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An institutional and evolutionary perspective on health economics

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Neoclassical theoretical approaches dominate modern health economics. However, the peculiarities of healthcare provision are so unusual that neoclassical theory is especially unsuited to the area. Even mainstream health economists often abandon Paretian welfare considerations to focus on needs instead. Problems relating to uncertainty and externalities are also widely acknowledged. This article shows that there are additional important pecularities of healthcare that are relatively neglected in the literature. Some of these concern healthcare needs: while *health* itself is a universal need, needs for *healthcare* provision are largely involuntary, varied and idiosyncratic. These issues have important consequences for the planning of healthcare systems and the extent of transaction costs in any market-based system. These factors, combined with the inherent dynamism of modern healthcare needs and capabilities, make institutional and evolutionary approaches especially suitable for healthcare economics.

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JEL classifications: B52, B53, D01, D02, D60, D80, I10, I31, P40

Health economics would seem to be a perfect topic for heterodox dissent . . . health economics is a field which must make the average neoclassical economist squirm because it challenges his or her standard assumptions at every turn. Perhaps that is precisely what makes it so interesting to study.

Mark Blaug (1998, p. S65)

1. Introduction

Healthcare provision and expenditure are attracting increasing attention from economists, not least because of their increasing pecuniary importance in absolute and relative terms.[1]

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[1] Organisation for Economic Cooperation and Development (OECD, 2006) data report that from 1980 to 2003, total healthcare expenditure as a percentage of GDP increased from 8.8% to 15.2% in the USA, from 7.0% to 10.4% in France, from 7.1% to 9.9% in Canada, from 6.5% to 8.0% in Japan and from 5.6% to 7.8% in the UK.

Neoclassical theoretical concepts are at the core of modern health economics. By contrast, other approaches are relatively underdeveloped and have had only a marginal influence.[1]

It is argued in this essay that the peculiar features of the health sector and the special requirements of health policy limit the viability of a neoclassical approach even more severely than in other typical areas of its application. Insights from institutional and evolutionary economics have a hitherto unrealised potency in this area.

What is neoclassical economics? It may be loosely and briefly defined as an approach that

a. assumes rational, utility-maximising behaviour by agents with given and stable preference functions,
b. focuses on attained, or movements towards, equilibrium states, and
c. is marked by an absence of chronic information problems.[2]

Instead of focusing on the economy as an object of analysis, neoclassical economics defines itself as the general 'science of choice' assuming rational agents (Robbins, 1932). Addressing point (c), even if information is imperfect, in neoclassical economics information problems are typically overcome by using the concept of probabilistic risk. Excluded are phenomena such as severe ignorance, radical uncertainty—of the type explored by Frank Knight and John Maynard Keynes—or divergent perceptions by different individuals of a given reality. It is typically assumed that all individuals will interpret the same information in the same way, ignoring possible variations in the cognitive frameworks that are necessary to make sense of data. Notably, these three attributes are inter-connected. For instance, the attainment of a stable optimum under (a) suggests an equilibrium (b); and rationality under (a) connotes the absence of severe information problems mentioned in (c).[3]

Building on this theoretical foundation, the standard normative neoclassical approach to economic welfare involves the following assumptions, among others (Little, 1950):

d. individuals seek to maximise their utility and the individual is the best judge of whether his or her utility is maximised, and
e. the Pareto criterion is adopted—changes are acceptable only if they increase the utility of at least one person and decrease the utility of no-one.

Although (d) and (e) are part of the core of standard neoclassical welfare economics, they are so unsuited for health policy that many mainstream health economists are inclined to adopt alternative normative criteria, focusing on measures of health rather than utility (Hurley, 2000). As leading health economist Anthony Culyer (1991, p. ix) puts it:

In practice, the overwhelming majority of health economists use the familiar tools of neoclassical economics, though no means all (possibly not even a majority) are committed to the welfarist

[1] For overviews of mainstream approaches in health economics see Culyer (1991), Mooney (1994), Newhouse (1996) and Culyer and Newhouse (2000). Non-mainstream contributions include Backhaus (unpublished), Davis (2001), Dunn (2006), Hildred and Watkins (1996), Langlois (2001), McMaster (1995, 2002, 2003A, 2003B, 2004), McMaster and Sawkins (1996) and Reisman (1993).

[2] This definition of neoclassical economics clearly excludes members of the Austrian School, such as von Mises and Hayek, particularly because of their explicit critique of attributes (b) and (c), and because of their rejection of typical conceptualisations of rationality under (a).

[3] Modern mainstream economics has to some extent moved away from the neoclassical paradigm defined above, after the rise of game theory, experimental economics and behavioural economics (Colander, 2005A, 2005B; Colander *et al.*, 2004A, 2004B; Davis 2006). So far, and apart from some use of game theory, these mainstream developments have had a relatively small impact on health economics.

(specifically the Paretian) approach usually adopted by mainstream neoclassicists when addressing normative issues.

One is left wondering why neoclassical theoretical propositions are retained, when the standard normative apparatus of neoclassical theory is often abandoned. The adoption of some but not other elements in the standard neoclassical package is a bit odd. This paper questions the relevance of *all* the neoclassical precepts in this context.

Leading mainstream health economists suggest that healthcare has special features that make it different from other domains of application, posing restrictions on the appropriateness of some neoclassical assumptions. Why is healthcare different? In the supposedly definitive *Handbook of Health Economics* (Culyer and Newhouse, 2000), Jeremiah Hurley (2000, p. 67) summarises the case for its distinctiveness and exceptionalism in the following terms:

(1) demand for health care is derived demand (for health); (2) externalities; (3) informational asymmetries between providers and patients; and (4) uncertainty with respect to both the need for and the effectiveness of health care. Individually, each of these features can be found in other commodities, but no other commodity shares all of these features to the extent found in health care.

However, while these four features are important, it is argued here that they are insufficient to characterise the economic features of healthcare. A more adequate listing, and a deeper analysis of its exceptional features, point in more radical directions concerning the type of economic analysis to be employed.

Another quite different problem is to define the boundaries of healthcare or of a healthcare system. Many aspects of public and corporate policy affect health, from occupational support to the provision of adequate nutrition and clean water. While recognising the vital importance of all these factors, the focus of this paper is not on public health policy. Instead, it is on essential healthcare services contracted by specific individuals and provided by trained healthcare professionals, including primary, hospital, disability and other forms of care. These aspects of healthcare provision take up a large and growing part of national income in most developed countries. The distinction between essential and inessential healthcare services is itself problematic and will be discussed below, although much healthcare expenditure is generally regarded as essential by analysts and policy-makers.

This essay discusses the distinctive features of healthcare and is structured in the following manner. In the next section I consider Hurley's list of healthcare peculiarities and explain its limitations. Four sections follow, adding further groups of prominent features of healthcare. Three of these sections focus on peculiar characteristics of healthcare needs. Section six brings more dynamic, evolutionary and technology-driven issues into the picture. Discussion of all these additional features reveals the limitations of a neoclassical approach and the relevance of institutional or evolutionary ideas. The penultimate section considers the epistemic problem of needs appraisal and the choice of institutions through which needs can best be evaluated.

While shifting the analysis from a demand-based to a needs-based approach, it is not naively assumed that health authorities or professionals always know best. Indeed, the problem is one of institutional design where knowledge is developed and distributed, and where mistakes become useful cues for learning and adaptation.

However, it is beyond the scope of this paper to deal adequately with the detailed complexities of institutional design. Here we argue for a major shift in approach, to complete

the separation of health economics from utility analysis and utilitarianism. The overarching paradigm involves a combination of institutional, evolutionary and needs-based approaches, with an emphasis on the comparative institutional analysis of healthcare systems.

This paper shows that a needs-based analysis is capable of identifying distinctive features of healthcare. It also proposes a link between the recognition of needs and personal motivation, and argues that the salience and nature of needs in healthcare is an important motivational factor for healthcare professionals. This implies a critique of incentive systems that rely principally on pecuniary rewards for healthcare workers.

2. Derived demand, externalities, information asymmetries and uncertainty

Hurley's idea that derived demand—in the standard sense of a demand that is not for the good or service itself but for its outcomes—is an important distinguishing feature of healthcare does not stand up to close scrutiny. Like healthcare services, most goods and services satisfy derived demands: they are purchased as means to consumption ends (Lancaster, 1966). Consider, for example, motor cars (supplying a means of transport), housing (supplying shelter and comfort), consumer durables and most services.

However, goods such as cars and houses have an intrinsic status value, and serve the purposes of conspicuous consumption (Veblen, 1899) to a degree that is not found with many healthcare services. With some important exceptions of degree and kind, much demand for healthcare arises from need rather than from appetite or status. In turn, this points to an important distinctive feature of healthcare that is hinted at in the mainstream literature but often eludes overt identification: health is an objective, universal need, irrespective of whether or not it is also a want. The recognition of a distinction between wants and needs challenges the utilitarian foundations of neoclassical economics. As argued below, mainstream health economists are under pressure, despite their intellectual origins, to move some way in this direction.

Turning to externalities, the literature on public health widely recognises their existence. Disease contagion is a prominent example; hence inoculation against disease may not simply help the patient being inoculated—it will help prevent the spread of disease to others. Excessive drug or alcohol consumption may also incur costs for others, and so on. Furthermore, the non-excludable character of some health-related services endows them with the characteristic of public goods: public sanitation is a prominently cited example.

Accordingly, mainstream health economists (including Hurley) take the existence of externalities and public goods on board. In some cases they become the centrepiece of their argument for some government regulation in the health sector. According to this view, one of the primary roles of government is to use fiscal policy to deal with 'market failures' and compensate for externalities associated with individual behaviours. This is the traditional Pigovian justification for government intervention in economics.

However, this Pigovian case for government intervention is much stronger in the case of some healthcare services rather than others. Externalities do not apply to an exceptional degree to surgery or palliative care, for example. If the case for government intervention rested to a large degree on the existence of externalities, then it would suggest that the case for such intervention would be much stronger in some sectors of the health service rather than others, with a consequent reorganisation of the health system to reflect this fact.

This discussion of externalities raises additional questions. The Pigovian and externality-based argument for government intervention is countered by the Coaseans, who claim

that the case for government intervention disappears once private property rights are fully specified, and externalities become internalised. Accordingly, those infected by a contagious disease would somehow sue those responsible for its outbreak. The practical limitations of such an approach are already evident in Coase's (1960) classic paper: the property rights solution to such problems requires low transaction costs in suing those responsible for causing such harm. Arguably, in the health context these transaction costs will typically be large enough to thwart a Coasean solution. Most mainstream health economists are aligned with Pigou rather than Coase, but few consider the dilemma. The striking point here is that very few take on board the familiar institutional concept of transaction costs. This strange omission will be discussed further below.

We now turn to arguments concerning information asymmetries between providers and patients, and uncertainty[1] with respect to the effectiveness of some health treatments. Such considerations are at the centre of Kenneth Arrow's (1963, 1965) classic analysis, where he argued that these factors undermine the case for purely market-based provision. Consumers are often unaware of what is best for them and thus depend on expert advice. These information asymmetries are a persistent and warranted feature of the health economics literature.

Among others, Thomas Rice (2001) argues persuasively that the goal of consumer choice in healthcare would be desirable only if the consumer had adequate knowledge and understanding of the viable choices and their consequences. In practice, because of inexpert medical knowledge, healthcare consumers have limited awareness of both. Rice also argues that the very imposition of the burden of choice may be stressful or distasteful for some patients or their next of kin. Furthermore, if patients deal psychologically with symptoms by denying or underestimating their significance, or exaggerate them to seek personal attention, then the welfare benefits of an entirely voluntary system based on competitive private health insurance can be undermined. Another argument against private health insurance is the possibility of moral hazard: where the insurers have insufficient information to identify and prevent excessive claims for health services.

When modern health economics emerged as an identified field around 1970, severe problems concerning information and uncertainty were acknowledged. Particular attention was paid to the phenomenon of supplier-induced demand in healthcare (Blaug, 1998; Evans, 1974; Labelle *et al.*, 1994; Phelps, 1986; Reinhardt, 1985). This arises because the willingness to pay for healthcare services typically depends on expert advice and diagnoses from healthcare providers.[2]

While accepting the force of these arguments concerning information asymmetries and uncertainty, some qualifications must be added. First, these features are neither universal in healthcare systems nor unique to them. Information asymmetries are far less severe concerning peripheral but important aspects of healthcare systems such as waiting times, appointment flexibility, hospital food and hospital accommodation. Consequently, a stronger case for patient choice can be made in these peripheral areas. By comparison, chronic information asymmetry and uncertainty are also features of other sectors outside healthcare, notably education. While important, these informational features are inadequate as pointers to the kind of healthcare system that best meets health needs.

[1] Note that when mainstream economists use the term 'uncertainty' it is often in the non-radical sense where statistical probabilities can be attributed to outcomes. This differs from the use of the term by Knight and Keynes.

[2] Supplier-induced demand is absent from Hurley's (2000, p. 67) list. His use of the term 'derived demand' refers to healthcare demands derived from the demand for health, not a supplier-induced demand as such.

Second, the phenomenon of supplier-induced demand is important but not unique to healthcare. Institutional economists such as John Kenneth Galbraith (1958) have long argued that consumer demand is often manipulated by advertising. What makes healthcare delivery special in this respect is that the informational and skill asymmetries are so extreme that we are often unable even to specify the detailed healthcare we require, whereas the allegedly manipulated consumers of other items can indicate clearly the product that is the object of their desire. It is the extremity of supplier-induced demand—not any uniqueness to healthcare—that is significant. This extremity suggests that we should go about healthcare evaluation and provision in a different way, in terms of a theory of need, rather than want or demand.

Overall, attempts by mainstream health economists to describe the peculiar features of healthcare systems identify some important key points, but are inadequate in several respects. The additional features identified in the following sections derive largely from a deeper consideration of the concept of need.

3. Health is an objective, universal need

Health is an objective, universal need, irrespective of whether or not it is also a want. Clearly, to make sense of this statement, a distinction must be made between wants and needs, where wants are culturally conditioned subjective desires and needs are objective conditions of autonomy, survival, well-being and social interaction (Boulding, 1966; Braybrooke, 1987; Corning, 2000; Dewey, 1939; Doyal and Gough, 1991; Etzioni, 1968; Gough, 1994; Kapp, 1976; Lawson, 2003; Lutz and Lux, 1979, 1988; Maslow, 1954). However, for various reasons, several social scientists have become suspicious of a separate concept of need. Neoclassical economists typically focus instead on subjective evaluations of utility. Cultural relativists proclaim that apparent needs are simply reflections of a specific culture. Social constructivists decry any objective foundation for the need concept. Nevertheless, as Len Doyal and Ian Gough (1991) demonstrate, when confronted with real world circumstances, these perspectives end up relying on universal or objective standards of evaluation, equivalent to what might be termed needs.[1]

In particular, those who believe that need is equivalent to individual utility, or that the individual is always the best judge of his or her welfare, rarely go so far as to condone entirely voluntary versions of slavery, pornography, prostitution, incest, drug use, vote-buying or sex with children. Proclaimed individualists and subjectivists such as Friedrich Hayek (1960) insist that the goal of individual liberty must be sustained through necessary general rules and political structures that are not necessarily a matter of individual taste or preference. The establishment of human liberty and the autonomy of choice depend on the 'need' for information concerning the choices, some knowledgeable understanding of their consequences, and sufficiently healthy and adequate physical and mental capacities to make an evaluation (Nussbaum and Sen, 1993).

Against cultural relativists and subjectivists, critics such as Doyal and Gough (1991) and Martha Nussbaum (2000) establish mental and physical health as a basic human need. Its

[1] Notably, some of the neglected early roots of health economics lie in needs-based approaches, particularly the need for a healthy population to sustain national industry and the arts, and the need for effective treatments for soldiers to maintain military effectiveness (Backhaus, unpublished). Questions of objective need were also central to the thinking of the German historical school of economics in the nineteenth century, and even to Carl Menger, the founder of the contrasting Austrian subjectivist approach. Indeed, the thinking of the German historical school was behind the formation of the first modern welfare state in Bismarck's Germany in the 1880s, with its provision of accident, health and pension insurance.

objectivity and universality is grounded on the common biological and social characteristics shared by all humans. Factors such as clean water, shelter, physical security, and appropriate healthcare contribute to health needs, and their efficacy can be examined by scientific investigation. Accordingly, most, if not, all health needs are potentially distinguishable from subjective wants: the latter may vary from individual to individual and culture to culture. As Doyal and Gough (1991, p. 54, emphasis removed) write:

> since physical survival and personal autonomy are the preconditions for any individual action in any culture, they constitute the most basic human needs—those which must be satisfied to some degree before actors can effectively participate in their form of life to achieve any other valued goals.

Definitionally, a need must be satisfied for the individual to avoid serious physical or mental harm. Harm includes impediments to individual aspirations or social involvement. Described in such terms, needs are objective, universal and trans-cultural.

Of course, investigators who attempt to identify and evaluate needs will be encumbered by prejudices that derive in part from their own history and culture. However, the fact that all statements about needs may be distorted by such factors does not mean that objective needs do not exist. In general, familiar difficulties with objective observation are not arguments against the existence of an objective reality. If something is difficult to discern that does not mean that it does not exist. The problem is to set up scientific procedures and responsive institutions that discern and constantly re-evaluate the nature of needs.

To say that needs are objective and universal does not imply that they are static. Injuries and infections create new treatment needs. As the number of elderly in some countries has been increasing, the need for some treatments (such as for cancer) has increased.

We have to distinguish between the objective and universal need for *health* and the individual's need for *healthcare*. Unlike health needs, healthcare needs vary enormously among people and through time. These variations are considered later in this paper.

One sense in which both health and healthcare needs are objective is that they are independent of individual whim or preference. Healthcare needs apply equally to all in the same circumstances or afflicted with the same condition. Everyone with a complex limb fracture needs surgical attention, irrespective of preference or diagnosis.

By contrast, some healthcare demands—such as many for cosmetic surgery—have little relation to survival. They qualify as minor needs at most. On the other hand, severe disfigurement can inhibit social participation and in these cases surgery may become a significant need. As with many classifications, the boundaries are fuzzy. But that does not mean that there is no substance to the distinction. Especially with healthcare, the majority of needs are obvious in broad terms. Broken bones require surgical treatment, infections require medicines, sicknesses require nursing, and so on, notwithstanding the problems of determining the precise nature of and limits to health provision in all these cases.

Some writers acknowledge objective needs in the above manner, but classify them as such only if the means exist to ensure that they are met. Hence, for example, G. K. Matthew (1971, p. 27) defines healthcare needs as emerging 'when an individual has an illness or disability for which there is an effective and acceptable treatment or cure'. According to this different definition, needs exist only when there are means of meeting them. This is a capacities-dependent definition of need. By contrast, and in line with Doyal and Gough (1991), needs are defined here in objective terms that are independent of there being the means to meet them. This is a capacities-independent definition of need. An advantage of a capacities-independent definition is that it may focus more on strategies to obtain the

future capacity to meet needs that cannot yet be met. However, both types of definition are in use, and it is possible to translate meanings, as long as the usage is made clear.

Given the subjectivist and utilitarian tradition in mainstream economic thought, one might expect neoclassical economists to focus largely on wants and subjective utility, rather than objective needs. Generally, however, this is not the case. A concept of need relating to the ability to benefit from healthcare interventions, in contrast to demand (which is a function of preferences and ability to pay) is recognised by several leading mainstream health economists (Culyer, 1995; Hurley, 2000).

Mainstream health economists often abandon neoclassical welfare analysis, to focus instead on more objective measures such as 'social indicators' (Culyer *et al.*, 1971) or the influential 'Quality Adjusted Life Years' (QALYs) (Maynard, 1991). Essentially, these are indicators of need, or of treatment priority based on need. In practice, such measures of cost effectiveness are used much more widely than attempts to measure utility, although frequent claims are made that the more objective measures are based on a utility analysis (Bleichrodt and Pinto, 2006). Such claims seem academically ceremonial or partly designed to retain respectability among neoclassical colleagues, rather than to identify real causal mechanisms or enhance practical criteria.

Perhaps one reason for this exceptional mainstream admission of needs is that health relates closely and obviously to matters of survival, mobility and autonomy. Healthcare is often an immediate matter of life and death. Some other needs can be met by individuals themselves, or the harm that results from them being unmet is sometimes less immediate or obvious. Even rational economic man faces the objective problems of physical survival and personal autonomy.

Compare healthcare with some other basic needs, such as food. Dietary needs are less complex than health needs, and include vitamins, energy, fibre and key chemical elements, while limiting the intake of fats, sugars, salt and so on. By contrast, as noted above, the identification of healthcare needs often requires expert diagnosis. Furthermore, much healthcare requires the involvement of skilled healthcare professionals. Not only is health a basic need, but also the diagnosis and provision of healthcare requirements are often sufficiently complex to require the involvement of workers with special training and skills. This combination is one of the key features that makes heathcare special.

In particular, the fact that health needs are universal can help to sustain an ethos of professional commitment and obligation by health workers. They are not producing mere widgets or candy floss. Health work itself is much more than a source of remuneration. Typically, health sector workers attempt to meet objective healthcare needs and deploy deep-seated motivations to care for the welfare of others. While mainstream health economists acknowledge the existence of non-pecuniary motivations in the health sector (Scott *et al.*, 2003), they retain utilitarian theories of motivation that fail to recognise criticisms of this approach in the huge literature on motivation in organisational psychology and elsewhere. Not only is the intrinsic motivation of work itself widely considered in the classic texts in this literature (Deci, 1975; Herzberg *et al.*, 1959; Steers and Porter, 1991; Vroom, 1964), but also the more intense motivational spur of healthcare need is acknowledged in empirical studies of healthcare professions (Benson and Dundis, 2003; Janssen *et al.*, 1999).

In sum, the objective and universal character of health needs conflicts not only with the utilitarian presuppositions at the core of neoclassical economics, but also help to explain in part the motivations and professional commitments of healthcare workers. Consequently, a needs-based approach has important implications both for the commissioning and

provision of healthcare services. Theories and policies that ignore or underestimate these factors are likely to be at best inadequate, and at worst destructive of commitment and morale among health workers.

4. Most healthcare needs are involuntary and unequally distributed

Like health, education is also a universal need, requiring the involvement of skilled professionals. However, the factors considered in this section reveal a divergence in other respects between education and health. Other analytical divergences between these spheres emerge with issues raised in subsequent sections.

The need for health is universal, but the need for healthcare services is unequally distributed and depends to a significant degree on factors beyond the control of the individual. Generally you do not choose to be sick—with exceptions including illnesses related to drugs, smoking, alcohol and overeating. People with inherited illnesses, or inherited dispositions towards illness, do not choose their afflictions either. Furthermore, a large set of needs for healthcare services result from accidents, for many of which the victim bears little or no responsibility. In short, much of the need for healthcare results from a lottery of misfortune, as if God were playing dice with human heath.

Comparing healthcare with education or nutrition, some people do have special educational or nutritional needs. But the general need for education or nutrition is much more broadly and less randomly distributed than the need for healthcare services. Because many healthcare patients are innocent of the causes of their plight, only the most hardened and insensitive of observers can avoid reflecting: 'It could have happened to me'. This special feature of healthcare needs has major normative and policy implications. First, the fact that most people do not willingly cause their own health problems generates widespread sympathy among others, including health practitioners. This is another source of the motivational ethos of professional obligation in the health sector. It is a further reason why a needs-based approach has implications for the production of healthcare services, as well as their commissioning.

Second, this special characteristic of healthcare needs further challenges the typical neoclassical Pareto criterion [(e) above] and gives rise instead to concerns regarding equity or universal access to healthcare. Even mainstream economists are impelled in this direction, so equity or universal access has become a topic of discussion in both orthodox and heterodox texts alike (Culyer and Wagstaff, 1993; Hurley, 2000; Reisman, 1993). It seems obvious that Paretian norms are less appropriate in this context, and it would be better to turn to alternative ethical traditions, including the intellectual lineage from Adam Smith in the *Moral Sentiments* to John Rawls and beyond, where the moral criteria necessarily involve concern for others as well as oneself.

Yet again there is a tension between the devotion by mainstream health economists to the core precepts of neoclassical economics [(a), (b) and (c)] and their frequent abandonment of the standard normative criteria of neoclassical welfare economics [(d) and (e)]. For them, Pareto seems more dispensable than Robbins.

The fairly obvious point that much injury and ill health is involuntary has enormous normative repercussions. When mainstream health economists accept these consequences they seem reluctant to spell out their obvious basis in a relatively distinctive characteristic of health care provision. Why? Perhaps the answer is that to focus on issues of involuntariness would be to dethrone the supreme Robbinsian idol of choice. Mainstream economists define the subject in these terms, and regard dissenters by definition as non-economists.

The core mission and claim of mainstream health economists is to bring the theoretical tools of the 'science of choice' to the healthcare domain, and thereby demonstrate their value. To downgrade choice as the supreme problem would be to undermine this claim in the health sphere, and allow banished heretics with a fundamentally different conception of the discipline to re-enter the temple of economic theory. For the mainstream economist, Pareto can be sacrificed rather than Robbins, because more is at stake with the latter.

5. Healthcare needs are varied and idiosyncratic

The need for healthcare services is unequal in more senses than one. First it is unequal because of the random lottery of misfortune, as discussed in the preceding section. Second, even when affected by a similar accident, misfortune or infection, the nature and severity of the outcome can vary from individual to individual. Healthcare needs are idiosyncratic, reflecting substantial physiological and neurological variations between individuals. Differences in health problems emanate from differences in past environment and genetic endowment. The peculiarities often vary significantly from person to person; each patient requires an individual diagnosis and remedy. While the need for good health is equal and universal, healthcare needs are both unequal and heterogeneous.

By comparison, the need for educational services is also partly idiosyncratic: a significant proportion of students have special needs. But the degree of heterogeneity and inequality is much less, confirmed by the fact that successful schooling curricula involve a great deal of material and teaching common to all students. Everyone needs to be taught to read, and most will manage to learn together with others in a classroom. But not everyone requires a hip replacement operation. Even among those patients requiring such a standard operation, detailed procedures will vary considerably because of differences in age, weight, allergies and so on. Drugs, physiotherapy and aftercare will differ because of varied needs.

There are some operations—such as those for cataracts—that are fairly simple and standard. Generally, however, attempts to treat all patients in exactly the same way would be catastrophic. Even when patients with similar afflictions are brought together to benefit from shared specialist skills and equipment, and to realise possible economies of scale, their detailed healthcare needs typically remain highly diverse. Highly-standardised mass-production of healthcare services is possible in no more than a limited number of cases. Some significant standardisation of medical diagnostic procedures has occurred in healthcare systems, but when effective this leads to improved individual diagnoses rather than uniform healthcare provision. In contrast to education, there is very little equivalent common provision among patients undergoing healthcare. Healthcare services have to be varied to reflect idiosyncratic needs.

Faced with heterogeneous goods or services, economic analysis faces familiar problems of theoretical tractability. Although there is a significant mainstream literature on heterogeneous goods or services, much standard theory assumes relatively few homogeneous products. However, the problem here is not simply one of building formal models. Under conditions of limited information, the heterogeneity of goods and services creates a set of specific problems of a contractual and administrative type. Interestingly, these problems appear in both market-based and planned economic systems. They are highly relevant in the healthcare context.

In a market-based system with limited information, the idiosyncrasy and heterogeneity of goods and services are an important source of transaction costs (Williamson, 1975). These are the costs of formulating, monitoring and enforcing contracts. By contrast, if a set

of goods and services were homogeneous, then one standard contract would often do, because their characteristics would, in all likelihood, be widely known.

Since the pioneering work of Coase (1937), Williamson (1975) and other 'new' institutional economists, the concept of transaction costs has become commonplace in modern economics, although it has proved difficult to incorporate adequately in formal models. By contrast, relatively little attention is paid to the concept and its significance in mainstream health economics. If we rely once again on the purportedly authoritative *Handbook of Health Economics* (Culyer and Newhouse, 2000), only two chapters out of 35 mention transaction costs, and in both cases briefly and without much elaboration. There is no significant discussion of transaction costs in Culyer's (1991) collection of definitive essays in the subdiscipline nor in the more recent *Elgar Companion to Health Economics* (Jones, 2006). Although transaction costs in health systems are discussed elsewhere (Ashton, 1998; Hsiao, 1995; Jan, 2000), they have not yet achieved the prominence they deserve in mainstream health economics.[1]

By contrast, in reality transaction costs are highly significant. In health systems that rely more on markets, such as the USA, it is estimated that transaction costs amount to 25% or more of health insurance premiums (Hsiao, 1995, p. 138). Transaction costs impinge on both demand and supply in a system. Information and other problems concerning the contracting of insurance affect the demand for healthcare. Commercialisation and competition in the production of healthcare services enhances possibilities for litigation and contractual dispute. Both commissioning and provision are affected.

Transaction cost economics is well-established and has gained mainstream respectability. However, despite all its concern with problems of micro-measurement, mainstream health economics has paid inadequate attention to the measurement of transaction costs. Yet comparison of different healthcare systems suggest that high transaction costs is one of the typical downside problems that arise within private and market-based healthcare provision. Although transaction cost economics differs in character from other versions of institutional economics, few institutionalists would deny the reality and importance of transaction costs.

One possible advantage of planned hierarchies is that they may reduce transaction costs, just as these are sometimes reduced by organising production under the unitary administrative umbrella of the firm (Coase, 1937). Nevertheless, while transaction costs may be reduced in a planned system, the planning of heterogeneous goods or services may bring problems of a different kind.

For classic examples of such problems we may look to the formerly planned economies in the Soviet Union or China. Faced with product heterogeneity and complexity, the central planning authorities were nevertheless obliged to fix relatively simple quantitative targets. However, in focusing on the targets rather than the overall quality or saleability of the output, firms responded by producing inferior products. Planning targets in the textile sector in terms of square metres led to the production of thin, fragile cloth. Changing the target to weight led to useless, sackcloth-like material. Attempts by the planners to deal with the problem of cloth 'quality' led to its definition in terms of the absence of a particular type of imperfection. At least one enterprise responded by cutting out all the imperfections so that the cloth was dotted with holes (Ellman, 1989, p. 45). Plan-fulfilment

[1] However, the promotion of 'quasi-markets' by leading social policy theorists such as Le Grand (1993) has led to more discussion of the problem of transaction costs in other disciplines.

targets are bound to cause such distortions when significant variations in product characteristics are typical (Nove, 1979, 1983).

But there is no inevitability that such problems will become severe in a planned system. After all, large corporations function as centrally directed organisations. They cope with dynamic change by decentralising decision-making, simulating competition between internal divisions and other administrative measures. Furthermore, the Soviet experience suggests that when highly centralised hierarchies settle into established routines, they can manage to function, albeit without much dynamism or growth. Generally, routinised hierarchies can cope better within a steady state rather than with processes of dynamic transformation (Nelson, 1981).

To what extent have plan-fulfilment problems appeared in centrally planned healthcare systems? Such problems are more likely to emerge if, instead of relying mostly on the judgements and habits of healthcare professionals and on the routine practices of local healthcare organisations, central planners attempt to bring about radical transformations in the system. When changes affect the system, routines are disrupted by turbulence and uncertainty. Hence serious problems can arise when central healthcare authorities, driven by their own strategic agenda, disrupt a system that is moving along largely under the impetus of its local habits and routines. In such circumstances, people search for new ways of coping with the changing situation, some of which malfunction.

Important illustrative examples are found in the British National Health Service (NHS). From its inception in 1948 until the 1980s there were relatively few attempts at restructuring or reform. However, by the 1990s there was alarm owing to delays in treatment and waiting lists. The Labour Government of Tony Blair attempted to deal with these problems. While some Labour policies were designed to extend the scope of markets or quasi-markets in the healthcare system, the NHS remained a huge, bureaucratic, centrally planned organisation. The NHS is frequently cited as being the world's third biggest employer, after the Indian railways and Chinese army. Ironically, the Blair reforms of the NHS produced outcomes reminiscent of the central planning systems that used to exist in China and the Soviet Bloc.

Responding to the problem of waiting lists for NHS treatment, the Labour Party pledged during the 1997 election to make massive reductions in the length of hospital waiting lists. When elected, it controversially chose this target instead of cutting the average length of waiting times. In response, hospitals resorted to administrative devices to reach their waiting list targets, reportedly including setting up covert waiting-lists to get onto their waiting-lists.[1]

Similarly inappropriate outcomes occurred with attempts to reduce waiting times to see general practitioners. Blair announced in 2003 that incentives would be set up to ensure that general practitioners saw their patients within 48 hours. The NHS offered substantial (five-figure) monetary payments to general practices which met this target. Some practices responded simply by refusing to make appointments more than 48 hours in advance. To get an appointment, a patient had to be among the first to make telephone contact with the appointments office immediately after it opened in the morning. Within minutes, the

[1] See http://www.publications.parliament.uk/pa/cm199798/cmhansrd/vo980630/debtext/80630-04.htm, http://www.publications.parliament.uk/pa/cm199798/cmhansrd/vo981109/debtext/81109-10.htm, http://www.parliament.the-stationery-office.co.uk/pa/ld199899/ldhansrd/vo981209/text/81209-05.htm, http://news.bbc.co.uk/vote2001/hi/english/main_issues/sections/facts/newsid_1134000/1134218.stm#top, http://www.bbc.co.uk/otr/intext/20010603_whole.html, http://www.civitas.org.uk/pdf/cw55.pdf, http://www.publications.parliament.uk/pa/cm200102/cmhansrd/vo020124/debtext/20124-18.htm. All accessed in June 2006.

appointment schedules were filled up for that day and the next, leaving patients who telephoned later without any chance of getting any appointment whatsoever.[1]

These examples suggest that target-fulfilment problems similar to those in centrally planned economies can arise in relatively centralised healthcare systems. This raises the question of the degree of familiarity on the part of healthcare economists with the literature on 'socialist calculation' or collective planning.

Debates by economists in the 1930s over the efficacy of centrally planned systems led to an important analytical emphasis on problems of knowledge, complexity and uncertainty. Some defenders of central planning—such as Oskar Lange—resorted to mainstream general equilibrium theory to support their proposals. However, their critics, including Friedrich Hayek (1945), emphasised that mainstream theory neglected the problems of information, knowledge, heterogeneity and radical uncertainty that are prevalent in complex economic systems. This went against the neoclassical theoretical grain, even if particular neoclassical theorists were more sympathetic to market-based policies. For this reason, the immensely important debate between planning and market-based solutions remains neglected to this day. It is rarely present in the teaching curricula of university departments of economics.[2]

This omission partly accounts for the surprisingly limited discussion within mainstream health economics of the relative virtues of different types of healthcare system. If mainstream health economists were to pay adequate attention to the problems of knowledge, complexity, heterogeneity and uncertainty that have to be addressed in such comparative analyses, then they would have to abandon the more optimistic informational assumptions at the core of neoclassical theory, as outlined above.

Note that the argument in this section does not depend on any particular ideological inclination towards either markets or planning. Either way there are problems, owing to highly idiosyncratic and heterogeneous needs in the context of uncertainty. Market-based systems increase contracting activity and may exacerbate the problem of transaction costs. Planned systems face the problems of knowledge, complexity and uncertainty, identified by Austrian School economists such as Hayek. The informational assumptions within mainstream economics lead to a neglect to both types of problem. By contrast, institutional and evolutionary economists are much better equipped to take these issues on board.

It also has to be recognised that we are not faced with a simple dichotomy between market-based and planned systems. In fact, most national healthcare systems involve a complex combination of administration and competition, of public and private provision, and of centralised and decentralised authority. With a well-established literature on mixed or hybrid systems, institutional and evolutionary economists are more able to address these complexities.

6. The dynamic evolution of healthcare needs and systems

Recent decades have seen massive ongoing changes in the nature and distribution of healthcare needs, and the capacities of healthcare technologies to meet such needs. These

[1] During the 2005 general election campaign, a woman angrily explained the situation to Blair in front of a televised public audience. The Prime Minister conceded that he had no idea that such practices took place. See http://www.timesonline.co.uk/article/0, 19809-1590905,00.html, http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2005/04/30/nelec30.xml, http://news.bbc.co.uk/1/hi/uk_politics/vote_2005/front-page/4495865.stm, http://society.guardian.co.uk/primarycare/story/0, 1473470,00.html. All accessed in June 2006.

[2] For good accounts of the planning debate see Lavoie (1985) and Steele (1992) among others. Using his rich knowledge of the Soviet economic system, Nove (1983) spells out some of the implications for socialist thought. See also Hodgson (1984, 1999).

processes have put new and changing demands on healthcare systems. When the British NHS was founded in 1948 it was anticipated that the need for healthcare services would diminish as a result of universal provision. This prediction proved to be unfounded as capacities to meet healthcare needs have increased.

A number of factors are changing the scale and nature of healthcare needs (Towle, 1998). The first is growing longevity and the increasing proportion of elderly in the populations of most developed countries. This is augmenting the need for healthcare provision for conditions associated with older age. An increase in the proportion of retired people also creates problems for systems of healthcare funding that rely significantly on taxes or other contributions during periods of employment.

The second major factor is the increasing availability of new technologies for screening, diagnostics, information analysis and treatment, including expensive new drugs and diagnostic equipment. Because of the costs involved, it is inconceivable that all relevant available technologies will be employed in all cases. The increase in the capacity to meet need comes at a cost, and the more this capacity is enhanced, the greater the potential cost involved. In response there is likely to be an increasing ongoing emphasis on health technology assessment, to determine the benefit of each technique. There is also likely to be the further development of systems of prioritisation or rationing. Without such measures, there is the risk of huge cost overruns.

Note that a capacities-independent definition of need is employed here. If a capacities-dependent definition were used instead, then we would say that the development of medical diagnostic and treatment technology was increasing healthcare needs as such. No ambiguity should arise as long as the choice of definition is made clear.

However, both definitions of need are different from demands, which stem from culturally determined patient wants. Significantly, new information technologies are giving patients access to new information, leading to a growth in patient awareness and demands for greater empowerment. These additional trends do not themselves increase healthcare *needs* (which exist whether or not we are aware of them) but can greatly expand healthcare *demands*, and put greater consumer pressure on the healthcare system. People become more aware of the possibilities and come to expect solutions. Not only are real healthcare possibilities enlarged, but people come to believe that they need additional healthcare services. These heightened expectations have major systematic repercussions.

What are the further consequences for the underlying economic theory upon which we should build a viable health economics? In this dynamic context, it becomes increasingly irrelevant to search for optimal equilibria. Even if an optimum policy solution were found, it would not remain an optimum for long: relentless technological and demographic changes will shift the optimum solution elsewhere. In any case, problems of uncertainty make the identification of any optimum generally problematic; when it is endlessly shifting, then these problems are compounded. This real-world dynamism undermines the relevance of neoclassical assumptions (a) and (b) and their companion assumption (c).

Instead, there is scope for evolutionary, Schumpeterian and Austrian approaches to analysis, which abandon the focus on equilibrium and optimum solutions (Hayek, 1945; Nelson, 1981; Nelson and Winter, 1982; Schumpeter, 1934; Veblen, 1919). In their place there is an assessment of the processes of change themselves, with a view to understanding what kind of efficacious interventions are possible in a complex, evolving system, involving unforeseen outcomes.

While a detailed discussion of institutional design is impossible here, a few relevant themes can be highlighted. In general policy terms, evolutionary economists have argued

for flexible institutional structures, which can accommodate sufficient variety to withstand shocks and fuel the evolutionary process (Hodgson, 1984, 1988; Metcalfe, 1998; Witt, 2003). These ideas have major implications for the system of provision of healthcare services, particularly concerning the respective roles of the state and the market. Policy solutions are not straightforward, as there is strong evidence that innovation is best fostered by a *combination* of state regulation and market mechanisms (Nelson, 1981, 2005B; Moreau, 2004). The challenge is to adapt the insights of evolutionary economics to healthcare systems, on the side of supply as well as of demand.

Healthcare decisions by consumers and practitioners are made in a complex, evolving environment. Especially in such contexts, institutional economists in the Veblenian tradition emphasise the role of habit in decision-making (Hodgson, 1997, 2004; Veblen, 1899, 1919). Generally, consumers are myopic rather than globally rational, and rely on habits, conventions and rules of thumb. The relatively extreme conditions of complexity and uncertainty surrounding healthcare make such considerations even more pertinent. With an understandably limited understanding of the complexities of healthcare, consumers tend to rely on customs, simple decision rules and advice from others. Allied studies underlining the roles of habit and rules in healthcare are found in the medical literature (Lindbladh and Lyttkens, 2002; Marshall and Biddle, 2001; Plsek and Greenhalgh, 2001).

Here too there is a role for institutional economists, through the construction of habit-based models of choice and the introduction of the allied concept of organisational routines (Becker, 2004). These concepts have important implications for the understanding of incentives and institutional design in healthcare systems.

7. The dynamic evaluation of healthcare needs

Economists often assume that they are dealing with consumers who know what they want, and regard consumer demands as sovereign. However, since Arrow's (1963) classic paper, even mainstream economists have widely doubted the applicability of standard precepts of consumer demand and sovereignty to healthcare systems. At least in healthcare, the consumer is not necessarily the best judge of his or her welfare. Several mainstream economists have instead adopted a needs-based approach to healthcare evaluation.

The familiar general objection to a needs-based approach is that it shifts the decision of what is best for the individual onto other individuals or institutions, such as experts or the state. It is claimed that such a shift is illiberal and dangerous, because such alternative individuals or institutions have their own vested interests and are insufficiently familiar with individual preferences and circumstances.

However, in proposing a needs-based approach it is not assumed that needs are readily discernible. Doctors, for example, are often wrong in their diagnoses. The central state is generally incapable of assessing many detailed needs at the local level. The heterogeneous and idiosyncratic nature of healthcare needs places further difficulties in the way of centralised assessments. Neither is it proposed here that consumer preferences are irrelevant. Some middle ground must be found between the propositions that the consumer always knows best, and that the state or the experts always know best: neither extreme stance is convincing or realistic (Hodgson, 1988).

Abraham Maslow's (1954) famous theory of needs was based essentially on psychological considerations. More recent theories of need—particularly Doyal and Gough (1991)—involve societal as well as psychological needs. Societal needs are regarded as the social and

institutional preconditions for the achievement of individual needs such as survival and autonomy. The specific nature of societal needs is problematic and open to continuous debate: it occupies a significant part of the disputed agenda of the social sciences.

Addressing both individual and societal needs, neither individuals nor governments always know best. The problem is to design institutions that set up a creative dialogue between individual preferences and expert advice that embody mechanisms to scrutinise the skills and claims of experts, and that facilitate the creation and distribution of relevant knowledge concerning healthcare.

It is far beyond the scope of this paper to elaborate on the details of actual institutional design. Such analyses are typically highly complex and context dependent. This design process is best informed by a comparative study of different national healthcare systems. These vary enormously in their history and circumstances.

Some brief observations are in order. First, it is important to emphasise that the incentives involved in the institutional design of healthcare systems are never entirely pecuniary. Indeed, in the discussion above concerning the nature of healthcare needs we have proposed that they sustain a professional ethos of care and obligation that is above and beyond any pecuniary motive for healthcare workers. Healthcare institutions must nurture and harness this ethos of obligation. While pecuniary incentives are also important, they can be undermined by systems where they override ethical and other commitments.[1]

Second, after avoiding the suspect certainties of market or plan, it has to be recognised that the only way to cope with complexity and change is to design a system with adequate internal diversity of institutional forms and structural mechanisms. W. Ross Ashby's 'law of requisite variety' is relevant here (Ashby, 1956; Beer, 1964; Hodgson, 1984, 1988). Complexity and variety within the system is necessary so that the system can survive and deal with complexity, variety and unforeseeable shocks in the real world. The existing variety of healthcare institutions and subsystems provides a nationwide basis for comparative performance evaluation and piecemeal experimentation.

A close intellectual mentor for this type of approach is John Dewey. His ideas have been strongly influential for institutionalists in the original American tradition following Thorstein Veblen. Dewey (1929) exposed the futility of seeking absolute knowledge and certainty. For him, knowledge is an active capability, rather than a fixed end or goal. In the modern context of uncertainty and complexity, Dewey favoured an experimental, process-oriented and participative democracy. Institutional design had to be cautious and experimental, looking at the whole system as well as particular micro-interactions. He did not privilege expert over other opinion but saw both as a necessary part of the policy process. The primary role of experts is to outline feasible alternatives and their likely consequences (Evans, 2000; Ryan, 1995). This aspect of his thinking is highly relevant for healthcare systems, although it awaits much further elaboration and detailed application.

7. Conclusion

In their introduction to the *Handbook of Health Economics*, Anthony Culyer and Joseph Newhouse (2000, p. 1) wrote: 'health economics has been a remarkably successful subdiscipline.' Indeed, there have been significant achievements. Mark Blaug (1998) argues that health economics is in a much better state than the economics of education.

[1] Titmuss's (1970) classic comparison of voluntary and payment-based blood donor schemes illustrates the disadvantages of the latter in terms of other personnel involved in the healthcare system.

Nevertheless, mainstream health economics has some severe limitations, as outlined above. The predominant mainstream focus in the literature has been on issues of measurement and quantification, to the relative neglect of the big questions. A large proportion of effort has been put into establishing appropriate measures for use in cost–benefit analyses, overlooking the inherent limitations of such an approach. Healthcare systems are non-linear, complex and have strong interactive effects. Mainstream healthcare economists seem to have set themselves the principle and ultimate goal of providing full information, in a field where problems of complexity and uncertainty are so extreme that such a goal is not remotely achievable. The problems of uncertainty and complexity will not disappear as a result even of titanic efforts of data collection and measurement.

Although there is much discussion of the respective roles of market and state in healthcare provision in the mainstream literature, it is often focused on micro instances to the neglect of systemic interactions in a more dynamic and evolutionary context. The theoretical apparatus used to make such evaluations is generally constrained by the protocols of standard neoclassical theory.

It is been shown here that these protocols are highly limited and severely challenged by the realities of healthcare need and provision. While several mainstream heath economists have defied neoclassical welfare norms and embraced other indicators, they have been remarkably deficient in utilising other relevant concepts, including the well-established and highly relevant idea of transaction costs. The focus on the concept of need in the present paper reveals some special qualities of healthcare, as summarised in Table 1 and compared with other needs.

Table 1 summarises some important reasons why healthcare is special. As argued above, involuntariness and inequality in the distribution of needs, shown in the first column, affect the intrinsic motivation and commitment of service providers. Healthcare has the highest score in this column.

Turning to the second column, a high degree of variety and idiosyncrasy generates transaction cost problems for a market system, and incentive specification problems for a centrally planned system. It may be that planned health systems such as the British NHS have previously been able to mitigate incentive specification problems by maintaining a strong ethic of professional commitment. If true, this has relatively unexplored implications for health policy and the design of healthcare systems. It would mean that more central planning and less market provision is viable than in other sectors, as long as an ethic of professional dedication and commitment is nurtured.

In the third column, the picture is further complicated by the high rate of growth in the healthcare needs due to an ageing population and increasing technological capabilities.

Table 1. *Comparative dimensions of healthcare, educational and nutritional needs*

	Degrees of involuntariness and inequality in distribution	Degrees of variety and idiosyncrasy	Rate of growth of the needs that can be met
Healthcare needs	High	High	High
Educational needs	Low	Medium	Medium
Nutritional needs	Low	Low	Low

Although arguments concerning dynamic systems often point to the virtues of market competition, even here Richard Nelson (1981, 2005B) argues that theory and evidence both suggest a combination of market and state supply.

Overall, this framework of needs analysis offers a research agenda for the comparison of different systems of provision. It combines with strong arguments in mainstream health economics against a fragmented and competitive system of health insurance, in favour of state or other monopsonistic provision on a universal basis (Arrow, 1963; Rice, 2001).

However, in mainstream health economics there is inadequate comparative discussion of healthcare systems.[1] Some comparative studies focus on estimating the marginal effects of key factors such as healthcare expenditure (Evans *et al.*, 2001). Issues of structural and overall institutional design are often neglected. However, such comparative system studies seem to provide the most promising route towards an understanding of the merits and demerits of private, public and mixed provision in this area. Institutional and evolutionary economists have a relatively strong record in comparative institutional analysis, taking into account more than static efficiency comparisons, focusing on relevant institutions, and dealing with other important matters such as institutional complementarities, technological innovation and learning (Aoki, 2001; Nelson, 1993, 2005A). A pressing task is to apply these insights to the peculiarities of healthcare systems.

The world today provides us with several different types of healthcare system, including the private and market-oriented system in the USA, the publicly financed and planned system in the UK, and the mixed systems based on compulsory insurance in Canada, France, Germany and Scandinavia. There is enough empirical material here to assess the merits, demerits and systemic characteristics of different types of system, and to learn from these existing examples. Both the commissioning of healthcare services and the systems of healthcare provision have to be taken into account. Overall, healthcare is one of the most promising areas to which institutional and evolutionary economists can contribute.

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[1] Exceptions include Dixon and Mossialos (2002), McPake *et al.* (2002) and Culyer *et al.* (1981). Instead of using the meeting of healthcare needs as an objective yardstick, Culyer *et al.* (1981) get lost in a subjectivist discussion of the 'ideologies' of comparative evaluation.

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