Age Weighting and Discounting: What are the Ethical Issues?

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Abstract

The burden of disease is separable from the social value of that burden. In economic evaluation the social value of a program usually takes account of time preferences and future benefits are discounted. Recently, the WHO DALY has included weights to reflect the social importance of the burden of disease at different ages. It is argued here (1) that the most useful concept of the burden of disease may exclude age weights and time preference, (2) that the inclusion of age weights may, without care, result in double counting, (3) that the discounting of future health benefits does not, strictly, represent a technical requirement but is an ethical judgement – a preference for a particular intertemporal distribution of health; (4) that decisions regarding such judgements should be informed by the judgements of the public and, further, the ‘meta issue’ of the appropriate use or dis-use of this preference data may itself be the subject of public choice. This is demonstrated using a survey of public preferences with respect to the desirability of governments implementing or overriding public preferences with respect to time preference. The term ‘empirical ethics’ is suggested to describe the empirical enquiry into ethical beliefs and the appropriate use of these empirical values.
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Introduction

In Working Paper 109 I defended three arguments: First, the ‘conceptual basis’ for any summary measure of population health (SMPH) is value laden and measurements created to help guide public policy unavoidably embody ethical judgements. If an SMPH is intended to measure or part measure the burden of disease then a fundamental property of the SMPH is that additional units must correspond with something judged to be a burden. Similarly, if the argument for a health program or policy intervention is strengthened as the numerical value of an SMPH increases, then there is, unavoidably, the implication that the SMPH measures something that is of value. ‘Value’ implies an ethical foundation. In sum, if more ‘X’ implies a better/worse state of the world then the concept of ‘X’ is value laden.

Secondly, the Burden of Disease (BoD) should be conceptualised separately from the benefits of a health program. While the two concepts overlap, they are separable. The social importance of the same BoD may differ with context and other characteristics. Some individual benefits relevant for a useful concept of the BoD may be excluded from the social valuation of a health program. For example, Olsen and Richardson (1999) argued that (indirect) economic benefits arising from a health program – benefits that could be included in the measurement of the BoD – may be treated to a greater or lesser extent, as ‘socially irrelevant benefits’, ie they should not be included in the calculation of program benefits. In the present article it is suggested that discounting and age weights – notions which are relevant to an economic evaluation – may not be relevant for the BoD.

Thirdly, there is a role for ‘empirical ethics’. The apparent reluctance to use empirical techniques to help determine the appropriate ethical basis of a concept or evaluative framework probably reflects the fact the empiricism per se cannot bridge the gap between positive and normative propositions; nor can it defend the universality of an ethical rule. The counter argument is that in a liberal democracy population values should be taken into account. A defensible proximate rule suggested for judging ethical issues is that in particular contexts and over a limited range of

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1 In summary, to the extent that indirect benefits are directly proportional to income, their inclusion in the evaluation will favour the wealthy and possibly transgress social notions of equity. The extent to which such a benefit should be discounted or entirely eliminated is an ethical issue which is likely to be country specific.
issues population values should be given prima facie ascendancy. The relevant contexts must exclude those which are morally abhorrent: racial discrimination, economic impoverishment or loss of fundamental liberty, etc. However the majority of our ethical decisions are not of this sort. They represent trade-offs between options which are ethically defensible. The lack of universality of this approach does not distinguish it from other areas of applied theory either in economics or in other disciplines and there is no other ethical system which can claim to have such universality.

In the present paper, conclusions drawn from these three arguments are applied to two specific ethical questions, viz, age weighting and the discounting of future life years. I commence by recapitulating the second point above; namely, that there is a need for a separation of the concepts relating to the burden of disease (BoD) and those which are relevant to the evaluation of a health program. The subsequent arguments are as follows:

• The differential treatment of life years at different ages is one of a larger class of social – as distinct from individual – concerns which may, in principle, be included in an economic evaluation. There is, however, a potential for double counting and for the inclusion of weights which have not been validated by exploring the acceptability of their logical implications. This appears to be the case with published age weights.

• Discounting – perhaps the ethically most problematical concept in health economic evaluation – reflects ethical attitudes towards, inter alia, the distribution of health benefits.

• Discounting and age weights should not, normally, be used in the calculation of the BoD. More precisely, the most useful concept of the BoD may not imply weighting for age, time or for other elements which may be relevant in an economic evaluation of social value.

• The use, and even relevance, of pure time preference as distinct from risk, diminishing returns etc, is contestable even in the context of an economic evaluation. I put forward the ‘Abdication Hypothesis’, viz, that the public would like to have certain decisions partly or wholly determined by the government and not by fellow citizens. The hypothesis implies the possible discounting of pure time discounting!

Both of these issues illustrate the relevance of ‘empiricism ethicism’. Empirical age weights and rates of time preference are examples of the direct incorporation of population values. The Abdication Hypothesis is an example of empirical ‘meta ethics’ viz, the use of empirical evidence for the determination of the ethical criteria. If supported, it implies a potentially large research agenda to determine the limits to abdication – when (what contexts) and how much (how far from public opinion) can governments defend policies through public abdication.
Burden of Disease vs Social Value

The present (social) value of a life year may be expressed as equation 1.

\[ \text{Present value} \quad \text{LY} = A \cdot D \cdot S \cdot (\text{LY})(\text{QoL}) \ldots \quad (1) \]

\[ = A \cdot D \cdot S \cdot (\text{QALY or DALY}) \]

Where \( A \) = an age weight; \( D \) = discount factor; \( S \) = weight for other social benefits (see below); \( \text{LY} \) = a life year; \( \text{QoL} \) = Quality of Life (utility) index. See Menzel et al (1999) for a discussion of such benefits and the empirical evidence of their relevance.

There is a fundamental distinction between the first two and the last two concepts captured in equation 1. The QALY/DALY (unweighted) is time-based. A life year represents duration – time – and QoL (as usually envisaged)\(^2\) reflects the quality of the time. For this reason the QALY/DALY (unweighted) is something actually ‘felt’ psychologically in ‘real time’. A person will experience the sensations associated with the QoL and this will occur whether or not they explicitly conceptualise what is happening. By contrast, an age weight and discount factor are not experienced in this way; they are not based upon duration of time but upon a particular attitude or belief with respect to the treatment of the QALY/DALY or, more commonly, the QALY/DALY of another person. Over-simplifying somewhat, the QALY/DALY is a psychological concept, while discounting and age weights are ‘cerebral’ concepts. Restated, QALYs/DALYs may be conceptualised as ‘pints’ of (psychological) utility: age weights and the discount factor cannot be visualised this way. They are beliefs which, in principle, could be held and defended dispassionately – their realisation (or otherwise) may have little impact upon the psychological QoL beyond transient satisfaction (brief irritation).

While there is no coercion in the way in which we construct concepts, it is coherent and potentially useful to conceptualise and define the burden of disease in units corresponding with what is (or may have been) experienced, and social value as reflecting the way in which we wish to treat this latter metric.

The usefulness of this distinction and the case for separate measures of population health reflecting the BoD and units of social value depends – not simply upon the coherence of the separate concepts – but upon the usefulness of the separation and this, in turn depends upon the purpose of the indicators. To the extent that an SMPH may subsequently be used in an economic evaluation of a program and used to determine whether or not the social value of the program exceeds its cost then the SMPH should incorporate all of the separate elements of social value even if the final metric is somewhat difficult to understand. To the extent that SMPH’s will

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\(^2\) There are at least five concepts of utility: (1) Psychological wellbeing, (2) Strength of preference, (3) an ordinal index of choice used for analyses in positive analyses of choice, (4) NM utility defined by consistency with the von Neumann Morgenstern axioms (see Richardson 1994)) and an ‘intellectual’ preference for particular states of the world; for example a preference for the removal of poverty, injustice etc as discussed below in the text.
be used to ‘audit’ population health through time or to create a form of illness related National Accounts for comparison between countries then the quantification of the first concept may be justified.

It is possible to blur the distinction drawn above. It might be argued that age weights and the discount factor reflect the ‘preferences’ of the society and that, therefore, the present value defined by equation 1 is simply an expression of preferences, namely, the preference for the way in which a particular life years is to be treated. This argument, however, is based upon the conflation of the two meaning of ‘preference’ distinguished above, viz, a preference for something felt and a preference for the way in which this is to be treated. Taken a little further, this argument would define every belief as a ‘preference’. The deontological position that society should obey the rules of God could be restated as a preference for the ‘rules of God’. As argued in Richardson (2000), this argument, at best, adds an additional and cumbersome layer of language to analyses which attempt to separate different ethical rules and, at worst, it will result in the impoverishment of our concepts and the loss from language of distinctions commonly made in ethical discourse.

Age Weights

In principle there is no fixed list of factors which may or may not affect social value and the list of variables and their importance will almost certainly vary between countries. Elsewhere it has been suggested that this list should include severity of untreated illness (Nord et al 1999); Context (the Rule of Rescue; [Richardson & McKie 2000]), health potential (non-discrimination against the disabled) (Ubel et al 1999) maintenance of hope, certainty of treatment and previous health benefits received (Menzel et al 1999). There is a major research agenda to determine which of these or other factors are of importance and social relevance. To date this enquiry has been largely empirical: those suggesting the relevance of these variables have supported their argument with population surveys. While of value, for the reasons discussed above the empirical approach encounters psychometric problems and, in particular, the possibility that the numbers obtained in an empirical enquiry may not have the meaning and significance intended by the researcher. This is illustrated below with two potential problems associated with age weighting.

The first is the possibility of double counting. The legitimate ethical reasons for age weights have been well discussed by Tsuchiya (1999) who also reviews the various empirical studies. The latter are clearly intended to capture a social value associated with age but not included elsewhere. The first and most obvious possible overlap arises if the age weight simply reflects the respondent’s correct expectation that the quality of life will decline with age; a factor already taken into account in many QALY based studies.

A further possible reason for an age weight is the recognition of the added social value of people in their middle years when they are contributing both to their family and to the economy by their participation in the workforce. Double counting would occur if age weights reflecting this added social value were included in a study which separately measured the contribution to GDP through
the inclusion of ‘indirect benefits’. While it is unlikely that age weights would perfectly capture indirect benefits (the latter and not the former being sensitive to employment status and the level of income), the effect of significant double counting should be taken into account.

As age weighted SMHP’s may be used for economic evaluations which determine which life saving programs will be funded, the results of age weighting exercises may and should be subject to consistency tests or tests of ‘reflective equilibrium’ to determine whether or not the respondents from whom age weights are elicited truly accept the consequences of the age weights. Thus, for example, the study by Cropper et al (1994) implied that, on average, the value of remaining life years to someone at age 20 are 2.66 times greater than the average value of remaining years to someone at age 60. Similarly, the average value of remaining years at age 30 are 4.4 times more valuable than the average value at age 60. Johannesson and Johansson report results that imply an average value after the age of 30 which is three times greater than the average value after an age of 50 despite there only being a 20 year difference in these ages. The mathematical function estimated by Cropper et al implies that the value of each additional year at age 50 is, on average, almost 7 times greater than the value of the remaining years at 70. Such results are highly implausible. Even less plausible is the implication by Cropper that the value of years between the ages of 20 and 30 are negative – 30 year olds having a higher value than 20 year olds. The results are not necessarily wrong as a sufficiently large discount rate could produce this outcome. However it is probable that survey respondents would not persist with this pattern of responses if the implied discount rate and other implications were drawn to their attention.

In sum, these results are all possible but not probable. The conclusion drawn here is that, before incorporation into policy relevant analyses, they should be subject to validation tests and, in particular, they should be subject to verification using ‘deliberative’ responses, ie responses elicited after contemplation of the implications of the relative weights.

---

3 Assuming a life expectancy of 80;

\[
11 \times 60 \text{ year olds} = 1 \times 30 \text{ year old}
\]

\[
11 \times \text{life expectancy of 20} = 1 \times \text{life expectancy of 50}
\]

\[
220 \text{ years after 60 years} = 50 \text{ years after 30}
\]

\[
4.4 \text{ years on average after 60 years} = 1 \text{ year on average after 30.}
\]

4 Assuming a life expectancy of 80, people aged 50 and 30 have life expectancies of 30 and 50 respectively.

Johannesson & Johansson (1997 p596) report that 5 lives at age 50 were equivalent to one life at 30: Hence:

\[
5 \times 50 \text{ year old} = 1 \times 30 \text{ year old}
\]

\[
5 \times \text{LE of 30} = 1 \times \text{LE of 50}
\]

\[
150 \text{ years after age 50} = 50 \text{ years after age 30}
\]

\[
3 \text{ years after age 50} = 1 \text{ year after age 30}
\]
Discounting

Discounting the future is justified, broadly, by the existence of a positive rate of time preference (RTP) and by the social opportunity cost of capital (SOC). The latter approach is based upon a consistency argument and upon the need to avoid the Keeler and Cretin paradox (Gold et al 1996). These, in turn, are based upon two assumptions; first, that on the margin, spending on current health can be reduced, funds invested in the capital market and spent on the production of future health; and, second, that we have enough information to calculate the present loss and the future gain in health status resulting from this re-allocation of resources. Neither assumption is true. Our knowledge of the health production function for the present is very limited and the function for future health – and the relation between future marginal inputs and benefits – almost totally unknown.

There is probably no example in any country of a government reducing current funding and investing in order to increase future health expenditures. Almost precisely the opposition occurs. Most budgets are determined historically. Consequently, a reduction in present spending will generally reduce, not increase, future budgets and government spending. In sum, the opportunity cost argument, as applied in the health sector, relies upon the methodological tradition of assuming that what is possible and arguably rational in the absence of various real world impediments should be assumed to be true. Following this principle, there is now a significant body of theory which will be helpful in increasing wellbeing on a yet to be discovered planet where this assumption is true. The tradition is unhelpful for policy designed to implement social objectives and to maximise social welfare when these are subject to current political and institutional constraints.

The more compelling arguments for time discounting are associated with the rate of time preference. The three standard theoretical explanations for this are based upon a diminishing marginal utility of income, risk aversion and ‘myopia’. Corresponding with these three arguments for an individual RTP, there are similar arguments for a social RTP. First, it is assumed that income per capita will rise through time depressing the marginal utility of income and the desirability of income transfers from the present. Murray (1996) argues that there is simply no reason to presume that declining marginal utility of income implies a similar decrease in the marginal utility of life per sé. This rejoinder may or may not be true. (The availability of ‘new experiences’ certainly declines with age and this may, in fact, reduce the marginal utility of latter years). The more persuasive argument is that there will be a decreasing marginal ‘social’ value associated with later years. Extending the ‘fair go’ argument or the argument for egalitarian outcomes both imply a lesser social value of additional life years as life expectancy increases and it is widely believed that life expectancy will increase in the future.

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5 It is rumoured that the planet is to be named ‘Kaldor-Hicks’.
6 A further argument for a positive rate of time preference is that life saving for those presently in the workforce will result in income with a higher marginal utility than would be obtained from income in the future, as it is believed that GDP/capita will rise in the future. However as there is little evidence that increased national income per person has a positive impact upon wellbeing this is not a particularly persuasive argument.
Secondly, each individual faces a probability of death which increases with age. Postponement of present benefits is therefore risky as the future benefits may never be experienced. For society as a whole this risk does not exist or is significantly reduced as the risk of societal extinction is fairly remote (Murray 1996). However it is also true that individuals face a risk and this is not only because of the possibility of death. The use of different discount rates will redistribute the availability of health care and alter the probability – risk – of individuals receiving particular services.

More significantly, different discount rates will distribute health services differently over time, between illnesses and between individuals and the desirability of this, in the absence of compensation, is clearly an ethical issue. The treatment of the discount rate as a technical question relating only to pure (Pareto) efficiency – improving wellbeing for some but not reducing it for others – is clearly wrong, and by claiming it to be nothing more than a technical question economists have mislead policy makers and preempted decision making by the appropriate body.

Thirdly, pure time preference arises from ‘myopia’ – from the impatience to experience pleasure. An ice-cream today is generally preferred to an ice-cream in a week’s time even when the intervening risk of death is very small. While Sen (1972), amongst others, has pointed out that society may have a different RTP than the individual, societal myopia is still possible and appears to represent the quantitatively most significant reason for an RTP. Olsen (1993) suggests that the caring externality from other people’s health declines rapidly over time in a way that is analogous to the decline for people living farther away geographically. Gyrd-Hansen and Sogaard (1998) argue that societal RTP may be due to an inter-temporal application of the Rule Of Rescue; saving present lives has a greater urgency than saving future lives. It is not clear, however, that this is more than a restatement of societal myopia.

Finally, Murray (1996) presents the ‘health research paradox’ to conclude that at least some discounting must occur. There is, Murray argues, a finite probability of eradicating a disease which has a stable (or increasing) incidence through time. The expected undiscounted benefits are therefore infinite, and, no matter how small the probability of discovering a cure, all resources should be devoted to this research program.

If benefits were equated with expected benefits then this later argument would be compelling. Benefits are not, however, the same as expected benefits and it is far from evident that the majority of decision makers would accept an argument of the form ‘we must make a present sacrifice in exchange for a benefit that will almost certainly not occur (low but finite probability) because the benefit which will probably not occur is of immense size’. Keynes and Allais are amongst those who have disputed the sanctity of expected utility as a hallmark of rational behaviour and defended other criteria such as the maxi–min principle.

One approach to this theoretically vexed question is to approach the public directly and, using a variety of techniques, elicit the actual rate of time preference and bypass the need to determine reasons. Thus, for example, Olsen (1993) argues that the discount rate for health programs should be based upon the time preference for health which, in Olsen (1995), is estimated to be
about 10 percent. By contrast, Dolan and Gudex (1995) infer an RTP of zero from the results of their time trade-off surveys. Most recent authors have assumed that the appropriate social RTP should be determined from the individual RTP and, in empirical surveys, the appropriate discount rate has usually been set equal to the average rate of survey respondents.

This ethical judgement was not universally accepted in the past. For example, Hume argued that there was no quality in human nature which causes more fatal errors in our conduct, than that which leads us to prefer whatever is present to the distant and remote. Pigou describes pure time preference as 'wholly irrational' and attributes it to a 'faulty telescopic faculty' and Harrod believes pure RTP to represent the 'conquest of reason by passion'. Alfred Marshall, the founder of modern microeconomics, was particularly scathing on this subject when he argued that a high rate of time preference indicated that people had 'less power of realising the future, less patience and self control ... they are impatient and greedy for present enjoyment ... like the children who pick the plums out of their pudding to eat them at once'. (Quotations cited from Robertson (1990), Tong (1998) and Ng (1999).) These were the early statements of 'extra-welfarism', the rejection of private preferences as the sole and overriding criterion for allocation.

While the views of earlier luminaries carry no intrinsic force, they do raise the prior question of the significance of the empirically observed RTP. Should the social RTP be set equal to the average private rate, or should the observed rate be ignored as socially irrelevant?

This issue was investigated empirically and the results, to date, are reported below.

**The Abdication Hypothesis**

At first, it may appear paradoxical to seek empirical evidence on the prior issue of the relevance of empirical evidence. Surely the empirically observed RTP represents community preferences and it is paradoxical to ask people if they have a preference for the sovereignty of their own preferences. There is, in fact, no inconsistency in a person expressing a preference, when asked, but simultaneously favouring a decision process which does not depend upon this preference. The first and most obvious reason for this is a recognition of the inevitable asymmetry in information between an individual and a specialist. It is for this reason that Harsanyi (1997) argues that welfare economics should be reconstructed and based upon informed rather than actual preferences and that, in principle, decisions should be based upon surveys of individuals who have been exposed to a series of procedures designed to encourage deliberation. This was advocated in a different context in Working Paper 108. However, it is still possible for individuals to reject the sovereignty of even well informed preferences. For example, Olsen and Richardson report surveys in both Norway and Australia in which respondents reject...
public preferences as the decision criterion and support the maximisation of lives saved as an overriding principle. That is, paternalism is explicitly preferred to consumer sovereignty.

In the context of time preference there is no immediate and obvious alternative criterion to public preferences such as the maximisation of lives in this latter example. Despite this, individuals may prefer decisions to be made by the government. The preference need not depend upon the existence of information asymmetries. Rather, it may reflect a lack of confidence by individuals in the capacity of their fellow citizens to make wise judgements and a belief that – at least in some contexts – governments have the capacity to ponder and assess a wider range of considerations than the individual and that government may be less easily manipulated by particular interest groups. Indeed, it is a common view that this is precisely the role of government; viz, to make a series of difficult decisions on behalf of the population. These would include decisions with respect to defense and foreign policy and normative issues such as the distribution of income and the use of capital punishment (where governments have commonly enacted laws which do not reflect the majority opinion).

This view was nicely expressed by a participant of the focus group conducted in relation to this study, who stated:

“I don’t value public opinion… it is so easily manipulated, and people who represent us, you would assume, are competent. I don’t have any faith in public opinion. If I have faith in anything, it is that the system is putting competent people in positions of power… People are caught up with living their own life and they do not have time to go into every issue” (focus group transcript).

The belief that governments are elected to make decisions that the public do not wish to make or where people do not trust the wisdom of their fellow citizens has a long tradition extending back to Edmund Burke. It is not, of course, an unchallenged position and the belief that governments should be no more than the agent implementing the wishes of the majority was articulated by Roussou9. Support for these two positions would be expected to vary by issue and between countries. It is likely, for example, that support for government decision making would be significantly higher in European countries with their tradition of government intervention than in the USA where government appears to be less trusted.

9 It was believed, however, that with respect to significant issues this would be decisions about which the public – through an improbable mix of social behaviours – had recorded a consensus view.
Whether or not governments should or should not make a particular set of decisions may itself be
the subject of empirical research and a pilot survey of such a study is summarised below. More
detailed results are reported in Olsen, Richardson and Mortimer (1999). The hypothesis being
tested – which will be referred to as the ‘Abdication Hypothesis’ – was that, in the context of inter-
temporal allocation of resources for life saving interventions, people will abdicate responsibility
and support government decision making in preference to the adoption of the average values of
their fellow citizens.

Four sets of postal questionnaires were distributed to residents of Victoria, Australia. In each of
these, respondents were asked to imagine that they were a member of a government committee
with responsibility for allocating a limited budget. In the first two versions, respondents were told
that Program 1 would save the lives of ‘a large number of people’. Further, ‘a large and very
accurate survey… shows that nearly all people would support the program if the benefits
occurred immediately…(if they did) the program would be ‘good value for money’. However, the
lives are not saved now but in the future and the same survey indicates that people ‘do not want
to pay taxes now for a program that will help people only after X years’. In version 1 and version
2, X is 10 and 20 years respectively. In the remaining two versions respondents again were
asked to imagine themselves as a member of a government committee. But this time they were
asked to choose between a program that will detect cancer and save the life of 100 people
immediately and a program which will detect cancer and save 250 lives in X years. The value of
X was again 10 and 20 in the two versions respectively.

In all four versions respondents were asked to consider two sets of arguments; viz:

- The large majority of the population want Program A. The democratically elected
government should follow the wishes of the population. Therefore you should vote for this
program.
- The government should not always follow public opinion if it considers that people are
being short sighted. The government should do what it believes to be best and, if the cost
is reasonable, introduce policies which it believes will be best for the community.
Therefore you should vote for Program B.

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\(^{10}\) A possible objection to the empirical investigation of the criteria for decision making is that, in principle, it leads to an
infinite regress. If the criterion for deciding between government and popular decision making is majority support for one of
these approaches, then what is the criterion – ‘Criterion 2’ – for judging this criterion – ‘Criterion 1’? Consistency implies that
Criterion 2 should be empirical support for Criterion 1. But with what criterion – Criterion 3 – do we judge Criterion 2? And
Criterion 3 must be established from Criterion 4 etc, etc. While, perhaps, intellectually interesting, this objection has little
practical force. In most Western democracies the rules of the society may be changed in a referendum. To my knowledge
there has been no example of a referendum to determine whether or not referenda are an appropriate vehicle for changing
laws. In practice there is an implicit acceptance of the referenda and the issue proceeds no further.
Results summarised in Table 1 indicate the following:

- A significant majority of the respondents (a weighted average of 66 percent across the four versions) were prepared to override public preferences when larger benefits could be obtained in 10 years.
- Only a minority – 35 percent – were prepared to override public opinion when the benefits were in 20 years. This indicates the existence of a positive ‘social rate of time preference’. The benefit of the future program clearly declined with time and, with it, the willingness to override public opinion.
- Respondents did not change their answers when they were informed that beneficiaries – those whose lives would be saved – did or did not vote against the program which would subsequently benefit them. This suggests that amongst our respondents there was no strong belief that individuals should be held accountable for their earlier decisions (at least when this was expressed in the form of a vote).
- There was only minority support for overriding public opinion when present and future benefits were for cancer patients. This suggests the possibility of context specific results although the format of the questions differed sufficiently for this to have affected the results.

The general principle underlying this first set of questions was directly tested by asking respondents to indicate which of three general statements about government decision making they most supported. Results, in Table 2, reveal that only 22-26 percent of respondents believe that, as a general principle, the government should always follow public opinion even when it believed the public was being short sighted. The remainder believed that, to a greater or lesser extent, governments should override public preferences with about the same number supporting the adoption by the government of a compromise position between their beliefs and those of the public and the hard line position that the government should entirely ignore public preferences.
Table 1: Should Governments Override Public Preferences with Respect to Allocation of Resources Over Time? Results of a pilot study (n = 78)
A. Program Specific Results

<table>
<thead>
<tr>
<th>Governments should override public opinion when the Program:</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Is a good buy now. Public rejection is because:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• benefits are in 10 years</td>
<td>69</td>
<td>31</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>• benefits are in 20 years</td>
<td>39</td>
<td>61</td>
<td>100</td>
<td>23</td>
</tr>
<tr>
<td>beneficiaries voted against the program and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• benefits are in 10 years</td>
<td>75</td>
<td>25</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>• benefits are in 20 years</td>
<td>36</td>
<td>64</td>
<td>100</td>
<td>22</td>
</tr>
<tr>
<td>beneficiaries voted for the program and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• benefits are in 10 years</td>
<td>75</td>
<td>25</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>• benefits are in 20 years</td>
<td>39</td>
<td>61</td>
<td>100</td>
<td>23</td>
</tr>
<tr>
<td>b) The public prefers cancer cure now for 100 rather than</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 250 cancer cures in 10 years</td>
<td>44</td>
<td>54</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>• 250 cancer cures in 20 years</td>
<td>25</td>
<td>75</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Overall weighted average</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 10 years</td>
<td>66</td>
<td>34</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>• 20 years</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Should Governments Overrule Public Opinion
B. General Principles

<table>
<thead>
<tr>
<th>General Principle</th>
<th>10 years</th>
<th>20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Even if the Government believes the public is being short sighted, it should</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>follow public opinion and spend exactly what the public wants on saving lives in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the future.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) If the Government believes the public is being short sighted, it should</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>compromise and spend more than the public wants but less than they believe to be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>right, on saving lives in the future.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) If the Government believes the public is being short sighted, it should</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>take no notice of public opinion and do what it believes is right.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>n</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

This conclusion may well reflect a recognition of the fact noted above that discounting in the context of health is not, primarily, a technical issue concerning the efficient allocation of resources through time but rather a distributional issue. Low discount rates advantage a different group of people than high discount rates. Normative judgements concerning the distribution of income are commonly left to the government and are not made the subject of binding social surveys. The
presentation of pure time preference as a technical issue to be objectively determined and implemented in the name of ‘efficiency’ is, from this perspective, an error. Time preference redistributes welfare.
Conclusions

With respect to the use of age weights and time discounting the following conclusions have been reached:

1. There is a persuasive argument for excluding both these forms of weighting from summary measures of population health designed to measure the burden of disease. Neither of these variables specifically relate to the consequences of disease nor to the associated ‘burden’ when this is conceptualised as the quality of a psychological state actually experienced; that is, in psychological terms, as the duration and the quality of the duration of time experienced. Rather, both time discounting and age weights reflect the value that is placed upon this burden. While the social valuation of this concept of disease burden is clearly of interest there are reasons for separating the burden and the social valuation of the burden of disease. First, the magnitude of both the time discount and age weights are presently contestable. Second, the meaning of the composite SMPH combining life years, quality of life, time discounting and age weights is necessarily somewhat unclear and, consequently, less accessible to decision makers. In addition to their uncertain validity, the importance weights are necessarily the average values from a distribution of social preferences. Particular decision makers in particular contexts may disagree with these average values and might find the disaggregated metrics more useful.

2. The age weights reported in the literature have not been validated. The published magnitudes have highly implausible implications for the relative worth of the remaining life years of different age cohorts. It is likely that these implications would be widely rejected and also rejected by those who were initially questioned. This highlights the need for the use of ‘deliberative weights’: weights that are constructed from the responses of people who have been encouraged to deliberate upon the issues and their implications. This problem is likely to be relatively common and calls into doubt the numerical values of all ‘spontaneous weights’.

3. There is a serious possibility that the use of age weights will result in double counting if the age weight represents, not only a ‘pure age effect’, but also reflects the changing quality of life and the contribution to society of individuals at different ages. In this case there would be double counting if age weights were included in an analysis which also included QoL weights and indirect production benefits.

4. Time discounting alters the relative importance of the burden of disease borne by different individuals. The choice of a particular discount rate redistributes the wellbeing that will be experienced. Consequently, there are prima facie grounds for government intervention as it is an accepted role of the government to ensure equity in the distribution of benefits and the legitimacy of the government’s redistributive function is well established.
There is empirical support for the arguments that governments should not simply accept the rate of time preference of the community but to interfere with the inter-temporal distribution of health benefits when it believed that the community is being short sighted.

More generally, this paper argues for an increased role for ‘empirical ethics’. It reiterates the theme of the companion paper that the conceptual basis of SMPH’s, that is, the ethical foundation of the values embodied in SMPH’s, should be the subject of further ethical and empirical enquiry. It is not sufficient to justify these metrics upon the authority of ‘economic theory’. This embodies a set of values which may be rejected in the context of health and health care.
References


Richardson J, 2000, The conceptual basis for SMPH qualifying DALYs: Dallying with QALYs: How are we to evaluate summary measures in population health, Working Paper 108, Centre for Health Program Evaluation, Health Economics Unit, Monash University, Victoria, Australia.


