

WORKING PAPER 50

**Economic Evaluation of Health Promotion:
Friend or Foe?**

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ABSTRACT

It is commonly believed that economic evaluation is hostile to health promotion and that the requirement for health programs to be cost effective will result in a distortion in the allocation of funds towards programs that can demonstrate short-run benefits as defined by inadequate outcome measures. The paper is concerned with the validity of this perception.

It is argued that contrary to this belief economic evaluation has the potential for treating health promotional activities on an equal basis with other health interventions. The major obstacle to this does not arise from the theory of economics but from a lack of information about outcomes. Without this information any evaluation - economic or otherwise - is flawed.

Two problems relating to the economic evaluation of health promotion activities are first considered. These are: (1) the potential for economic - or any other - evaluation to be counter-productive if applied to an 'immature' project and (2) the discounting of future health benefits.

The paper does acknowledge that the measurement of health outcomes is problematical. A fourfold classification of possible outcomes is suggested which is based upon a distinction between disease cure, health promotion, social justice and systemic change designed to promote either individual health or social welfare. The capacity of economics to incorporate these objectives is discussed.

With respect to systemic change it is argued that summative economic evaluation is likely to be problematical as the benefits of systemic change are too difficult to predict with confidence. At best, formative evaluation may be undertaken to identify key variables that are likely to determine the desirability or otherwise of systemic change. By focussing attention upon such variables such analysis may influence the direction of health policy.

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Economic Evaluation of Health Promotion: Friend or Foe?

1 Introduction

There is a common perception that economic evaluation is hostile to the objectives of health promotion and especially when this is concerned with the promotion of healthy life as distinct from illness prevention. This perception seems to be associated with two views of the objectives and practice of health economic evaluation. The first of these is that economics is only concerned with money and with minimising expenditures, and that it fails to place any or adequate emphasis on the benefits of health programs. This is unambiguously a wrong interpretation of the role of economic evaluation (although not an altogether wrong observation of what is often done in the name of 'economics'). As discussed in *Section 2* below, economics is, or should be, vitally concerned with health benefits and there is no presumption that expenditure on efficiently run programs should be minimised. The second and more sophisticated criticism of economics could be summarised as the following composite stereotype:

'In principle, economics purports to measure the benefits of health programs. In practice it cannot do this. Health program outcomes are too diverse and complex for the simple measures required in economic evaluation, especially when equity is a social objective. These problems are particularly acute in the case of health promotion programs where the benefits of healthy life cannot be easily quantified. Health promotional activities are often aimed at achieving attitudinal and behavioural changes in the society at large and the benefits of these extend far into the future. Discounting in economic analysis reduces the 'present value' of these future benefits to such an extent that important programs may appear to be poor value for money. Worst of all, the requirement that all programs should be cost effective as defined by the present tools of economic analysis will result in the distortion of programs towards those that can demonstrate short-run benefits as defined by inadequate outcome measures. In effect, economic evaluation will endorse the treatment of easily defined acute diseases at the expense of less easily defined programs aimed at the promotion of health.'

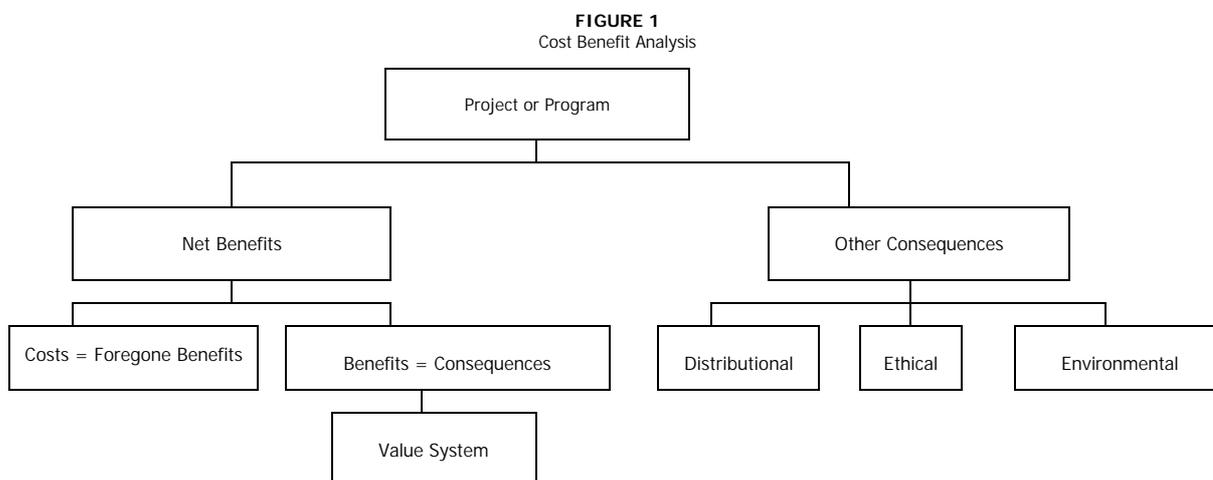
The purpose of the present paper is to examine these propositions and, in particular, to answer the question of whether or not economic evaluation is hostile to the implementation of programs with the long term objective of altering attitudes and institutions in a way that promotes population health.

2 Economic Evaluation in Theory

The conceptual basis of health economic evaluation is simple and is described by many authors (Drummond et al 1987, McGuire et al 1988, Richardson 1991, Richardson & Cook 1992, Drummond 1990). Much of the theory may be summarised in the following four principles.

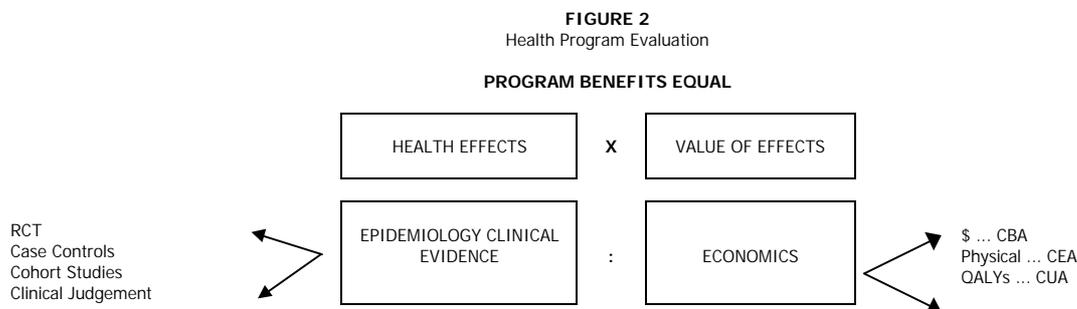
1 In economic theory costs refer to the value of foregone benefits which may or may not be measurable in dollars. Thus, cost benefit analysis could be more accurately described as benefit-

benefit foregone analysis and the requirement that benefits from a program should exceed costs may be translated into the requirement that the benefits of a program should exceed the benefits that might have been obtained elsewhere if the program was not implemented. This is shown in the bottom left hand side of *Figure 1*.



2 The net benefits obtained by comparing program costs and benefits are only one part of the decision criteria. In economic theory, 'social welfare' is also a function of distributional considerations and subject to ethical constraints. (See the right hand side of *Figure 1*).

3 The measurement of benefits from a health program has two distinct parts as shown in *Figure 2*.



First, the effects must be established and secondly, these effects must be evaluated. Economic evaluation is concerned with the second of these two tasks. There is no principle of economic theory which allows the first task to be avoided and economists have no specific expertise in this area. In the present context this is an important qualification. Many of the difficulties commonly encountered in the economic evaluation of health promotional activities arise less from the requirements of economic theory than from the absence of evidence about relevant outcomes.

4 The measurement of benefits requires a value system for defining benefits. Most economic analysis outside the health sector is based upon utilitarianism. Further, consumers are assumed capable of selecting for themselves the bundle of goods and services that maximises their utility; hence the normative dictum that the consumer *should* be sovereign. Such a dictum is easily justified when the product and its benefits are easily understood and there is the possibility of error learning. However the assumption that individuals understand and appreciate all available options and their implications is often taken to the extreme libertarian view that individuals can and do evaluate even the most complex and emotionally charged options objectively or that individuals *should* be treated as if this level of information and capacity did exist. With this position any interference with 'consumer sovereignty' must reduce utility. There could be no grounds for social marketing and the types of health promotional activities which seek not only to inform but to influence behaviour.

This latter point will not be discussed at length here. It is sufficient to note that only the most sterile exercise of 'welfare theory' would lead to such an uncompromising position in the health sector. (It must, however, be acknowledged that some economists do adopt this position.) However, imparting information meaningfully cannot be achieved by a simple transfer of facts even when these are available and comprehensible. It is well known that there is not a smooth transition between information, attitudes and behaviour. Important information must be transmitted or marketed in such a way that its real importance may be understood and fully appreciated and not simply known.

With respect to this later issue, the economics profession has, in fact, had two traditions. 'Welfarism' comes closest to the sterile stereotype sketched above (Culyer 1991). In this the consumer is sovereign and it is assumed that information is sufficient for well informed decision making. Consequently, what the individuals reveal through their willingness to pay is related to the benefit that they assess that they will receive. Following from this, the area under the demand curve represents a sensible index of the benefits received by consumers. With adequate information, apparently 'irrational' behaviour as judged by independent, external criteria are taken as indicating increasing utility for the reason that the ('rational well-informed') consumer has chosen the behaviour and is better positioned to judge the personal value of the behaviour than an external observer. By contrast, in the 'material welfare' tradition of Pigou and Marshall (Robinson, 1986) or extra welfarism (to use Culyer's term) external criteria such as objective health status have been considered the legitimate objective in cost effectiveness analysis. In this tradition either it is assumed that there is inadequate information for individual decision making or more commonly, the value judgement that consumers should be sovereign is replaced with a paternalistic judgement about what desirable for the individual or the society. In this tradition the use of social marketing would simply be perceived as a means to obtain the independently determined end and not as an interference with consumer sovereignty which must necessarily reduce utility.

A serious and legitimate concern with the application of utilitarianism in the health sector is that while the general principle may appear to many to be acceptable,¹ the implementation may be problematical for at least two reasons: (i) utility measures may be insensitive to health states; (ii) there may be important aspects of 'social utility' which cannot be detected on scales, designed to measure individual well-being. A third problem, in practice, is that economic evaluation may favour projects/programs that have easily demonstrated short-run benefits at the expense of longer term but potentially more rewarding programs. The third problem is considered further in *Section 3* below and the first two are discussed in *Section 4*.

At the outset it is important to acknowledge that there is substance in these criticisms. However, the problems discussed are largely inherent in any evaluation and not an artefact of the economic framework. Implicitly or explicitly evaluation implies the quantification of inputs and outcomes and the instruments for assessment and quantification are imperfect. 'Intangibles' - elements which cannot be quantified with existing instruments - must be reported qualitatively. Outcome measurement is difficult and imperfections of measurement should not be equated with the undesirability of measurement. Rather it points to the need for caution in the interpretation of results.

3 Two Potential Problems

While there is justification in economic theory for including all of the benefits of a health program in an economic evaluation the application of economic methods encounters two particular problems, viz those of measurement and time discounting.

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For some, utilitarianism may be unacceptable. Harris (1987) for example advocates a deontological value system in which life per se is the unit of value. However the point here is that evaluation requires *some* underlying value system and whichever is adopted in practice, may be opposed by those who espouse an alternative value system.

Measurement

There are two related problems with the measurement of health programs. The first is the danger that, to achieve accountability, summative evaluation is premature and that promising long run programs may be jeopardised. The second and more fundamental problem is the difficulty with measuring the outcome from health promotion activities. This second problem is discussed in *Section 4*.

The first of these problems is not specifically attributable to the theory of economics. Rather it arises from the undoubted need for accountability to prevent the perpetuation of unhelpful programs. However there is also little doubt that the requirements placed upon programs in the name of accountability may be counter productive and the demand for short-run accountability may be detrimental to the achievement of long run objectives. There is now, for example, a large literature documenting the distorting and negative effects of performance indicators (Glenwick et al 1984, Ginsberg 1984). There is clearly a balance required between the demand for accountability and the need for programs to reach sufficient maturity before being subjected to summative evaluation. Achieving a balance may mean that multiple programs be allowed to develop, each trialing alternative approaches to program goals and for different population groups. Following initial formative evaluation and the possible refocussing and amalgamation of projects, it would then, and only then, be appropriate to conduct a summative economic evaluation as envisaged in *Figure 2* which determined the continuation of the full program.

Time Discounting

Perhaps the greatest threat in economic theory to health promotion arises from the practice of discounting future benefits and costs. With the usual discount rates (5-7 percent) in all but the most exceptional cases the present value of benefits obtained after 15-20 years would be negligible.

There is a large and complex literature on the theory and measurement of discount rates. (For a review of the health related literature see Olsen 1993a). Two points are of particular relevance here.

- The most common justification for discounting future (health) benefits is that people have a 'positive rate of time preference', ie they have a preference for immediate rather than delayed benefits. Empirical studies suggest that the rate of time preference for health might be significantly higher than for other benefits (Olsen 1993b, Cairns 1994). However it requires a specific value judgment for such a preference to be uncritically used for discounting the future. The judgment is the libertarian view that resource allocation between current goods and services and also between present and future goods and services *should be* exclusively driven by individual preferences.

Interestingly, this libertarian view is comparatively recent in the history of economic thought. Amongst earlier economists, Sedgwick, Marshall and Pigou all believed that the intertemporal preferences of the population were misguided and should not dictate the rate of discount (Robinson 1990). 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 were impatient and greedy for present enjoyment ... like the children who pick the plums out of their pudding to eat them at once, (Marshall 1990, p120, cited from Robinson, J 1990.) These were the early statements of 'extra-welfarism', the rejection of private preferences as the sole and overriding criterion for allocation.

- Recently it has been argued, theoretically, that the appropriate discount rate for health benefits should be zero (Parsonage & Newberger 1992, Broome 1994) and echoing Margolis, Brennan and Sen, Olsen (1993a) has suggested a distinction between the rate of time preference which people apply to personal selfish decisions and the rate applicable to public policy issues. A similar argument has long been recognised in the comparison of benefits obtained by one

generation and those obtained by a subsequent generation. There is no theoretical justification for discounting the benefits of the latter group by the rate of time preference of the former.

In sum, the theoretical and empirical basis for selecting discount rates for distant benefits are uncertain. There is ample support for reporting undiscounted health benefits or, at least, present values calculated from low discount rates. The case for doing this increases as the time period before receipt of the benefits increases. It is particularly hard to justify the discounting of benefits to future generations at the rate of time preference of the existing population.

4 Four Levels of Outcome Measurement

Early economic evaluation of health programs was exclusively concerned with programs for the prevention or treatment of well-defined disease states. This narrow view of health as the elimination of disease contrasts with the famous 1958 WHO definition of health as 'a state of physical, mental and social well-being' and not simply the absence of disease. The WHO definition suggests health programs may have four separable *objectives* each of which leads to distinct issues for measurement.

- Elimination of Disease or Ill-health and the restoration of 'normal' health.
- Promotion of individual well-being or healthiness above and beyond the elimination of disease, narrowly defined, but where benefits are attributable to changes in the individual health states.
- Promotion of 'social welfare' whereby well-being is achieved not only through the promotion of health, but also by the creation of a health system incorporating desired attributes: social justice, equity and respect for autonomy.
- Systemic change where all of the above objectives are pursued by a community wide change in attitudes, relationships and the modification of social institutions to achieve, for example, a more collectivist or more individual based responsibility for health and welfare.

Elimination of Disease

Economic evaluation is most easily applied in cases where the definition of outcome is clearly defined. In these cases the economic framework is capable of integrating the evaluation of primary prevention programs and treatments options; that is, the same evaluation principles may be applicable to all of the options for the modification of the disease and the outcome of the analysis may well be a reallocation of resources between the stages of intervention. This is illustrated in *Figure 3*. At each disease stage in *Figure 3* projects may be ranked to identify the most and least cost effective interventions. These can then be subject to a full economic evaluation to identify the projects that should have the highest and lowest priority for funding.

Implementing such a framework requires a comparison of benefits at each disease stage. This may not be straightforward. If primary health promotion both reduces cost and averts ill-health, it will be unambiguously superior to the subsequent management of disease. However where health benefits can only be obtained at a higher cost, comparison of interventions requires a common measure of outcome. Without this no comparison can be made. When outcomes involve differences in the quality of life (QoL) the unit of outcome must reflect these differences or comparison will be invalid. The most common approach to this problem is to use either a disease specific or generic QoL instrument that is sensitive to the outcomes that can result from alternative interventions.^{2 3} The instrument may then be used either to create a health profile or, if the dimensions of the instrument are weighted appropriately they may produce a health index or

² For a review of these see Walker and Rosser, 1993 and McDowell and Newell 1987.

³ An alternative to the use of an explicit QoL instrument is to use a willingness to pay methodology.

quality adjusted life year (QALY). The impact of a health program may then be described in terms of the change in the profile or in terms of a change in the index.

FIGURE 3
Ranking of Interventions within a Disease Class for a Given Disease

Disease stage	Less cost effective					Most cost effective
Primary prevention	*Aw	*	*	*	*	*Ab
Early diagnosis	*Bw	*	*	*	*	*Bb
Disease management/ prevention of complications ⁽¹⁾	*Cw	*	*	*	*	*Cb
Palliative care		*Dw	*	*	*	*Db
Notes (1)	In practice interventions for disease management and prevention of complications will, for most disease classes, benefit from further subdivision.					
Source	Segal & Richardson 1994, p 94.					

Promotion of Individual Well-Being and Health

Many of the earlier QoL instruments were designed as aids to clinical assessment of ill-health and the items in such scales reflect this orientation (McDowell & Newell 1987, Bowling 1995). Early generic instruments used for utility measurement also reflected a bias towards the conceptualisation of health as the absence of disease. Thus, for example, the earliest versions of the 15D (Sintonen 1981) included separate dimensions for physical mobility, vision, hearing, breathing etc. Both the QWB (Kaplan 1990, Drummond et al 1987) and the 1982 version of the McMaster Health Classification System acknowledged a social dimension to health (activities of daily living/role function in the McMaster instrument; major social activity in the QWB) but the final scores are primarily determined by physical and emotional states and the level of the 'health problem'.

Under the influence of the WHO definition of health, there has been a transition in the conceptualisation of health from a clinical orientation to a greater focus upon patient welfare/utility. The emphasis is now less on impairment ('a loss or abnormality of psychological, physiological or anatomical structure or function' - WHO 1980; 27) and more on handicap ('a disadvantage for an individual resulting from an impairment or disability that limits or prevents the fulfilment of a *role that is normal ... for that individual*' - WHO 1980; 29).

This change in emphasis is reflected in the SF36 survey instrument (Ware 1992), in the recent amendments to the 15D (Sintonen 1994) and in the QoL instrument being piloted by the National Centre for Health Program Evaluation (NCHPE) (Hawthorne & Richardson 1995). In addition to dimensions covering psychological and physical state, this latter (draft) instrument includes the activities of daily living, safety and security, and social interaction, (intimacy, family role, and work satisfaction).

This change in emphasis is significant. It implies that generic utility instruments are increasingly capable of measuring not simply 'illth' but the extent of healthy living. Thus, for example, in the latest 15D, the QoL score of a random cross-section of the Finnish population was 0.92 and for the same population the EuroQol instrument gave an average score of 0.84. In both cases the 'all best' (on each dimension) score was 1.0 implying, in both cases, the potential for significant QoL improvement amongst a 'normal population'. As both instruments were designed to measure QALYs this implies that interventions that would improve health in the 'normal outcome' range could result in significant QALY gains and such interventions could be compared directly with interventions specifically targeting ill-health.

Neither the EuroQol nor the 15D were designed to have great sensitivity in the range 'normal health'. The above results are cited to illustrate a more general point. QoL scales can measure variation in healthiness in the range of 'normal health'. Generic scales designed to achieve sensitivity in this range as well as in the domain of 'ill-health' therefore have the potential for

comparing disparate interventions, vis those targeting disease and those promoting individual health/well-being.

Promoting Social Welfare

With both the elimination of disease and the promotion of healthiness the focus is upon the individual and outcomes which directly affect the individual through an alteration of their personal health state. This has been described by McGuire et al (1988) as 'consequentialist utilitarianism'. Nord et al (1994) describes such benefits as 'direct utility' and contrast it with the indirect utility ('process utility' in McGuire et al) that may be obtained from characteristics of the health system. These include the *process* of health delivery, issues of equity and social justice, participation and empowerment. The available information indicates that at least with respect to equity, this is an important source of satisfaction. For example, Nord et al (1994) found that the respondents to an Australian survey were willing to sacrifice significant health benefits, narrowly defined in terms of sickness cure, in order to achieve equity in the access to services.

Prima facie, such issues appear to be outside the ambit of economic analysis. Certainly they are far removed from the narrow conception of economics in which benefits are simply defined by individual willingness to pay. However this conception is incorrect. Economic theory permits the 'social welfare function' to take virtually any form and include or subsume various value systems.⁴ There has always been a recognition of the existence of 'sympathy' for others (to use Adam Smith's phrase). This is sometimes included under the heading of a 'market externality'. Sen (1977) however distinguishes this concept from the notion of 'commitment', that is, a preference for an activity that will lessen the individual's personal utility in exchange for equity or other social goals. This notion, in turn, reflects an acceptance of the importance of the Kantian 'moral imperative' in people's welfare functions. By contrast with the concept of commitment, Margolis (1982) has proposed that individuals may be motivated by 'participation altruism', an increase in utility from participating in social acts (for example the participation in a just health system). He suggests that individuals act as if they have two utility functions. The first of these explains the conventional sources of selfish utility derived from personal gratification; the second is concerned with participating in events that are beneficial to others. A similar distinction between selfish and altruistic behaviour is drawn by Brennan (1986) who argues that the judgment by the individual in the market place and in the voting booth may differ. In the former 'self interest muddies one's moral vision' whereas in the latter there may be 'disembodied reflection cut off from the distortions and ephemera of the immediate context'. It is suggested that the latter may be more conducive to moral conduct.

In sum, there are sound reasons within economic theory for a concern with health related issues of equity, participation and social justice, the issues described here as 'social welfare' and there are sound reasons for the focus upon these issues by health promotion agencies.

Systemic Change

As discussed above the development of health indices has the potential (some already realised) for measuring the impact of programs upon individual health and well-being as distinct from sickness. The measurement of 'social welfare' as discussed here is far more difficult. There are techniques for measuring the aggregate distribution of health costs and mortality/morbidity outcomes (van Doorslaer & Wagstaff 1992). It is also possible to measure and quantify individual preferences for a particular distribution of health improvements under hypothetical conditions (Nord et al 1994). However, no attempt appears to have been made to measure the strength of preference for actual changes in the distribution of health benefits or in other sources of 'social welfare'. Such a venture would be highly problematical.

In these circumstances it is not appropriate to subject programs to evaluation requiring outcome measures that do not currently exist. Given the legitimacy of 'social welfare' as a source of well-

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This is discussed at length in McGuire et al (1988) and a clear statement of value systems in relation to the social welfare function is given by Wagstaff (1991).

being it is equally inappropriate to rule out such programs. In the absence of outcome measures evaluation must focus upon process and the likelihood of programs achieving stated goals, even if the goals cannot be quantified. The process is less objective than output based evaluation but is preferable to the elimination of a legitimate program objective.

Equally problematic is the measurement of benefits arising from the modification of social institutions. The target of such reform could either be individual health through the promotion of a healthy workplace, or institutional and social arrangements to enhance social cohesion and personal security. Alternatively the objective could be to increase social welfare via the reform of the health system. In practice, the analytical tools of economic evaluation are not well suited to the evaluation of such systemic change. However, systemic change may have the greater potential for increasing health and welfare. In the jargon of economics an exclusive concern with incremental changes may lead to a 'local optima', - it may maximise utility over a limited domain of options. However the achievement of a 'global optima' may require the consideration of a wider range of options.

The approach adopted in the Victorian Health Promotion Foundation's project 'Planning for the 21st Century', illustrates the methodology and framework that are appropriate for the analysis of potential systemic - whole of society - change. The stated purpose of this project is to create a vision of health promotion in the 21st century that will lead Victorians to select a social and health system that will maximise well-being. It seeks to do this by creating alternative visions of the society and health sector with the objective of influencing the subsequent evolution of these in a direction that will increase individual health and social welfare as defined very broadly. More specifically, through the creation of scenarios it explores three possible directions in which the society might evolve, each direction being driven by a different set of social values and attitudes. Scenarios describe possible health and social conditions for different population groups in different settings.

The project is, in effect and exercise in futurology as described by Johnson and Kenyon (1993). As such it cannot be expected to identify outcomes with sufficient certainty or precision to allow the application of economic evaluation. Rather, the method permits the identification of the 'critical variables' or attitudes that would determine the attractiveness or otherwise of a scenario. By doing this it increases the likelihood that these variables may be the subject of social debate or policy. In sum, the methodology is more concerned with formative evaluation, and effecting change than with summative evaluation. In principle, it is possible to conceive of 'controlled trials' in which some part of the society was not subject to social change. In practice this would be unlikely to occur and it is difficult to envisage a methodology that could sensibly achieve more than formative evaluation in the context of systemic, society wide, change.

5 Conclusions

Several propositions have been argued in this paper. They may be summarised as follows:

- Potentially beneficial projects may be jeopardised by premature evaluation - economic or non-economic.
- There are theoretically plausible grounds for adopting a lower than normal discount rate for distant health benefits.
- Economic evaluation has the potential for placing the evaluation of health promotion on the same basis as other projects and for reallocating resources to the most rewarding interventions.
- The promotion of health may be considered an extension of the removal of disease. Health profiles are already in use in economic analysis to measure 'healthiness'. While still in their developmental phase, QALYs have the potential for comparing health promotion and illness prevention programs at different disease stages.

- Satisfaction and well-being may be derived directly from the characteristics of the health system. The limited evidence available suggests that this is a quantitatively important issue. While there is nothing in economic theory inconsistent with such a source of welfare, the problem of outcome measurement means that the present analytical tools of economics can be of little practical assistance.
- There is the potential for increasing both individual health and social welfare by systemic change and the modification of social institutions. Once again, there is nothing in economic theory to prohibit this. There are, however, significant problems with the demonstration or measurement of benefits and only formative evaluation of such changes are appropriate.

The question in the title of this paper was whether economic evaluation should be regarded as a friend or foe of health promotion. The answer, of course, is that when it is properly and appropriately used it is neither. It is threatening to cost ineffective programs and this is to be applauded. By contrast, for cost effective programs it is a shield against the cost minimising proclivities of some policy makers.

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