# Finance and Incentives of the Health Care System

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# 1 Introduction: Is Health Different?

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Health economics is a young sub-discipline of economics but, as Alan Maynard discusses in this volume, it has proven remarkably successful. Health is now one of the big issues in economics (for example, in the 2005 American Economic Association meeting, health or health care is the subject of four out of 24 invited sessions).

There are practical reasons for why health has become such a hot topic. Improved computational resources and statistical techniques together with remarkably rich data sets (especially in Nordic countries) have opened an exciting domain of health related questions that can be analyzed. This progress alone will occupy health economists for a long time.

Another reason for the growing interest in health is the increase - and foreseeable increase - in the demand for health services. Concrete new problems concerning the functioning of the health care system abound. Designing the health care system is, in principle, a standard microeconomic resource allocation problem, and many questions can be fruitfully approached from this angle. For example, research on hospital payment methods, on hospital competition and hospital mergers, or on physicians' compensation schemes could not have done appropriately without the microeconomics machinery (see e.g. Newhouse, 1996; Krishnan 2001). An interesting recent example of direct application of economic theory to health service production is reported in Roth et al. (2006).

But, from this viewpoint, is health economics "just" an important subfield of microeconomics, one of many others (e.g. labour economics, banking and finance, law and economics,…)? As Finnish economist Jouko Paunio argued in 1975 in one of the first health economics symposia in Finland, health *is* different. The distinctive features of health sometimes call for non-standard thinking. In this introduction, we discuss some special characteristics of health and health economics.[1]

*Measuring well-being*

The key problems in economics are often conceptual, i.e. how to describe economic variables, how to model their relations, and how to compare outcomes. Economists often seek generality at the expense of concreteness. The aim is to "understand". One consequence of this tendency is the reliance on the *homo economicus* assumption: that economic agents are rational maximizers. While not many believe that the assumption is descriptively true, it is useful for modeling purposes. More importantly, it integrates different models together, and the models to data. Given the rationality

[1] We are looking at the issue from the angle of methodology of economics.

assumption, preferences of individuals can be traced from their behavior. In fact, a hard-boiled economist believes that preferences are the only empirically tractable characteristic of a decision maker's mental activity.[2]

This is where health economics differs. A central task of a health economist is to serve as a social engineer: to back public decision makers with the relevant information and recommendations. Since some decisions have to be made and some recommendations have to be given, a health economist cannot afford the luxury of relying only on preference-related information. To evaluate the consequences of different interventions, a health economist has to form a view of the individual *value* of health.

The central feature of the value concept of health is that it has to be *comparable* across individuals. Otherwise it would not give a rationale for allocating resources to individuals with infinite needs. Economists feel nervous about the idea of comparing utilities.[3] The economists' way to compare policies is to rely on the opportunity costs; how much of a common denominator – money – an individual is willing to sacrifice for a good or service. Since the willingness-to-pay is evaluated against the market data, this method would not work well in health markets. Nothing guarantees that the market data reveals relevant information concerning needs for health services as the needs need not match with financial resources. Thus the value of health has to be measured *directly*.

Measuring the value of health is not only a problem for deciding how to allocate resources efficiently through public policies but, as discussed by Robinson and Megerlin in this volume, it also contributes to the functioning of markets. In particular, it affects how private contractual relationships can be designed. Without a general and transparent measure it is impossible to verify the extent to which health services are provided. And without verifiable criteria, contracts cannot be drawn.

Measuring the value of health requires one to impose a concrete structure on the sources of well-being. Various health-related-quality-of-life (HRQoL) measures have been proposed that are composed of physical, mental and social aspects of well-being (see Brommels and Sintonen, 2001). While the HRQoL criteria are not derived from preferences, as a hard-boiled economist would demand, they are for the most part consistent with psychological evidence. Under the conjecture that this evidence is telling, the measures do provide valuable information of aspects of well-being.

Perhaps the more important feature of a HRQoL measure than its descriptive accuracy is its usability. Through a HRQoL measure health related well-being becomes an operationalizable quantity, against which one can base policy evaluations. Cost-benefit analysis is the cornerstone of the contemporary health economics research.

Thus one difference between mainstream economics and health economics is that where the former is skeptical towards any specific notion of well-being and wants to avoid analyzing it in concrete terms,[4] the latter addresses precisely the question of *what* the benefits could be. Thus health economists make questions that are *qualitatively* different from the mainstream economics.

*Paternalism*

[2] See e.g. Gul and Pesendorfer (2005).
[3] In the tradition of logical positivism, they feel that only ordinal, not cardinal, measures of payoffs can be meaningfully elicited via choices. However, this view has recently been challenged by the happiness literature (see e.g. Frey, 2002 ).
[4] If he does assume a specific utility function etc., he implicitly means any neighbouring function.

Health economics does not typically see markets as a reliable steering mechanism of health services. Functioning of the market has to be improved by public interventions. But public interventions are not only targeted against the traditional market failures. Their aim is also to steer individual behavior to the direction that is good for *themselves*. This often means limiting or affecting individual's choice set. In this sense a clear *paternalistic* tone is characteristic to health economics in many of its policy recommendations.[5].

The issue of paternalism arises when the public authority enhances individuals to maximize, say, their life expectancy. While it is easy to argue why banning or taxing addictive substances, reducing adult obesity, or providing citizens with a proper public health insurance is a natural thing to do by a responsible public authority, these measures are effective precisely because they reduce the choices that are available to the individuals (at least through their budget set). Any such measures can therefore be interpreted, in varying degree, paternalistic.[6]

From the viewpoint of mainstream economics, purely paternalistic interventions could never be welfare improving. Given the available choices, a rational actor always chooses the optimal decision, and what an outsider can do is at most as good for him but never better. In the rational actor framework, only coordination failures of some sort can justify a policy intervention. Conversely, if an intervention is justified in without a coordination failure, then there has to be problems with the individuals' decision-making ability. This seems be the underlying rationale in many of health related policy interventions.

One reason for why the rational choice model may have only limited use in health economics could concern the nature of uncertainty in health related decision-making. Many people have very limited capacity to deal with information concerning their health status, to the contrary of, say, their financial status. New evidence, technologies, and views about the effectiveness of health procedures keep arising with a speed that make it difficult for even professionals to keep up with. To make a good decision, an individual should nevertheless evaluate correctly what the health signals mean but also what it would mean *not* to observe them. It is not surprising that individuals in health market often follow decision procedures that look suboptimal to an outside observer (see McCall, 1996). When one cannot count on individuals making wise decisions concerning themselves, the standard economics approach is no longer valid.

Public intervention such as education may improve the individuals' decision-making ability. But it may not help always. If the underlying problem is in the individuals' capacity to process information, then education may not help and a need for a paternalistic intervention would be permanent. Hence, if one believes paternalistic policies to improve well-being, there is no reason to expect the justification for them to go away in the long run.

Another motivation for a paternalistic intervention in health markets stems from the individuals' inability to commit to long-term goals. Self-control problems such as addiction or obesity are difficult to capture in the rational-choice framework.[7] The problem with an addict is that a monetary transfer to the addict, which would enlarge his choice set, may not improve his well-being in the long run whereas a rehabilitation program of the same value might. Thus restricting the choice set may be beneficial in the presence of self-control problems.

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[5] paternalism = Interfering with a person's freedom for his or her own good.

[6] There may be additional reasons for intervention, e.g. externalities.

[7] For a classical attempt to understand addiction or self-harmful behaviour in a rational choice framework, see Becker and Murphy (1988). See also the recent literature on time inconsistent preferences.

Many health policies seem to have a paternalistic component. This is the case whenever the effectiveness of an intervention is evaluated on other grounds than what is communicated by individuals through their actions, i.e. on *ad hoc* grounds. However, given the potential problems with individuals' decision-making ability, such approach can be justified. But this requires one to believe in a model that is distinct from the standard homo economicus model of economics.

*Human interaction*

Problems in understanding the value of treatments emphasize the role of health professionals. One thing that makes the health production process special is the physician-patient relationship. This was observed already by Arrow (1963), who motivates health institutions through the principal-agent problem between a physician, a patient, and an insurer.

However, if patients or physicians(!) fail to fully understand the situation, it is questionable whether the principal-agent framework does full justice to the physician-patient relationship.[8] While human interaction seems important in health related decision-making, it is difficult to tackle in the standard economics framework. Let us consider some examples.

There are typically many recommendations a physician may justifiably give to a patient from the same verifiable data. Because of this, the physician cannot avoid deciding of how much to reveal and which way to manipulate the patient. To cooperate with the physician, the patient must trust that the physician uses his authority in favor of him. Therefore, trust plays a central role in a well functioning physician-patient relationship. Since altruistic people are presumably more trustworthy than others, altruism has been thought as an important character of physicians (see Ma in this volume). But trust without substance - e.g. possibility to punish or reward – has no meaning in economics. Thus it seems that to analyze physician-patient relationship, one must go beyond the standard economics framework.

While it is easy to see why a patient departures from the rational man paradigm, physicians are not perfect either. They take actions on the basis of rules of thumb, stereotypes (e.g., believe that certain kind of patients do not comply with recommendations), common practice, the need to "do something" (the physician feels he cannot send the patient home without even a worthless recommendation), the patient's expectations (e.g., prescribe antibiotics just because it is what the patients asked). From the perspective of economics, it is far from clear how one should organize the incentives of a boundedly rational physician?

A good example of why the standard economics approach is insufficient is the "treatment effect". It is easy to figure out reasons why it not only matters *what* the treatment is but also *how* it is provided. Anxiety, procrastination, suspiciousness, and denial are common features of patient's decision making.[9] How and when such states of mind show up may be sensitive to the treatment strategy. More generally, the success of human interaction can be sensitive to the motives, or suspected motives, of individuals.

Human interaction is hard to capture in a standard economics framework. One of the key principles in economic modeling is that only the outcomes matter. This rules out all kinds of treatment effects. Of course one could try to enlarge the model to capture also the unmodeled payoff consequences. However, it is safe to argue that there is not rich enough model that could ever approximate all

[8] For a recent attempt to capture essential features of physician –patient relationship, see Koszegi (2001)
[9] See Koszegi 2003).

potentially relevant features of a physician-patient relationship. It is possible the correctness of an elaborate physician-patient model may be as sensitive to unmodeled features as a sketchy model. Hence keeping the model simple when analyzing health care markets, as is customary in health economics, may actually be without much loss of generality.

*Concluding remarks*

To summarize, health economics is an important and growing field, getting its inspiration from real world health problems that also contain an economic dimension. Much of health economics can hence be categorized as "applied economics". Nevertheless, since economics should be interpreted as a language rather than a domain, and the language is based on the paradigm of rationality, the questions these two disciplines make are often qualitatively different. For example, measuring well-being, which much of the normative analysis in health economics relies on, is quite unique to this discipline.

All in all, health economics has value precisely because it gives practical solutions on concrete problems. Keeping the bridge between data and recommendations narrow and transparent has its virtues.

*This volume*

This volume, coming from a symposium organized by the Yrjö Jahnsson Foudation in August 2004, consists of discussion of leading health economists. The theme of the symposium was Incentives and Finance of the Health Care System.

*Alan Maynard* gives an overview of the health economics. Health economics has developed rapidly and impressively over the last 50 years. He argues that part of its success has been the development of techniques of particular interest to physicians. The theory and policy challenges now are to ensure that evidence is translated into practice, and that further evidence of the cost effectiveness of competing therapies is produced efficiently. This requires investment in the systematic and careful testing of performance information systems (particularly the measurement of outcomes) and innovative use of mixed systems of incentives. The failure to meet this challenge in recent decades has condemned some citizens to avoidable mortality and morbidity.

*James Robinson* and *Francis Megerlin* examine innovations in physician payment systems in the United States and France. They point out that the primary social goal with respect to payment for physician services has been to promote patient access to care and the improvement of quality through new clinical interventions, and that fee-for-service compensation mechanism directly supported the achievement of these goals. However, as social concerns shifted from to controlling costs, fee-for-service lost its luster and found itself blamed for many of the system's ills. Experiments with capitation, which rewards the physician based on the outputs rather than on the inputs, transferred excessive risk to physicians and thereby created incentives for under-treatment and the avoidance of particularly sick patients. The contemporary hybrid method of physician compensation seeks to incorporate elements of both prospective and retrospective payment. Nevertheless the authors point out that while the new pay-for-performance initiatives together with technological innovations offer insights into the manner by which incentives influence behavior, they are limited by the fundamental difficulties in measuring performance. The quantity of inputs is poorly linked to the quality of outputs, and patient-derived measures of satisfaction and functional ability are only weakly related to specific interventions by specific physicians. Also, the organizational challenges facing physician payment reforms stem from the multi-agent, multi-task

nature of medicine, especially for patients with chronic conditions, are deep and difficult to overcome. Groups must develop internal mechanisms for linking group-level payments to individual physicians or forgo the incentive benefits of pay-for-performance. Finallym the authors speculate on the predictions that can be made with respect to the trajectory of physician payment methods in the future.

*Ching-To Albert Ma* studies the effect of interaction between the public and private sectors on physician incentives. Providers of health care in public and private sectors are often subject to different incentives. While the market mechanism is expected to work in the private market, the public system is typically characterized by simple and low-powered incentives. Ma notes that a conventional model that relies on profit maximizing preferences for economic agents is inappropriate for the public sector. Such a model would predict uniformly poor service quality and work effort there, which is inconsistent with empirical observations. Ma then assumes that physicians are not just simple maximizers of their own material payoffs but possess a degree of altruism. The key hypothesis is that some healthcare providers are either sincere or have altruistic preferences. Ma asks who among the heterogenous physicians will work in the public system, who in the private market? His basic conclusion is that public policy should steer sincere and altruistic physicians to work in the public system, while the marketplace disciplines those who seek personal gains. It is a straightforward conclusion due to the use of low-powered incentives in the public system. Allowing the self-interest seeking providers the opportunity of higher profits in the private sector actually alleviates the inefficiency in the public sector.

*Robert Evans* focuses on the conflict of interest stemming from the incidence of health costs. Conflict of interest, in turn, is a cause for providing ideologically motivated information concerning the functioning of the health sector. In this conflict, economists have no legitimate role in pretending to offer objective, professionally-based determinations of "optimal" arrangements. Economists should play a more useful role by providing assessments of the likely consequences of different policies and their distributional impacts – and unmasking the distributional agenda lying behind the proposals for reform. Careful economic analysis can be very powerful for this purpose, so long as it is grounded in the institutional and behavioural realities of working health care systems. As an example of crippled analyses that serves merely as a part of the propaganda of those promoting a regressivity agenda, Evans sees the "welfare burden" literature advanced e.g. by Arrow (1973). In Evans' opinion, this literature is incapable of formulating the relevant questions that drive the real-world debates over health care policy. He argues that any analysis of health care financing that ignore distributional considerations does not contribute the debate.

*William Hsiao* analyzes health care financing problems in the western countries. There clearly is no common agreement between different countries on the best finance method. Health care financing involves trade-offs between equity and efficiency. Often cited inefficiencies include the tax payment distortions and moral hazard produced from health insurance. But health care financing influences both equity and cost containment, and the influence on the latter is often overlooked. Cost containment effects inherent in any health financing method influence efficiency of a national health system because they impact allocative and productive efficiency and thus the total amount of resources one has to spend for health. Consequently, certain financing methods may have superior features that enhance both equity and efficiency that can minimize the trade-off between them. The focus of this paper is to analyze the different degrees of trade-off of several major financing methods.

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