Social Value Maximization and the Multiple Goals Assumption: Is Priority Setting a Maximizing Task at All?

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It is often assumed that decision-makers pursue the goal of fair allocation of healthcare resources besides or in addition to the goal of maximizing health (multiple goals assumption). The task of combining the goals is then assumed to involve a trade-off. Its quantitative shape, or so it is usually argued, should be based on data from social preference studies. The amendment of the conventional, health-maximizing approach is thus conceived to involve a change toward social value maximization. This chapter, however, suggests that an adequate conceptualization of fair resource allocation involves a break not only with health maximization but, more generally, with the idea of maximizing any value or values at all. It involves, in other words, a break with the link between ("social") preference and value. If this is true, integrating fairness is beyond the paradigm. The point is exemplified by commenting on the idea of equity weights for QALYs.

1 The Multiple Goals Assumption

As Weinstein et al. summarize, the conventional QALY approach had been developed with the intention to aid decision-makers, assuming that "[…] a major objective of decision-makers is to maximize health or health improvement across the population subject to resource constraints" (Weinstein et al. 2009: S5). The proponents of the conventional approach, they say, would however agree "[…] that decision-makers may also have other objectives such as equity, fairness, and political goals, all of which currently must be handled outside the *conventional* [approach]" (ibid.).

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E. Nagel, M. Lauerer (eds.), *Prioritization in Medicine: An International Dialogue*, DOI 10.1007/978-3-319-21112-1_5

There is a nontrivial assumption in these quotes. It is the idea that efficiency and fairness are two different objectives that can consistently be held at the same time. Weinstein et al. suggest that the decision-maker will pursue the goal of fairness in addition to the goal of health maximization – an assumption that leads many analysts to presume that the decision-maker will want to make a trade-off when the goals cannot both be fully attained. However, when a decision-maker realizes that health maximization is not fair, her reaction may simply be to drop it as a separate goal. She might take the unfairness of health maximization as proof that this objective is, as such, unethical, and she might then seek for another way to allocate resources, a way that is fair. Fairness, in other words, might be the decision-maker's only goal.

Health economists tend to not perceive the matter in this way because they are used to conceptualize fairness as some sort of distributive equality – equality in health status, or equality in health gain, or perhaps equality in lifetime health. If fairness is conceptualized as distributive equality, it is wildly implausible to imagine that it might be the decision-maker's only goal. The reason is that equality can most successfully be achieved by treating all patients equally bad.[1] Perfect equality in health status is achieved when all patients are dead, and perfect equality in health gain is achieved when no health care is funded at all. Thus, it is concluded that the decision-maker must first have the goal to produce health and that her wish to have that product evenly distributed among the beneficiaries can only be a second goal. However, there are good reasons not to conceive the matter in this way. No decision-maker who is in her right mind would agree that one of her health policy goals, fairness, would be perfectly achieved if all patients were dead, but that she does not agree to let all people die, or kill some, as it were, because her health policy follows yet another goal: that the system be efficient. Instead of making the multiple goals assumption, one should rather conclude that the goal of distributive equality is an inadequate conceptualization of what decision-makers intend when they strive for fair allocation.

These remarks may, so far, indicate to the reader that the multiple goals assumption – the idea that fair distribution is a separate goal besides the goal of health maximization – is a nontrivial assumption. It presupposes, first, a conceptualization of fairness that makes it plausible as a goal in itself. Given such a concept, it further presupposes that the normative basis of this goal is consistent with the normative basis that stands behind the goal of health maximization. This is not trivial, again. The conventional approach cannot be amended by supplementing it with considerations that are critical, instead of complementary, to its own normative basis. The claim that the results of conventional economic evaluations have normative relevance for the decision-maker – a relevance that survives the decision-maker's

[1] This is known as the leveling down objection. It objects to conceiving equality per se – of welfare, of resources, chances, or whatever – as a valuable property of outcomes, be it within a monistic or within a pluralistic axiology. See, for a seminal text, Parfit (1995). The force of the objection is occasionally recognized in the context of publications that contribute to health economic issues. See, for instance, Broome (2002).

wish to implement fair procedures – depends on showing that such consistency can be achieved.

The question of how to conceptualize fairness can thus not simply be left open or left to others. The multiple goals assumption suggests that it may be adequate to tackle the fairness problem, as Weinstein et al. put it, "outside" the conventional approach – which also suggests, in turn, that one goal, at any rate, is served adequately when the economic evaluation proceeds in the conventional manner. The multiple goals assumption itself, however, remains unwarranted as long as the conceptual and foundational issues are left untackled.[2] It remains completely unclear what sort of relevance the conventional QALY approach has for the decision-maker as long as the objection that the method taken by itself is unfair has not been dealt with.

What has been said so far can be summarized in a first message:

> The fairness problem can only be solved outside the conventional, health-maximizing evaluation approach when fairness and efficiency are indeed separable moral objectives and when their respective normative foundations are consistent. If this is not the case, tackling the fairness problem means correcting, not supplementing the conventional approach. We do then have to look for the source of unfairness within the efficiency objective's own normative basis.

2 Health Maximization

The source of the unfairness of the conventional approach may be superficial and thus easy to remove, or it may lie deep. One of its symptoms arises, or may arise, when productivity losses are included in the cost-effectiveness assessment. Productivity losses, so-called indirect costs, are costs that societies have to bear if people cannot go to work because they are sick. If such costs are included into the assessment, a treatment that brings patients sooner back to work is, other things equal, rated more cost-effective. If, however, the patient group belongs to the non-working population, there are no such costs associated with their sickness. Other things being equal, it is less cost-effective to treat such patients. An economic evaluation handbook concludes: "Under strict application of the principles of efficient allocation, working people must be given the more preference the higher their income" (Greiner and Damm 2012: 33, translation W. L.).

Politicians who publicly call for the efficient use of health-care resources would probably stop to do so if knowledge of a quote like this was widely spread among the population. The unfairness of such a recommendation has, however, not come to

[2] One indication that they are indeed untackled is the purely intuitive nature of enumerations like "equity, fairness, and other political goals" in the quote given before: What is "equity", and how does it relate to "fairness"? Are these two goals or two names for one goal? Analysts who conceptualize the goals of decision-makers in such a pêle-mêle fashion have no clear picture of what these objectives are and how they relate to the concept and the foundational principles of efficiency.

the mind of analysts as a result of social preference studies. It is rather a matter of moral and political common sense. But why is it that in our public health-care institutions we do not want to prioritize patients by the order of their income? A natural answer would be that we think that sick people should be treated because it is good for their health not because their health is good for society. For this reason, cost-effectiveness analysis looks officially, i.e., on the benefit side, for health effects only, not for indirect benefits. Including indirect costs is a way of circumventing this restriction. It counts the loss of indirect benefits as indirect costs. The problem is not of much relevance in practice because evaluators mostly work with average income figures, if only for the lack of more specific data. One could even legally determine that productivity costs may only be introduced as average values. But such an amendment would be ad hoc. It would mean to shrink away from a consequence of one's evaluative principles without openly apostatizing from the principles.

Some analysts have always doubted that the decision to restrict the benefit assessment to medical benefits has a consistent theoretical basis. If we opt for efficiency, they say, we must count all benefits of health-care allocation and all costs. They are right. Those who choose cost-effectiveness analysis as their evaluation paradigm show thereby (unless they include all foregone indirect benefits as losses in their assessment of the costs) that they do not strive for full efficiency. They should carefully explain why. If something is wrong with efficient allocation when all sorts of benefits are included, it might be something wrong with it when only health benefits are included too.

And there is something wrong with it. A well-known unfairness objection against conventional cost-effectiveness analysis is the severity of diseases objection – the objection that the approach is blind as to whether the QALYs go to severely or to slightly ill patients. Another is the objection of disability discrimination – the objection that the approach is not blind between treating a life-threatening disease when it befalls a disabled patient and treating the same disease when it befalls a non-disabled patient. An ad hoc amendment for fairness problems like these is equity weighting. Equity weights are multiplication factors that are introduced in order to make some patient group's QALYs count more than others. Here is an example for a severity case (Fig. 1).

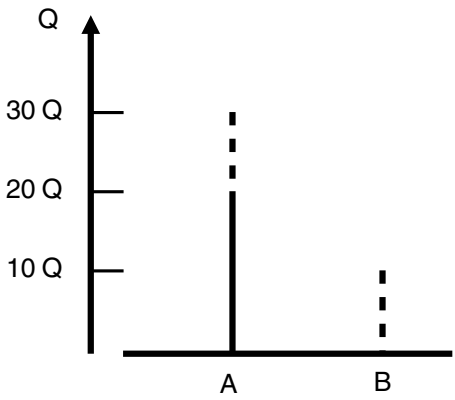

Fig. 1 A severity case

Continuous lines show the QALYs that a patient with a certain disease can expect to have without treatment. Dotted lines show the gains that can be expected from treatment. Gains for a patient with disease A and gains for a patient with disease B are assumed to be alternatively fundable under the given budget constraint. The conventional approach expects the decision-maker to be indifferent between treating a patient with disease A and treating patient with disease B since both options lead to the same total gain of QALYs. In social preference studies, however, people have been found to prefer that patients with disease B be treated – the more severely ill patients. Introduction of severity weights can explain the observed preferences.

An ad hoc amendment is a change in one's evaluation paradigm that serves to reach intuitively and/or socially accepted results for certain decision problems without showing how the newly introduced terms or concepts fit with the paradigm's theoretical frame. QALY weights have been used in such an intuitive manner by national HTA institutions. NICE[3] used weights to keep the funding of some so-called end-of-life QALYs compatible with its cost-effectiveness threshold after having found that such funding was socially wanted. A theoretical interpretation for equity weights has, however, been offered in the literature. So perhaps the amendment is not necessarily ad hoc. Here is a relevant quote: "[S]ociety's overall valuation of health output is a function not only of total output, but also of the distribution of health output across individuals. […] The term *health-related societal value* may be used to designate the overall value that society assigns to different health outcomes and programmes when concerns for both efficiency and equity are taken into account. Equity weighed QALYs are thus measures of health-related societal value" (Nord et al. 1999: 25). We are thus invited to read a weighted QALY term as representing the value, then called "societal value" or "social value," with which that QALY gain contributes to the overall value of the outcome of a funding option. The next section is a comment on this proposal.

3 Social Value Maximization

The given quote defined the social value as the value that "society" assigns to a QALY gain when concern for two goals is taken into account: efficiency, understood as health maximization, and "equity." Social value is thus not meant to be the value that a patient's health has *for society* in the sense that is involved in the issue of productivity losses. The subjects of empirical studies conducted to elicit equity weights are not presented with income data. They are confronted with decision problems similar to the case presented in Fig. 2.

Figure 2 involves a so-called person trade-off. Either care for two patients with disease A or care for one patient with disease B can be funded. The subject is asked whether she would still prefer that the patient with disease B be treated. If she does, she is asked about 3 vs. 1, 4 vs. 1, and so on, until she eventually reaches

[3] *National Institute for Health and Care Excellence* (formerly *National Institute for Health and Clinical Excellence*), the British official institution for Health Technology Assessment.

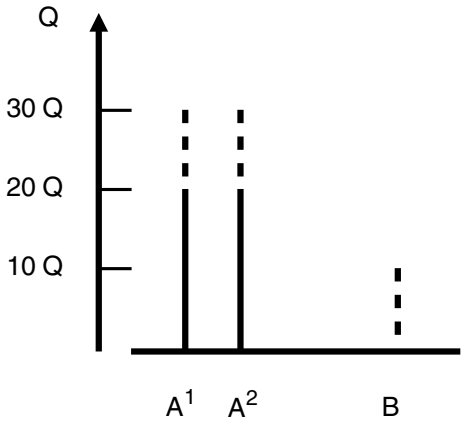

Fig. 2 A severity and number case

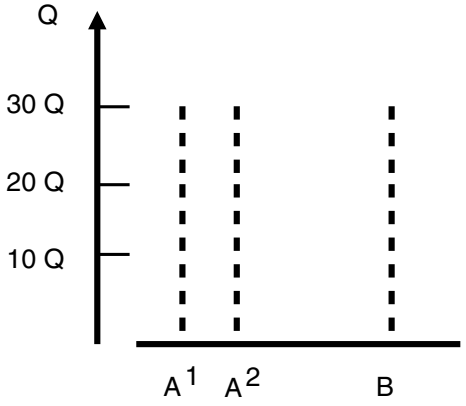

Fig. 3 A number case

indifference. The QALY weights are then determined such that the aggregated social value of the QALY gains in each outcome explains the subject's choices. If the subject, for instance, expresses indifference for the options in Fig. 2, the following weights would explain the observed result (bold lettering refers to dotted lines in Fig. 2):

$$\max \left(\tfrac{1}{2}\mathbf{Q}^{\mathbf{A1}} + \tfrac{1}{2}\mathbf{Q}^{\mathbf{A2}} + 1\mathbf{Q}^{\mathbf{B}} \right)$$

There are, however, social facts (and extensive academic debates in fields that are usually not followed within health economics[4]) that throw some doubt on the method and on its conceptual frame. Consider Fig. 3.

[4] One such debate is the debate on whether the number of people saved is a morally relevant consideration when persons are grouped in different, non-overlapping groups which can only be saved alternatively. The question is directly relevant for judging the merits, or demerits, of the person trade-off. The seminal text is Taurek (1977). For some contributions, see Parfit (1978), Rakowski (1993), Kamm (1993, Ch. 5–7), Scanlon (1998: 230–241), Lübbe (2008), and Hirose (2015). For

In Fig. 3, disease A is a single organ failure of either the heart or liver. Disease B is double organ failure of the heart *and* liver. There is no difference in the severity of diseases since all patients are about to die unless they get transplanted. To make matters simple, the case example assumes that the patients have equally good prospects for their future health if transplanted. Transplants, as is well known, are scarce and people are dying on the waiting lists. Whenever a patientss with disease B is transplanted, two patients with disease A must die who could have been helped instead. In view of the person trade-off method – which assumes that if other things are equal, more persons treated means more social value – we should expect decision-makers to remove patients with disease B from the waiting lists. However, such patients are in fact transplanted like everybody else when their turn comes before they die. The rules which determine their turn do not even gradually move them back on the list because of their double need to resources. This holds for the Eurotransplant region, and the author of this article is not aware of an allocation system that handles this otherwise. The rules show, in other words, indifference between transplanting one patient with disease B and transplanting two patient patients with disease A.

If the method of eliciting QALY weights from social preferences was sound, the widespread acceptance of such rules would be evidence for the following weights (bold lettering refers to dotted lines in Fig. 3):

$$\max \left(\tfrac{1}{2}\, \mathbf{Q}^{\mathbf{A1}} + \tfrac{1}{2}\, \mathbf{Q}^{\mathbf{A2}} + 1\, \mathbf{Q}^{\mathbf{B}} \right)$$

There is, however, no difference in the severity of diseases involved and in no other so-called context factor except the fact that patients with disease A needs half as much resources. We would have to conclude that society sees double value in the survival of people with double need of resources.

This is of course nonsense. It cannot be the right interpretation of the preferences that are here revealed. There is only one sensible interpretation for such rules: The task of allocating transplants is not perceived to be an exercise in value maximization – neither in health maximization nor in social value maximization. Transplants are one sort of medical resource. It could thus well be that the task of allocating financial resources for medical care is not an exercise in value maximization as well. This suggestion is explained in more detail in the last section. First, here is a second summary message:

> Equity weighting assumes that health care allocation is an exercise in value maximization. Social preference studies do not confirm this assumption empirically. The assumption is a preconception that analysts foist onto their subjects. It may be false, and there are actually reasons to doubt it. Without the assumption, no equity weights can be elicited from preference studies.

an effort to link this foundational debate with the debate on medical priority setting, see the proceedings of the 2009 conference of the *Harvard University Program in Ethics and Health* "Ethical Issues in the Prioritization of Health Resources," http://peh.harvard.edu/events/2009/priority_resources/, Day Two, Session 1 (3.3.15).

4 Additive Interpersonal Aggregation

Consider again Fig. 3. As we have seen, it is easy to mathematically represent such a choice as a value maximizing choice. However, unless a reason is given *why* a subject would want to value certain QALYs more than other QALYs, this is just playing around with figures. In the transplant example, the only context factor that could be used to explain unequal QALY weights is the different amount of resources which is needed to treat the patients. There is no sense in assuming that a higher need to resources might be a reason to value a person's survival higher. Decision-makers would of course explicitly deny that they value the patients' lives differently. If asked why they still do not prefer treating the patients with disease A, they would rather say that any of the patients has an equal claim to survival and that when not all claims can be satisfied, it is fair to give each patient her chance to survival when her turn on the waiting list has come. Subjects would, in other words, not even speak about the value of the patients' lives. They would speak about the patients' claims.

Talking about claims which are to be satisfied, instead of talking about values which are to be produced, is perhaps the more adequate talk for decision-makers who have to allocate public health-care resources. Evidence for the unavoidability of a concept of claims (or rights) can be found within the health economics literature too, although these concepts have no roots in the intellectual history of welfare economics.[5] The concepts surface, notably, when the problem of disability discrimination is discussed. It is a matter of moral common sense, for instance, that a blind patient, other things equal, has the same right to get a transplant than a seeing patient. The question whether we produce as much value when we transplant the disabled, or in other words whether resources are used as efficiently if we do, is simply not relevant. Disabled patients have the same right to be treated, and that is it. *There is no trade-off with efficiency.*[6] This is further evidence for suspecting that the source of the fairness problem lies within the very basis of the efficiency objective itself and can thus not be solved outside it.

The transplant case indicates that value maximization by (weighted or unweighted) additive interpersonal aggregation as such involves a fairness problem.

[5] This is due to the utilitarian background of the field and is acknowledged as a problem within modern welfare economics. Two authors who have, over many years, tried to overcome the problems associated with this fact are Amartya Sen and John Broome. See Sen (1981) and Broome (1984) for starting points. Both authors stay, however, within the consequentialist paradigm – the idea that the rightness of choices is determined by the overall goodness (or value) of outcomes. For a foundational critique of the consequentialist assumption, developed out of the debate referred to in footnote 4, see Lübbe (2009) and Lübbe (2015), Ch. 3–5.

[6] The point is developed, with detailed references to the health economics literature, in the overview article of Klonschinski and Lübbe (2011). The relevance of the rights/value distinction for judging the role which has been claimed for the QALY approach in the German debate on the evaluation of medical benefits and costs of drugs – a task with which Germany's official institution for Health Technology Assessment, the IQWiG ("Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen"), has been legally charged in 2007 – is set out in Lübbe (2011).

If this is true, the fairness objective cannot be integrated by manipulating the value of the units that are aggregated. This can be put into a third summary message:

> Equity weighting assumes that fairness can be integrated into cost-effectiveness analysis by manipulating the value of the units that are aggregated. If, however, the fairness problem rests within the additive mode of aggregation, the assumption is wrong. Additive interpersonal aggregation, weighted or not, might as such be incompatible with conceptualizing fairness adequately.

In order to discuss the acceptability of interpersonal addition in detail, one would have to go into the axiomatic basis of the addition theorems that have been presented within the welfare economic tradition. I do indeed believe that their axiomatic basis is untenable.[7] But these are topics that are discussed in other places.

References

Broome J (1984) Uncertainty and fairness. Econ J 94:624–632
Broome J (1991) Weighing goods. Equality, uncertainty and time. Basil Blackwell, Cambridge, MA/Oxford
Broome J (2002) Fairness, goodness, and levelling down. In: Murray CJL, Salomon JA, Mathers CD, Lopez AD (eds) Summary measures of population health. Concepts, ethics, measurement and applications. World Health Organization, Geneva, pp 135–137
Diamond P (1967) Cardinal welfare, individualistic ethics, and interpersonal comparison of utility: a comment. J Polit Econ 75:765–766
Greiner W, Damm O (2012) Die Berechnung von Kosten und Nutzen. In: Schöffski O, Graf v. d. Schulenburg, J.-Matthias (eds) Gesundheitsökonomische Evaluationen, 4th edn. Springer, Berlin, pp 23–42
Harsanyi JC (1955) Cardinal welfare, individualistic ethics, and interpersonal comparisons of utility. J Polit Econ 63:309–321
Hirose I (2015) Moral aggregation. Oxford University Press, Oxford
Kamm FM (1993) Morality, mortality, vol. I: death and whom to save from it. Oxford University Press, New York
Klonschinski A, Lübbe W (2011) QALYs und Gerechtigkeit: Ansätze und Probleme einer gesundheitsökonomischen Lösung der Fairnessproblematik [QALYs and fairness: Health economic approaches to the fairness issue and their problems]. Das Gesundheitswesen 71:688–695
Lübbe W (2008) Taurek's no worse claim. Philos Public Aff 36:69–85

[7] In particular, the Sure Thing Principle, as applied to social choices, is not compatible with the demands of fair allocation. An argument to this effect, made originally by Peter Diamond (1967), was the starting point of John Broome's endeavors to develop a theory of fairness that could supplement axiomatic utilitarianism without destroying its basis in expected utility theory. See Broome (1984: 624): "It is a popular belief that there is merit in equalising people's utilities […]. The same belief is sometimes extended to *expected* utility too […]. If this is true it is profoundly important for welfare economics. It means […] that 'social' preferences do not obey the sure thing principle, which is generally taken to be an essential requirement of rationality." Broome here acknowledges the force of the objection that Diamond (1967) brings forward against John Harsanyi's (1955) addition theorem; see also Broome (1991:110–117). For discussion, see, among others, Verbeek (2001), Risse (2002), Stefánsson (2015), Lübbe (2015), Ch. 4–5.

Lübbe W (2009) The aggregation argument in the numbers debate. In: Fehige C, Lumer C, Wessels U (eds) Handeln mit Bedeutung und Handeln mit Gewalt. Philosophische Aufsätze für Georg Meggle. Mentis, Paderborn, pp 406–421
Lübbe W (2011) Dissenting opinion. In: German Ethics Council, Medical benefits and costs in healthcare: the normative role of their evaluation. German Ethics Council, Berlin, pp 96–121
Lübbe W (2015) Nonaggregationismus: Grundlagen der Allokationsethik. Mentis, Münster
Nord E, Pinto JL, Richardson J, Menzel P, Ubel P (1999) Incorporating societal concerns for fairness in numerical valuations of health programmes. Health Econ 8:25–39
Parfit D (1978) Innumerate ethics. Philos Public Aff 7:285–301
Parfit D (1995) Equality or priority? University of Kansas, Kansas
Rakowski E (1993) Saving and taking lives. Colum Law Rev 93:1063–1156
Risse M (2002) Harsanyi's 'utilitarian theorem' and utilitarianism. Nous 36:550–577
Scanlon T (1998) What we owe to each other. Belknap, Cambridge MA/London
Sen A (1981) Rights and agency. Philos Public Aff 11:3–39
Stefánsson HO (2015) Fair chance and modal consequentialism. Econ Philos forthcoming, available on CJO2015. doi:10.1017/S0266267115000152
Taurek JM (1977) Should the numbers count? Philos Public Aff 6:293–316
Verbeek B (2001) Consequentialism, rationality and the relevant description of outcomes. Econ Philos 17:181–205
Weinstein MC, Torrance G, McGuire A (2009) QALYs: the basics. Value Health 12 (Suppl I):S5–S9