Public Health Classics

This section looks back to some of the ground-breaking contributions to public health, reproducing them in their original form and adding a commentary on their significance from a modern-day perspective. William D. Savedoff reviews the 1963 paper by Kenneth Arrow that launched the discipline of health economics; extracts from the original article are reproduced by permission of the American Economic Association.

Kenneth Arrow and the birth of health economics

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Forty years ago, Kenneth Arrow published "Uncertainty and the welfare economics of medical care" in *The American Economic Review* (*1*). This paper became not only one of the most widely cited articles in the field of health economics — indeed, it marked the creation of the discipline — but also a source of reference in other fields. A search on the ISI Web of Knowledge generated 771 citations that include journals in all parts of the world and in fields as varied as public choice, sociology, banking, education, environment, law and clinical practice, and even space policy. Furthermore, the article's relevance is far from diminishing over time: citations between 1991 and 2000 were five times more numerous than those between 1963 and 1972 (*2*).

The first reason for this article's continuing popularity is its intellectual elegance and insight. The second is that it touches on a core feature of public health policy debates: the extent to which market or non-market institutions play fundamental and socially desirable roles in the provision and distribution of health care services.

In 1963, Arrow was already well established as a leading economist, having published (with Debreu) seminal work on competitive equilibrium that provided the foundation for modern economic thinking about the extent to which markets can or cannot reach welfare-maximizing equilibria. Previously, he had developed the impossibility theorem for which he later won the Nobel Prize. In that work, he demonstrated the difficulty of finding any collective decision-making process that can provide consistent ordering of social preferences.

Arrow had not previously written about health and rarely returned to the subject in his subsequent work. The article extracted here resulted from an invitation from the Ford Foundation to promote greater exchange between economists and other professions in the areas of health, education and welfare. Arrow therefore had to learn about health care and health insurance services before he could apply himself to the question.

The article begins with reference to the desirable properties of perfectly competitive markets, using concepts from Arrow's general welfare theorems. He then explores how the existence of "uncertainty in the incidence of disease and in the efficacy of treatment" leads competitive markets to generate an inefficient allocation of resources and contributes to the emergence of non-market institutions (such as trust and norms) that compensate for these market failures.

In demonstrating the kind of market failure that derives from uncertainty and related problems of information, Arrow helped to generate a vast literature dealing with problems in markets ranging from health insurance to used cars (*3, 4*). He also opened the way for agency models to be applied to studies of physician behaviour (*5*).

By developing the implications of uncertainty on markets and market equilibria, Arrow established principles that have been found useful in subjects other than health. His insight applies to any analysis in which costly information compromises a system's ability to generate preferred aggregate outcomes from decentralized actions. It is this generalized applicability that accounts for the article's wide range of citations across various fields.

The article was written, however, specifically about health care (Arrow is careful to stipulate that he is discussing only medical services and not health per se), and its longevity also derives from its comprehensive treatment of the central issue in most public health policy debates: what roles are effectively played by markets and what roles are best left to non-market institutions. The article is sometimes cited to demonstrate that health care is not as exceptional as many people claim and that market mechanisms can play an effective role in the medical care industry in the same way as they do in other economic activities (including sectors with an effect on health, such as food and housing). In contrast, it is also cited to demonstrate that market failures in health care justify the creation or preservation of non-market institutions.

Arrow writes that non-market institutions can (but not necessarily do) enhance the efficiency of the medical care system. In this respect, he cautions against viewing all efforts by physicians to ration entry to medical schools or to require professional licensing as mere ruses to raise their incomes.

He goes further to conjecture that, in situations where markets fail, societies will create non-market institutions to correct the resulting inefficiencies. This conjecture has proved controversial, yet it provides fertile ground for developing theories on the formation of social institutions. To follow Arrow, such a theory would have to take account of conditions under which

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different interest groups find ways to cobble together social institutions that are mutually beneficial, even when such institutions may require some degree of self-restraint or compromise on the part of those same groups.

In many ways, it is remarkable that "Uncertainty and the welfare economics of medical care" has stood the test of time. In 1963, medicine still consisted largely of a single physician treating a single patient with relatively rudimentary remedies and medications. Since that time, medicine has been revolutionized by technological advances in the understanding and treatment of illnesses, and rising incomes have stimulated high and increasing levels of spending.

In the United States of America in the early 1960s, government involvement with medical care was limited; insurance covered less than half of all medical expenditures, compared with about 85% today. Since then, health care has been transformed by, among other things, Medicare and Medicaid, malpractice, and managed care. The non-market institutions that Arrow had observed, such as trust that physicians would not be motivated by profit and beliefs that the medical profession could regulate itself, have eroded.

Elsewhere, changes in health care have been no less remarkable. Spending on health services has increased dramatically in all of the world's high- and middle-income countries, leading to increased concerns about cost-containment, quality and responsiveness. Many of these countries, even if they have predominantly public systems, have introduced more market elements to relieve pressure on public services or to encourage greater productivity and allocative efficiency.

Tensions in developing countries run high, as rising aspirations continue to outstrip the local resources available to meet them. Countries in Latin America — which had hoped to follow the western European models of social insurance expansion — have been blocked by the slow expansion of the formal labour market and low productivity in public institutions. In most of Asia, private fee-for-service arrangements continue to dominate, with few insurance products emerging. The former communist nations of eastern Europe and central Asia are dealing with the collapse of national health services and turning to social insurance arrangements, while African countries are struggling under extremely limited resources and increasing disease burdens, notably from the spread of HIV/AIDS.

In fact, no country today appears to be happy with its health system. Few health systems resemble those of the world Arrow wrote about in 1963. Instead, they now encompass, to varying degrees, highly specialized, interrelated and costly services funded by complex financial and insurance mechanisms. Today's struggles over public policy for health services are really efforts to develop a new set of non-market institutions adequate to manage this rapidly changing industry. The resulting debates over the boundary between individual decisions in market settings (for example, choice of a physician or insurance plan) and collective decisions in non-market settings (for example, global budgets or mandatory insurance coverage) will continue to motivate polemics, movements and studies. Thus the main messages of Arrow's article and his approach to understanding the health service sector will remain relevant for a long time to come. ■

References

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