costs (PV $000)		Cost per Life Year (PV $000)	
	Disease X	Patient Age	Life Expectancy	Direct Medical	Other Medical	Direct	Total
A	Yes	60	10 Years	100	0	10	10
B	Yes	70	10 Years	100	100	10	20
C	Yes	60	10 Years	100	0	10	40,010

Table 2: Disease cost and fairness ($000)

	Disease				
Disease	**A**	**B**	**C**	**D**	**E**
Benefit of Cure/person	40	40	40	40	40
Cost/person	10	20	30	40	41
Social spending ('subsidy')	10	20	30	40	0
Personal out-of-pocket	0	0	0	0	41

Figure 1: Two Interpretations of Moral Hazard

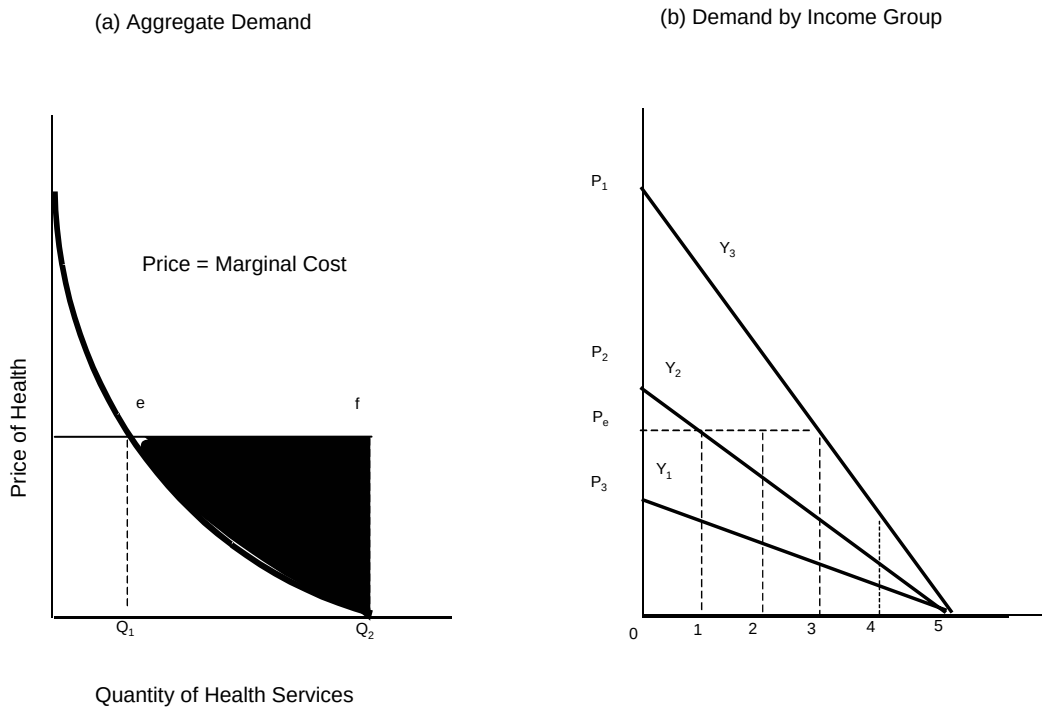


Figure 2: Schematic Diagram of Financial Flows

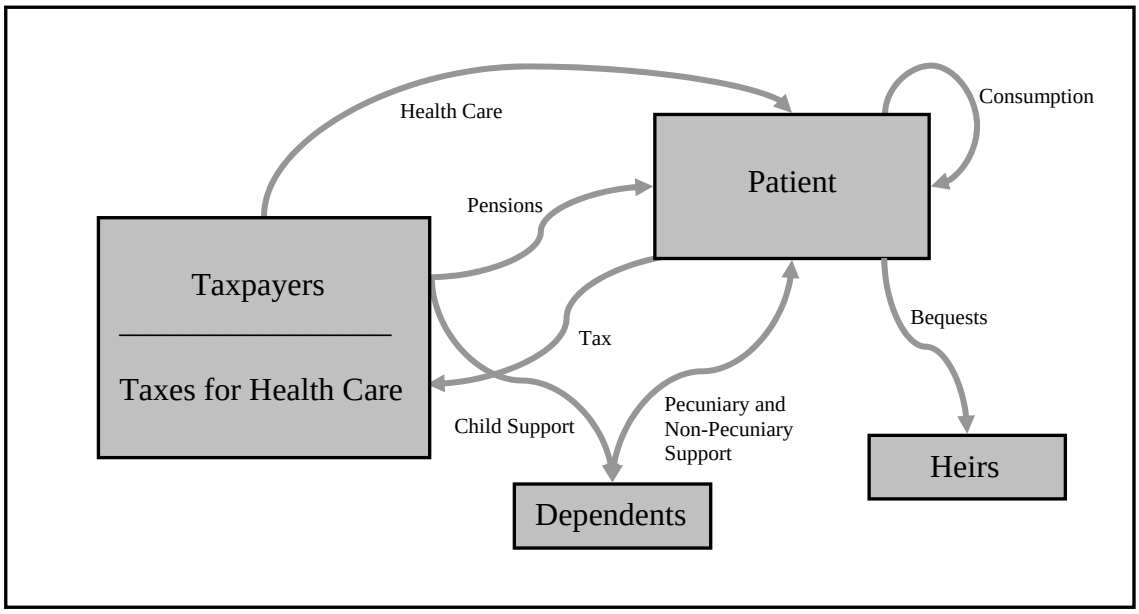
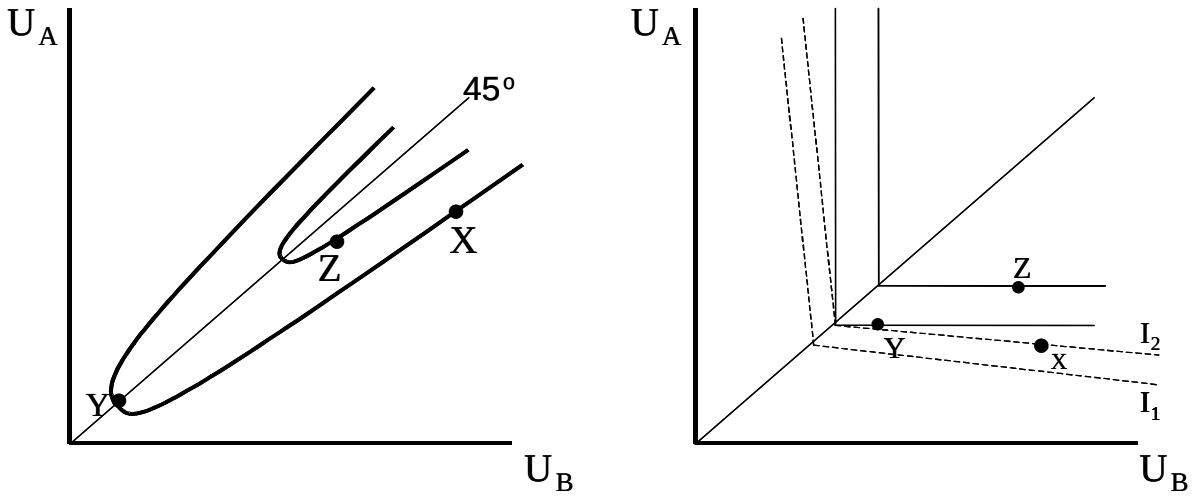


Figure 3: The Egalitarian Social Welfare Function

(a) Strong Egalitarianism (b) Weak Egalitarianism



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