Economics of Health and Education

How to understand demand for health?

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Lecture title

The demand for health care services

- Individuals make choices about health care; when to visit a doctor when they are feeling sick, whether to go ahead with an operation, whether to immunize their children, and how often to have check ups.
- The process of making such decisions can be complicated as it may involve accumulating advice from friends, physicians, and others, weighing potential risks and benefits, and foregoing other types of consumption that could be financed with the resources used to purchase medical care.
- How have economists analysed individual choices regarding health care and related services?

How do economists study individual choices for health and health care?

- The most simple approach is to treat health as one of the several commodities over which individuals have well-defined individual preferences and use orthodox consumer theory to investigate the determinants of demand.

1. A question of interpretation then arises as to whether we should think of individuals as having preferences for health, or for health care.
2. One can argue that, in general, health care is only valued to the extent that it improves health, so that health should be primitive in the description of consumers' preferences.
3. Yet, demand for services is more easily observed and quantified, so a mapping between the two concepts is required.

How do economists study individual choices for health and health care?

- Another approach to analysing health care choices is to use an intertemporal model of consumption decisions and to treat health as a stock variable within the human capital framework.
- This concept was originally pioneered by Michael Grossman (1972) in a model in which individuals consume health care not because they value health per se, but because it improves their stock of health, which is used as a productive resource.
- The idea of health care representing an investment in health has been popular since the World Bank's 1993 *World Development Report* Investing in Health.
- Grossman's model was later extended to

a. account for disutility that illnesses may impose on individuals

b. Examine differences in the demand for preventive and curative care, and the dynamics of demand over the life cycle.

- This approach to analysing health care choices is couched firmly in human capital theory, these models value health care services in terms of their potential to improve productivity.

Demand for health care services within a static utility-maximizing framework

- The first issue we must address regards the appropriate choice of goods that enter the utility function.
- It is natural to think of individuals as having preferences for health care services directly. However, depending on health needs, these preferences change, so we need to make the utility function state dependent.
- Alternatively, we might also think of individuals as having preferences for health.
- Health care services would then be demanded only as an input into the production of health, and the level of demand for services would be determined by the extent to which they satisfied the individual's underlying preference for health.
- Preferences for health would then be independent of health status, and
- Let us take the second of the above underlined approaches, and use it to examine the effects of health status, income, and price on the demand for medical care.

Quality variations in the demand model

- Due to the existence of insurance, many health care services are provided at zero or low monetary prices, and so the standard model would suggest that demand should be infinite, or at least extremely high.
- Excess demand by some insured individuals is seen as a problem in many industrial economies.
- But in a developing country context, underutilization is generally more of a concern. The main reason for this, is a lack of supply especially in rural areas.
- But even when clinics and services are available, utilization rates can be low, due to both significant nonpecuniary costs of consuming medical services and poor quality.
- We can thus introduce travel costs into our demand model, as well as quality variations.

Other constraints

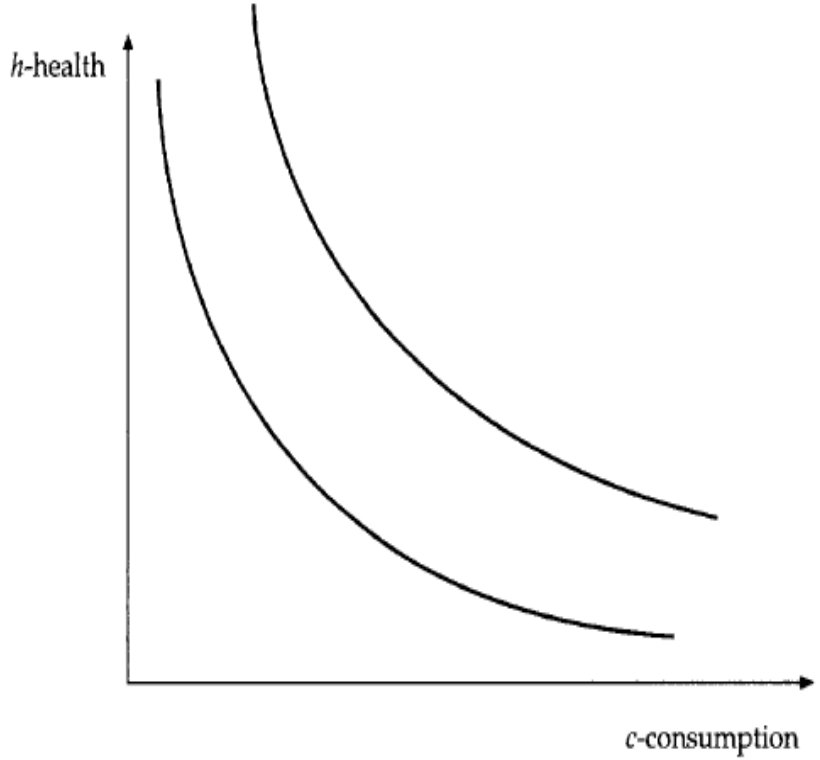
- We must recognize that demand for medical care is not only constrained to a choice of how much, but also of what kind.
- Individuals can choose among visiting a hospital, clinic, or traditional healer, as well as how often to visit.
- The existence of such discrete choices means that somewhat more elaborate econometric techniques are required to estimate demand curves.
- Knowledge of such demand patterns may allow policymakers to target services more effectively.
- With the help of our demand model, we can also analyse the extent to which information about demand can be used to make judgements about social welfare.

Preferences for health and health care

Let us start with a very simple representation of preferences for health within a standard utility-maximizing framework.

1. Individuals use their available resources to acquire health.
2. To admit a substantive choice, individuals must have alternative uses for their resources.
3. Let us bundle all of these alternative uses into a generic consumption good, denoted by c.
4. Utility is then represented as a function $u(c, h)$, where h is the level of health; h is not the quantity of health care services consumed, but rather the level of health that the individual enjoys.
5. We assume that greater health and higher levels of other consumption make the individual better-off, and that an increase in one coupled with a decrease in the other leaves the individual's well-being unchanged.
6. We can draw standard indifference curves representing preferences between h and c.

Indifference curves representing preferences over health and other consumption goods



How do we interpret the variable h?

- We know when we are feeling healthy and when we are not, but can we really hope to quantify health levels using a particular unit?
- In some instances, a natural unit might suggest itself: a person with terminal cancer might measure her health in expected number of years of life (*notwithstanding the quality of life considerations involved here*).
- It will suffice however to keep aside the interpretation of h and use it only as a means to derive the (observable) demand for medical care services.
- If the social welfare implications of the allocation of health among individuals are thought to differ from those associated with allocation of ordinary goods, a quantifiable measure of h is necessary.

Let us consider how the simple description of preferences can be used to determine the demand for medical care.

1. We have assumed that medical care is desired only for its use in producing health.
2. Let us assume for now that the production process is very simple, that in order to produce an additional unit of health, θ units of medical care are required.
3. θ provides a natural index for the health status of an individual – the higher is θ, the sicker the individual is.
4. Thus, h represents the level of health, and θ represents the health status.