NBER WORKING PAPER SERIES

THE FUTURE OF HEALTH ECONOMICS

Victor R. Fuchs

Working Paper 7379
http://www.nber.org/papers/w7379

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
October 1999

I am very grateful to Richard Zeckhauser for helpful comments on a preliminary draft and to Deborah K. Kerwin-Peck for excellent research assistance. Financial support from the Robert Wood Johnson and the Andrew W. Mellon Foundations is also gratefully acknowledged. Forthcoming in *Journal of Health Economics*. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

The Future of Health Economics
Victor R. Fuchs
NBER Working Paper No. 7379
October 1999
JEL No. I10

ABSTRACT

This paper discusses health economics as a behavioral science and as input into health policy and health services research. I illustrate the dual role with data on publications and citations of two leading health economics journals and three leading American health economists. Five important, relatively new topics in economics are commended to health economists who focus on economics as a behavioral science. This is followed by suggestions for health economists in their role of providing input to health policy and health services research. I discuss the strengths and weaknesses of economics, the role of values, and the potential for interdisciplinary and multidisciplinary research. The fourth section presents reasons why I believe the strong demand for health economics will continue, and the paper concludes with a sermon addressed primarily to recent entrants to the field.

Victor R. Fuchs
Henry J. Kaiser, Jr. Professor Emeritus
Stanford University
30 Alta Road
Stanford, CA 94305-8006
and NBER
claire@newage3.stanford.edu

The Future of Health Economics[1]

by Victor R. Fuchs

The future of health economics depends heavily on how well health economists carry out two distinct albeit related missions: a) enhancing understanding of economic behavior, and b) providing valuable input into health policy and health services research. This paper examines both roles and suggests ways to make them more fruitful in the years ahead.

Although the focus is on the *future*, it is useful to note the tremendous expansion of the field in the past 35 years. In the US the number of Ph.D.s awarded annually in health economics has increased more than 12-fold since 1965. Health economists now hold regular faculty appointments in many leading economics departments as well as in schools of business, public policy, medicine, and public health. They also serve in important positions in government agencies that make health-related decisions. This expansion has been worldwide. The iHEA World Conference in Rotterdam in June 1999 attracted over 800 participants from 55 countries; just one-fourth came from the United States. The principal reasons for this rapid growth, I believe, have been intellectual advances, greater availability of data, and, probably most importantly, ever-increasing health care expenditures (Fuchs, 1996).

---

[1]Adapted from a presentation to the iHEA Second World Congress, Rotterdam, June 9, 1999.

There has also been a vast expansion of health economics as input into health policy and health services research. This expansion did not come easily at first. For example, my appointments to the President's Committee on Mental Retardation and the US Health Services Research Study Section in the mid-1960s were greeted with surprise and suspicion by many physicians, sociologists, psychologists, and other traditional participants in those domains. By the mid-1980s, however, US health economists were playing a dominant role in health policy and health services research because they were particularly well-equipped to help with the difficult choices facing public and private decision makers. To be sure, pockets of strong resistance to the application of economics to health problems remain. As I shall note later, some of that resistance is justified.

The Two Hats of Health Economics

The great British scientist, Lord Kelvin, said "When we cannot measure, our knowledge is meager and imperfect."[2] In order to throw some quantitative light on the "two hats" of health economics, I have categorized data on citations and publications by five types of journals: 1) economics (excluding health); 2) other disciplines (excluding economics and health); 3) health economics; 4) health policy and health services research; and 5) medical.[3] Table 1 shows the relative frequency of citations ***in*** the two

---

[2]Upon hearing this the American economic theorist, Jacob Viner, is supposed to have snorted "Even when we can measure, our knowledge is meager and imperfect."

[3]The sources, *Journal Citation Reports* and *Social SciSearch® at LANL*, include papers and citations from 1973 to 1999. There are approximately 1700 journals covered; they are

leading health economics journals in 1996[4] by type of journal. We see that 42 percent of the citations in the *Journal of Health Economics* were to economics journals (excluding health economics), while the papers in *Health Economics* drew less heavily on economics with only 24 percent of citations coming from that field. By contrast, *Health Economics* papers drew more heavily on health policy, health services research, and medical journals. The citations[5] ***to*** the *Journal of Health Economics* and *Health Economics* (Table 2) also reveal significant differences between the two journals. In 1996 there were no citations to *Health Economics* in either economics journals or journals of other disciplines such as statistics, demography, or operations research; by contrast, more than one-fourth of the citations to the *Journal of Health Economics* were in journals with no direct connection to the health field. Medical journals accounted for more than one-third of the citations to *Health Economics*, but only 7 percent of the citations to the *Journal of Health Economics*.

Tables 3 and 4 also illustrate the "two hat" nature of health economics by showing the distributions of papers and citations to papers of three leading American health economists whom I identified by conducting an informal survey of knowledgeable experts. The survey asked each respondent to name four or five health economists whose

---

predominantly but not exclusively English language publications.

[4]This year was chosen because the data were available to me in electronic form.

[5]The citations appeared in 1996, but could have referred to any publications in JHE and HE between 1973 and 1996.

work has had the "most impact," with the respondents free to define impact as they wished. According to the replies, the economists represented in the tables are arguably ***the*** three leading American health economists of their generation, but given the informality of the survey and the subjective nature of the responses, I only claim that they are certainly *among* the leading scholars in the field. It is also worth noting that I chose only economists who received their Ph.D.s after 1965 and who have made their reputations entirely, or almost entirely, in health economics.

All three scholars have published from 10 to 15 percent of their papers in health economics journals per se. But otherwise, the distributions of their papers vary enormously, with Economist A publishing almost two-thirds in economics and other nonhealth disciplines and C publishing only one-fourth in those two types of journals. By contrast, C published two-thirds in health policy, health services research, and medical journals compared to A's one-fifth in those three types of journals. Economist B's distribution of papers is intermediate between A and C. Not surprisingly, the same qualitative differences emerge in Table 4 for the distribution of citations[6] to the papers of the three economists, but the differences are not as great as in Table 3. One possible explanation for the greater differences in Table 3 is that the results include *all* papers, whereas the distribution of citations in Table 4 is based on first-authored papers only. Also, because citations to an author's work tend to be concentrated on a relatively small

[6]The citations appeared in 1990-99 covering first-authored papers published from 1973 to 1999.

number of papers, it would not be surprising if the pattern of citations differed substantially from the pattern of publications.

The comparisons between the journals or among the health economists are not intended to suggest that one pattern of publication or citation is "better" than another. In my view, both "hats" are important. Health economists should strive for and respect high quality research whether it advances economics in general or contributes more directly to health policy and medical care.

Health Economics As Behavioral Science

As the data in the preceding section suggest, some health economists stay closer to economics as a behavioral science while others give more emphasis to health policy and health services research. Moreover, the same scholar may develop a diversified research portfolio that shifts in emphasis from time to time. For those whose research bent lies in the direction of economics as behavioral science, I would like to suggest five areas where I believe health economists can make a significant contribution: endogenous technology and preferences, social norms, principal-agent problems, behavioral economics, and measurement and analysis of quality of life.[7]

Endogenous technology and preferences. Traditionally, standard economic models focus on the normative and positive aspects of maximization, taking technology

[7]This list is not meant to be exhaustive. These five areas look particularly promising to me.

and preferences as given. The assumption of exogenous technology and preferences may be reasonable for a good deal of economic analysis, but there is increasing awareness that for some problems the assumption is not warranted. Fifty years ago Jacob Schmookler began an ambitious program of empirical research on the question of technology. He concluded that "technological change . . . is usually not apart from the normal processes of production and consumption, but a part of them" (Schmookler, 1966, p. 207). Recently, economists interested in economic growth have been emphasizing endogenous technology, but there has been only a little effort to apply this concept to medical care. It should not be difficult to show that the character, shape, and pace of medical innovations are influenced by market forces as well as by exogenous scientific discoveries.

Systematic research on the (partial) endogeneity of preferences is more recent (Lindbeck, 1995), but is already evident in the work of numerous economists spanning the ideological and methodological spectrums (Becker and Mulligan, 1996; Bowles, 1998). Attempts to uncover the endogenous aspects of technology and preferences in health and medical care could be extremely fruitful; the empirical results generated by health economists could enrich the mainstream literature.

Social (including professional) norms. The endogeneity of preferences is closely related to an exciting and relatively new area of economic research, the role of social norms in economic behavior. There is increasing awareness that social norms can affect consumer demand, labor force participation, employer-employee relations, and many other kinds of economic interactions (see Akerloff and Yellen, 1990). According to

Assar Lindbeck, social norms in Sweden in the second half of the twentieth century were strongly influenced by the economic policies of the welfare state (Lindbeck, 1997; Lindbeck, Nyberg, Weibull, 1999). Sociologists and anthropologists have long recognized that social norms affect attitudes toward health and the use of medical care. Health economists could profitably incorporate this perspective into their analyses.

Professional norms are an aspect of social norms that are particularly important in health care. They can play a key role in ameliorating many imperfections in medical markets, as Arrow noted in 1963, but this theme has not been adequately developed in the health economics literature. Moreover, many policy analysts mistakenly ignore such norms in their preoccupation with debating the merits of competition vs. government regulation. Given the complex and dynamic nature of medical technology and the highly personal and emotionally charged character of many medical encounters, neither competition nor regulation, alone or in combination, can provide an adequate basis for the social control of medical care (Iglehart, 1998). I believe professional norms are a critical third element.

Principal-agent problem. Unlike the relatively unexplored role of social norms, the principal-agent problem occupies a well-established niche in economic theory (Pratt and Zeckhauser (eds.), 1985; Krebs, 1990) and has been fruitfully applied to problems ranging from executive compensation to economic development. The physician-patient relationship appears to epitomize the principal-agent problem and warrants intensive study by economists (see McGuire, 1999). More recently another form of the principal-

agent problem has emerged in health care, namely the relation between physicians and their managed care organizations. Research on physicians as agents of their patients and their organizations would nicely complement research on professional norms.

Behavioral economics. The pioneering work in behavioral economics was done mostly by psychologists, especially Daniel Kahneman and Amos Tversky (Kahneman and Tversky, 1979; Tversky and Kahneman, 1991). Economist Richard Thaler also deserves credit for forcing economists to confront behaviors that are not adequately encompassed in standard models (Thaler, 1991a; Thaler, 1991b). This literature emphasizes the importance of relative rather than absolute levels of outcomes, a disproportional aversion to losses compared with desire for gains, the roles of fairness, reciprocal altruism and revenge, systematic biases in judgment, and the importance of framing. An excellent review of this literature was recently published by Rabin (1998). I do not believe that behavioral economics will replace standard models for most problems, but there are some areas where new insights could substantially increase understanding. Health and medical care appear to be prime candidates for benefitting from attention to behavioral economics because uncertainty is rampant, stakes are often high, and trade-offs are often difficult.

Quality of life: Measurement and analysis. The fifth and final item on my list of promising areas for future work is the measurement and analysis of quality of life. This is not a subject, however, where mainstream economics has a great deal already "on the shelf." On the contrary, health economists who work on quality of life issues are probably ahead of their mainstream colleagues (Dolan, 1999). The challenge to health

economists is to use their results to give substance to the vast but mostly amorphous literature on utility.

Economics As Input to Health Policy and Health Services Research

Economics is a necessary input to good health policy (macro or micro), but to be most effective it usually must be supplemented by insights from other disciplines and by explicit attention to values.

Strengths of economics. The greatest strengths of economics and economists are a framework of systematic theory, an array of concepts and questions that are particularly relevant to the choices facing policy makers, and skill in drawing inferences from imperfect data. Because health economists often take standard economic theory for granted (like being able to walk or talk), it is easy to underestimate the advantage this framework offers economics over the other social and behavioral sciences. When economists encounter a new problem, one with which they have had no previous experience, they immediately have a way to begin thinking about it long before data collection begins. Scholars in the other "policy sciences" do not.[8] They typically require some detailed knowledge of the particular problem before they can begin to think productively about it. Economists' framework of systematic theory facilitates the transfer

[8]I base this in part on having spent two years as a Fellow at the Center for Advanced Study in the Behavioral Sciences, where I interacted regularly with some of the nation's leading psychologists, sociologists, political scientists, and anthropologists.

of knowledge drawn from other fields of study to the health field.

Health economists have also inherited from economics a set of concepts and questions that have proven to be particularly relevant to the policy problems that have emerged in health during the past three decades. Scarcity, substitution, incentives, marginal analysis, and the like were "just what the doctor ordered"—although in many cases the "patient" found the medicine bitter and failed to follow the prescribed advice.

Another strength of economists is skill at drawing inferences from imperfect data. Indeed, a standard joke among sociologists is that "there are no data so bad that an economist won't use them." To some extent that's true. Economists take pride in the fact that they can frequently massage poor quality data so as to draw some reasonable inferences from them. But such statistical legerdemain has a downside; many economists neglect the important task of trying to get better data. Even if the conclusions don't change, results based on better data will command more respect in policy circles, and that alone can justify the effort.

Weaknesses of economics. Economists have many strengths, but scholars in the other behavioral sciences are better at some aspects of research. For instance, psychologists have been successfully carrying out controlled experiments for generations. In recent years a few economists (see Kagel and Roth, 1995) have been developing *experimental* economics and this approach bears watching to see if any new important findings emerge. *Survey research* is another approach where health economists could learn from others, especially sociologists and political scientists who have extensive

experience at designing and administering surveys, choosing samples, and the like. Sometimes health economists could profitably incorporate survey research in their efforts to contribute to health policy.

Also, many economists do not pay enough attention to institutions. Institutions *matter*, and sometimes they matter a great deal, particularly in health care. I'll illustrate this by considering two alternative methods for financing a national health plan. One way is with a payroll tax of 7 percent earmarked for health care. The second approach is a mandatory contribution of 7 percent of payroll earmarked for health care. Most economists would see little difference between those two approaches. Many would say that they are identical.[9] But in the real world they could be very different. Why? Because the first plan would probably be administered by the Ministry of Finance (the Department of Treasury in the US), while the second plan would be administered by the Ministry of Social Insurance or its equivalent (the Department of Health and Human Services in the US). Depending on the country, people might have very different judgments about whether their health insurance plan should be administered by the finance department or by the social insurance department. Overseas, I've met people who say, "In my country I wouldn't trust the finance ministry as far as I could throw them. I want that money to go into social insurance." In the United States, many people would have more confidence in the Treasury than in Health and Human Services. Moreover,

---

[9]And might belittle non-economists who fail to see the equivalence.

even within the same country different individuals and different interest groups would probably differ in their preferences.

Institutions matter in part because history matters. Consider, for example, health insurance in Canada and in the US. It is not possible to understand why these two countries have such sharply divergent approaches without familiarity with their histories (Lipset, 1990). Moreover, language matters. Health economists need look no farther than the phrase "employer-provided health insurance" to see how language can mislead the public and distort policy discussions. Economists have been very good at showing the world the importance of economic incentives, even in health. But we err if we think that *only* incentives matter. To be more useful in the arena of health policy and health services research, economists need to pay more attention to institutions, history, and language (Romer, 1996).

Interdisciplinary and multi-disciplinary research. The preceding discussion of the strengths and weaknesses of economics suggests that health policy and health services research require inputs from many disciplines—i.e., interdisciplinary or multidisciplinary research. The former is very difficult to execute but the latter is quite feasible, and often very necessary. To understand why interdisciplinary research is so difficult, we must ask what it is that distinguishes one discipline from another. Most important, in my view, are the *concepts* that the discipline uses. To appreciate this point, I suggest that you try the following experiment. Ask a few leading economists of your acquaintance to write down the10 to 20 most important concepts in economics. Then ask a few leading

psychologists, sociologists, and political scientists to do the same thing. You will find that there is almost no overlap in the lists of concepts. The concepts that we think are important do not appear on their lists, and vice-versa. This discordance makes true interdisciplinary research—a blending and fusion of concepts—unlikely.

The next most distinguishing feature of a discipline is the *questions* it seeks to answer. Again, ask representatives from the different behavioral sciences "What are the most important, the most central, the most enduring questions in your field?" and wide differences in the answers will be apparent across the disciplines. There may be a little more overlap of questions than concepts, but basically the different disciplines have different interests. The philosopher Susan Haack (1998, p. 59) points out that disciplines are like maps; different maps answer different questions. Suppose you are planning a trip to Northern California. You would almost surely want a map that showed the roads and highways, cities and towns, the locations of airports, and so on. But you might also be interested in hiking and camping and fishing, so you would also want another map—a topographical map which shows altitudes, the location of lakes, rivers, and campgrounds. It is also possible that you would want to consult a meteorological map to learn about expected temperatures and precipitation, and one can imagine still other maps (e.g., one showing places of historical and cultural interest). One map is no "better" than another; they simply serve different purposes. The same is true of disciplines. They attempt to answer different questions, all of which may be relevant to a policy decision.

In addition to differences in concepts and questions, the disciplines also differ in

their methods. To oversimplify, economists are good at building models, at econometrics, and at teasing inferences from "natural experiments." Psychologists are masters of the controlled experiment, while sociologists and political scientists have expertise in survey research. Interdisciplinary research in the behavioral sciences thus far has largely taken the form of borrowing methods. One of my colleagues in political science, for example, tells his graduate students, "We have some good questions, but if you want to learn how to answer them, go take the econometrics sequence." Many sociologists have begun to import econometric methods. Some economists have made considerable investments in survey research and others have been conducting controlled experiments. The exchange of methods is no doubt useful, but so long as the disciplines employ distinct concepts and address different questions, true interdisciplinary research will remain elusive.

Multidisciplinary research, on the other hand, is very feasible and often necessary. It involves policy analysts drawing on the results of studies from several disciplines and integrating these results. This approach will usually provide more understanding and contribute to better decisions than would be possible through reliance on a single discipline.

The role of values. Finally, I come to the role of values, and offer two cautionary comments. First, when doing research, be aware of your values and guard against allowing them to bias your research. Values can shape framing of the problem, choice of data, and judgment concerning the reliability of the results. A good scholar will try as

much as possible to keep his or her values from influencing the research. Second, when making policy recommendations, be as explicit as possible about the respective roles of your *analysis* and your *values* in those recommendations. Economists are naive if they expect that good economic research with strong results will translate immediately into policy. Policy depends on analysis *and* on values; sensitivity to that interaction will make economists more useful contributors to health policy.

Will the Bull Market in Health Economics Continue?

Health economics has enjoyed several decades of remarkable growth, but will this bull market continue? Several trends suggest to me that it *will*, at least for the next decade or two.

Factors fueling the demand for health economics. First, there will be a growing gap between what medicine *can* do and what it is *economically feasible* to do. Because technological change is, in part, endogenous, the gap is not likely to widen indefinitely, but there will be a lag between the constraints imposed by financial limits and their effect on the flow of medical advances. The outpouring of expensive new drugs and procedures that are already in the R&D pipeline will make the necessity for choice starker and more urgent. Decision makers at all levels will inevitably look to economics, the discipline that emphasizes trade-offs and provides a rigorous way of thinking about them.

Second, aging populations will put more pressure on health care resources. In the United States, people over 65 consume three to four times as much medical care per

capita as people under 65, and those 85 and over consume three times as much as those 65 to 69. Given the trends in medical technology and demography, the problem of financing health care for the elderly will soon equal and then surpass the problem of financing retirement (Fuchs, forthcoming).

Third, the recent large increase in resources devoted to technology assessment, outcomes research, and evidence-based medicine centers will create a much richer database. These better data will make economic analyses more reliable and more widely accepted.

Finally, I believe that the current anti-egalitarian trends evident in most modern societies will also increase the demand for health economics. Although the dominant trend in what is loosely called the "West" over the last several hundred years has been egalitarian, I believe that the last 20 years have been marked by a halt and even a reversal of the trend toward greater economic equality. In his classic textbook, *Economics* (1948), Paul Samuelson noted that every society faces three basic economic questions: What? How? and For Whom? In a completely egalitarian health care system, the "What?" and "How?" questions require economic analysis, but the "For Whom?" question is irrelevant. If the health care system is *not* egalitarian, however, distributive questions are also important for both analysis and policy. Economics cannot offer definitive solutions to questions of distribution, but economists can help analyze the causes and the consequences of changes in distribution.

Reasons for anti-egalitarian trend. Anti-egalitarian policies are fueled by

several forces that apply to the economy as a whole: the growth of international business competition, an increasing awareness of some negative consequences of the welfare state, the collapse of socialist economies in Eastern Europe, and the absence of major wars. Several other reasons are specific to health care. First, there is a growing awareness that socioeconomic differentials in health status are not primarily related to access to medical care. One of the major arguments advanced in support of national health insurance plans was that they would eliminate or at least substantially reduce the strong association between socioeconomic status and health. Many decades of experience, however, have demonstrated the inability of egalitarian plans to achieve these objectives (Fuchs, 1991). It is still possible to argue in favor of equal access to health care on other grounds, but it is not possible to contend that equal access to health care equalizes health outcomes.

Second, many of the medical innovations that have appeared in recent years are addressed primarily to improving the *quality* of life, not to *extending* life.[10] The original rationale for equal access to medical care was that everyone ought to have an equal chance to live, regardless of economic position. But as the emphasis shifts from extending life to improving its quality, it is questionable whether medical care will get the egalitarian priority that it now gets under the old rationale of extending life. If society wants to improve the quality of life for the poor, there are many other areas requiring attention, including education, housing, transportation, and public safety.

---

[10]Examples include drugs to treat baldness and erectile dysfunction.

The third reason is a growing awareness of the *probabilistic* nature of medical services. Whether one considers preventive, diagnostic, therapeutic, or rehabilitative interventions, there is rarely certainty regarding outcomes. In an influential pioneering book, Archie Cochrane (1972), wrote, "All medical care that's effective should be free to all." No country can come close to following that precept today. There are literally thousands of medical interventions that have *some* effectiveness; i.e., that have some probability of doing some good for some patients. The probability ranges from very low to very high, depending on the intervention and the patient. In such a world, questions of access become much more complicated for analysis and policy. Most people will find the case for equal access to interventions with a high probability of success more compelling than for interventions with low probability. To be sure, probability of success is not the only relevant criterion; the magnitude of the effect of a successful intervention on well-being is also important. In addition, decision makers need to consider the possibility of heterogeneity in patient preferences with regard to extension of life, restoration of function, relief of symptoms, and side effects of the intervention. Thus, questions about where to draw the line, and whether the same line should or could apply to all, will challenge analysts and policy makers for the foreseeable future.

Concluding Homilies

I conclude this essay on the future of health economics by offering five homilies distilled from almost a half century of teaching and research.

1) ***Remember your roots.*** Most of the readers of this essay were economists before they were health economists. Much of your intellectual strength and ability to do good work in the health field comes from your training in economics. If you maintain those ties and keep up with the major advances in economics, you will be able to sustain your effectiveness over a long career. If you simply live off your accumulated capital, you will eventually run dry. Moreover, at least some health economists should try to nourish their economic roots by feeding back their theoretical or empirical results into the economics mainstream.

2) ***Learn a great deal about health care technology and institutions.*** A solid working knowledge of economics is necessary, but rarely sufficient to be an effective health economist. When I asked a representative sample of leading American theorists to answer some basic questions regarding health economics, their replies, on average, were only slightly better than could be obtained by tossing a coin (Fuchs, 1996).[11] Any economist who is serious about health economics must learn a great deal about health care technology and institutions.

3) ***Work hard and, more importantly, work smart.*** "Keep up with economics." "Learn more about health." How can one person do all that and still complete some research? Working hard is an obvious, but probably superfluous, answer. It is difficult to get through graduate school without learning how to work hard. Working smart is

---

[11]Practicing physicians (who presumably have little or no training in economics) did equally poorly on the same questions.

different. In my experience you don't learn how to work smart in graduate school. Almost the reverse is true. You're expected to learn everything, to master a huge array of theoretical results and techniques, with little regard for their validity or relevance.[12] Working smart is just the opposite. It requires the ability to discriminate, to choose what to learn, from a torrent of new work. Economic theory is very important, but much new work at any given time is faddish and self-referential, the intellectual equivalent of flexing one's muscles on the beach.[13] A similar story can be told about medical research. Tens of thousands of medical articles are published every year; many of them contradict some previously published article. Working smart means learning how to identify what is important and relevant. No health economist can stay on top of two entire literatures. Cultivate the ability to be selective—selective in the seminars and conferences you attend, selective in the review articles that you read, selective in the experts you consult. The goal is to capture *most* of what is valuable and relevant in new mainstream economics and in medicine.

4) ***Don't try to be a scholar and a player at the same time.*** A player is someone who is actively participating in a partisan, political process. A scholar is trying to enhance understanding, without fear or favor. Both roles are important for society, and

---

[12]A leading economics professor told me that he felt obliged to teach graduate students a currently "hot" theory even if he believed it was wrong because the students would be expected to know the theory when they entered the job market.

[13]See Blinder (1999) for a similar view.

the same person can fill both at different times,[14] but it is not possible to be an effective player and a first-rate scholar simultaneously. Successful players and scholars have some characteristics in common,[15] but the two roles also require different skills and virtues. The most important quality for a player is loyalty—loyalty to the team, and especially to the captain of the team. An economist-player who cannot put aside reservations, qualifications, and questions about the team's policy will soon be marginalized as a player. Another important attribute is speed. The economist-player who can devise a new policy initiative overnight or who can identify the weaknesses in the other side's proposals even as they are being made will often carry the day. Finally, a player must be tough, must have sharp elbows. Toughness is needed to win intra-team squabbles and to withstand the slings and arrows of the other side. Loyalty, speed, and toughness are not necessarily incompatible with the role of a scholar, but great scholarship usually requires a different set of virtues.

5) ***Cultivate the scholarly virtues.*** Excellence in research requires many virtues, but three are preeminent. The first is honesty, in two senses. A scholar must be self-consciously honest in carrying out research. This means confronting the limitations and qualifications of one's own data and methods. In addition, a scholar must strive for honesty in reporting the results of research. A second virtue is courage, again in two

---

[14]Many good scholars have gone on to become effective players. It is rare for someone to be a player for an extended period and then produce high quality scholarship.

[15]E.g., intelligence, creativity, stamina, and the ability to communicate effectively.

senses. Scholars should not be timid about the choice of problems or the method(s) of attack. "Faint heart never won fair lady"—or produced great research. Once the research is complete, courage is required to present and defend the results, especially when they challenge current opinion. The third scholarly virtue is patience, and again it is needed in two senses. A few great scientific advances come quickly, but most are the result of years and often decades of intense and persistent work. Beware the temptation to become a member of the "paper-of-the-month" club. If you have chosen a worthy problem, devote whatever time is required to get it right, be it a semester or a decade. And finally, have patience in waiting for acceptance of your results. The economics literature is studded with examples of major articles that were rejected when first submitted (Shepherd and Gans, 1994). Even when a significant result is published, the world often will not immediately snap to attention and salute you. But if your work is valid and relevant, and if you are patient, people will eventually take notice and your efforts will bear fruit.

In my experience, health economics can be intellectually stimulating, socially useful, and personally rewarding. It has been a privilege and a pleasure to work in the field. To this possibly biased observer, the future of health economics looks extremely bright.

References

Akerloff, G. A., Yellen, J. L., 1990. The fair wage-effort hypothesis and unemployment. Quarterly Journal of Economics 105, 255-283.

Arrow, K., 1963. Uncertainty and the welfare economics of medical care. American Economic Review 53, 941-973.

Becker, G. S., Mulligan, C. B., 1997. The endogenous determination of time preference. Quarterly Journal of Economics 112, 729-758.

Blinder, A. S., 1999. Economics becomes a science—or does it? Princeton University mimeo.

Bowles, S., 1998. Endogenous preferences: The cultural consequences of markets and other economic institutions. Journal of Economic Literature 36, 75-111.

Cochrane, A. L., 1972. Effectiveness and Efficiency: Random Reflections on Health Services. London, Nuffield Provincial Hospitals Trust.

Dolan, P., forthcoming. The measurement of health-related quality of life for use in resource allocation decisions in health care. In: Newhouse, J. P., Culyer, A. J. (Eds.), Handbook of Health Economics. North Holland, Amsterdam.

Fuchs, V., 1991. National health insurance revisited. Health Affairs [Winter], 7-17.

Fuchs, V., 1996. Economics, values, and health care reform. The American Economic Review 86, 1-24.

Fuchs, V., forthcoming. Provide, provide: The economics of aging. In: Saving, T. R., Rattenmaier, A. (Eds.), Medicare Reform: Issues and Answers. Chicago, University of Chicago Press.

Haack, S., 1998. Between the Scylla of scientism and the Charybdis of apriorism. In: Hahn, L. (Ed.), The Philosophy of Sir Peter Strawson (Library of Living Philosophers). Open Court, LaSalle, Illinois.

Iglehart, J. K., 1998. Physicians as agents of social control: The thoughts of Victor Fuchs. Health Affairs 17, 90-96.

Kagel, J. H., Roth, A. E. (Eds.), 1995. The Handbook of Experimental Economics. Princeton University Press, Princeton, New Jersey.

Kahneman, D., Tversky, A., 1979. Prospect theory: An analysis of decision under risk. Econometrica 47, 263-291.

Krebs, D., 1990. A Course in Economic Theory (Ch. 16). Princeton University Press, Princeton, New Jersey.

Lindbeck, A., 1995. Welfare state disincentives with endogenous habits and norms. Scandinavian Journal of Economics 47, 477-494.

Lindbeck, A., 1997. The Swedish experiment. Journal of Economic Literature 35, 1273-1319.

Lindbeck, A., Nyberg, S., Weibull, J. W., 1999. Social norms and economic incentives in the welfare state. Quarterly Journal of Economics 114, 1-35.

Lipset, S. M., 1990. Continental Divide. Routledge, New York.

McGuire, T. G., 1999. Physician agency. In: Newhouse, J. P., Culyer, A. J. (Eds.), Handbook of Health Economics. North Holland, Amsterdam.

Pratt, J. W., Zeckhauser, R. J. (Eds.), 1985. Principals and Agents. Harvard Business School Press, Boston.

Rabin, M., 1998. Psychology and economics. Journal of Economic Literature 36, 11-46.

Romer, P. M., 1996. Preferences, promises, and the politics of entitlement. In: Fuchs, V. R. (Ed.), Individual and Social Responsibility: Child Care, Education, Medical Care, and Long-Term Care in America. University of Chicago Press, Chicago.

Samuelson, P., 1948. Economics. McGraw-Hill, New York.

Schmookler, J., 1966. Invention and Economic Growth. Harvard University Press, Cambridge, Massachusetts.

Shepherd, G., Gans, J. S., 1994. How are the mighty fallen: Rejected classic articles by leading economists. Journal of Economic Literature 8, 165-179 (Winter).

Thaler, R. H., 1991a. The Winner's Curse. Free Press, New York.

Thaler, R. H., 1991b. Quasi-Rational Economics. Russell Sage Foundation, New York.

Tversky, A., Kahneman, D., 1991. Loss aversion in riskless choice: A reference-dependent model. Quarterly Journal of Economics 106, 1039-1061.

Table 1

Distribution of Citations IN Journal of Health Economics *and* Health Economics *in 1996, by Type of Journal*

Type of journal	Percent of citations[a] JHE	HE
Economics (except health)	42	24
Other disciplines (not economics or health)	16	11
Health economics	16	16
Health policy and health services research	16	23
Medical	10	26
	100	100

Source: Journal Citation Reports, 1996, Social Science ed.

[a]Journals with only one citation in *JHE* or *HE* were not included in the distributions.

Table 2

Distribution of Citations TO Journal of Health Economics *and* Health Economics *in 1996, by Type of Journal*

Type of journal	Percent of citations[a] *JHE*	*HE*
Economics (except health)	20	0
Other disciplines (not economics or health)	7	0
Health economics	30	31
Health policy and health services research	37	34
Medical	7	36
	100[b]	100[b]

Source: Journal Citation Reports, 1996, Social Science ed.

[a]Journals with only one citation to *JHE* or *HE* were not included in the distributions.

[b]Totals may not equal 100 because of rounding.

Table 3

Distribution of Papers[a] of Three Leading American Health Economists[b] by Type of Journal

Type of journal	Economist (percent of papers) A	B	C
Economics (except health)	51	30	18
Other disciplines (not economics or health)	13	4	6
Health economics	15	14	10
Health policy and health services research	13	41	36
Medical	8	10	30
	100	100	100

Source: *Social SciSearch® at LANL, version 1.0 (Stanford University Libraries).*

[a]Published after 1972

[b]Ph.D. received after 1965.

Note: Totals may not always equal 100 because of rounding.

Table 4

Distribution of Citations to Papers[a, b] of Three Leading American Health Economists[c] by Type of Journal in Which Citation Appeared

Type of journal	Economist (percent of papers) *A*	*B*	*C*
Economics (except health)	30	27	16
Other disciplines (not economics or health)	23	21	9
Health economics	16	12	16
Health policy and health services research	14	29	41
Medical	18	12	18
	100	100	100

Source: Social SciSearch® at LANL, version 1.0 (Stanford University Libraries).

[a]First-authored papers only.
[b]Published after 1972.
[c]Ph.D. received after 1965.

Note: Totals may not always equal 100 because of rounding.

To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.

Number	Author(s)	Title	Date
7324	Mark McClellan Douglas Staiger	Comparing Hospital Quality at For-Profit and Not-for-Profit Hospitals	8/99
7325	David Ikenberry Josef Lakonishok Theo Vermaelen	Stock Repurchases in Canada: Performance and Strategic Trading	8/99
7326	Thomas C. Kinnaman Don Fullerton	The Economics of Residential Solid Waste Management	8/99
7327	Mark McClellan Douglas Staiger	The Quality of Health Care Providers	8/99
7328	John DiNardo Mark P. Moore	The Phillips Curve is Back? Using Panel Data to Analyze the Relationship Between Unemployment and Inflation in an Open Economy	8/99
7329	Austan Goolsbee Peter J. Klenow	Evidence on Learning and Network Externalities in the Diffusion of Home Computers	9/99
7330	Young-Hye Cho Robert F. Engle	Time-Varying Betas and Asymmetric Effect of News: Empirical Analysis of Blue Chip Stocks	9/99
7331	Young-Hye Cho Robert F. Engle	Modeling the Impacts of Market Activity on Bid-Ask Spreads in the Option Market	9/99
7332	Daniel S. Hamermesh	The Changing Distribution of Job Satisfaction	9/99
7333	James L. Heckman	Causal Parameters and Policy Analysis in Economics: A Twentieth Century Retrospective	9/99
7334	Rajesh K. Aggarwal Andrew A. Samwick	Performance Incentives Within Firms: The Effect of Managerial Responsibility	9/99
7335	Rajesh K. Aggarwal Andrew A. Samwick	Empire-Builders and Shirkers: Investment, Firm Performance, and Managerial Incentives	9/99
7336	Richard Portes Hélène Rey	The Determinants of Cross-Border Equity Flows	9/99
7337	Kathryn M. Dominguez	The Market Microstructure of Central Bank Intervention	9/99
7338	Jeffrey A. Frankel	No Single Currency Regime is Right for all Countries or at All Times	9/99

You can download these and other papers at the NBER Web site:

www.nber.org

Free searchable abstracts are also available at the site.

To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.

Number	Author(s)	Title	Date
7339	Axel Börsch-Supan	Incentive Effects of Social Security Under an Uncertain Disability Option	9/99
7340	Hylke Vandenbussche Jozef Konings Linda Springael	Import Diversion under European Antidumping Policy	9/99
7341	Robert F. Engle Simone Manganelli	CAViaR: Conditional Value at Risk By Quantile Regression	9/99
7342	David C. King Richard J. Zeckhauser	Congressional Vote Options	9/99
7343	Christina Paxson Jane Waldfogel	Work, Welfare, and Child Maltreatment	9/99
7344	Michael Hout Harvey S. Rosen	Self-Employment, Family Background, and Race	9/99
7345	Jean O. Lanjouw Mark Schankerman	The Quality of Ideas: Measuring Innovation with Multiple Indicators	9/99
7346	Geert Bekaert Steven R. Grenadier	Stock and Bond Pricing in an Affine Economy	9/99
7347	Thomas N. Hubbard	How Wide Is the Scope of Hold–Up-Based Theories? Contractual Form and Market Thickness in Trucking	9/99
7348	Jonathan Gruber	The Wealth of the Unemployed: Adequacy and Implications for Unemployment Insurance	9/99
7349	Edward P. Lazear	Educational Production	9/99
7350	Tamim Bayoumi	The Morning After: Explaining the Slowdown in Japanese Growth in the 1990s	9/99
7351	Taizo Motonishi Hiroshi Yoshikawa	Causes of the Long Stagnation of Japan during the 1990's: Financial or Real?	9/99
7352	Daron Acemoglu Robert Shimer	Productivity Gains From Unemployment Insurance	9/99
7353	Jeff Grogger Charles Michalopoulos	Welfare Dynamics under Time Limits	9/99

You can download these and other papers at the NBER Web site:

www.nber.org

Free searchable abstracts are also available at the site.

To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.

Number	Author(s)	Title	Date
7354	Roberto Rigobon	On the Measurement of the International Propagation of Shocks	9/99
7355	Ricardo J. Caballero Mohamad L. Hammour	The Cost of Recessions Revisited: A Reverse-Liquidationist View	9/99
7356	Alec Ian Gershberg Michael Grossman Fred Goldman	Competition and the Cost of Capital Revisited: Special Authorities and Underwriters in the Market for Tax-exempt Hospital Bonds	9/99
7357	Robert E. Lipsey	Foreign Production by U.S. Firms and Parent Firm Employment	9/99
7358	Vernon Henderson	Marshall's Economies	9/99
7359	Iain Cockburn Rebecca Henderson Scott Stern	The Diffusion of Science-Driven Drug Discovery: Organizational Change in Pharmaceutical Research	9/99
7360	Douglas Holtz-Eakin John W. Phillips Harvey S. Rosen	Estate Taxes, Life Insurance, and Small Business	9/99
7361	Bong-Chan Kho René M. Stulz	Banks, the IMF, and the Asian Crisis	9/99
7362	Jagadeesh Gokhale Laurence J. Kotlikoff	Social Security's Treatment of Postwar Americans: How Bad Can It Get?	9/99
7363	Bruce D. Meyer Dan T. Rosenbaum	Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers	9/99
7364	Dani Rodrik Andrés Velasco	Short-Term Capital Flows	9/99
7365	Michael D. Bordo Lars Jonung	The Future of EMU: What Does the History of Monetary Unions Tell Us?	9/99
7366	Emmanuel Saez	Do Taxpayers Bunch at Kink Points?	9/99
7367	Emmanuel Saez	The Effect of Marginal Tax Rates on Income: A Panel Study of 'Bracket Creep'	9/99
7368	Alan L. Gustman Thomas L. Steinmeier	What People Don't Know About Their Pensions and Social Security: An Analysis Using Linked Data From The Health and Retirement Study	9/99

You can download these and other papers at the NBER Web site:

www.nber.org

Free searchable abstracts are also available at the site.

To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.

Number	Author(s)	Title	Date
7369	Wolfgang Keller Arik Levinson	Environmental Compliance Costs and Foreign Direct Investment Inflows to U.S. States	9/99
7370	Michael Baker Gary Solon	Earnings Dynamics and Inequality among Canadian Men, 1976-1992: Evidence from Longitudinal Income Tax Records	9/99
7371	Michael Baker Nicole M. Fortin	Occupational Gender Composition and Wages in Canada: 1987-1988	9/99
7372	B. Douglas Bernheim Lorenzo Forni Jagadeesh Gokhale Laurence J. Kotlikoff	The Adequacy of Life Insurance: Evidence from the Health and Retirement Survey	10/99
7373	Paul A. David Bronwyn H. Hall Andrew A. Toole	Is Public R&D a Complement or Substitute for Private R&D? A Review of the Econometric Evidence	10/99
7374	Peter Cappelli David Neumark	Do "High Performance" Work Practices Improve Established-Level Outcomes?	10/99
7375	Charles I. Jones	Was an Industrial Revolution Inevitable? Economic Growth Over the Very Long Run	10/99
7376	Harrison Hong Jeremy C. Stein	Differences of Opinion, Rational Arbitrage and Market Crashes	10/99
7377	George Chacko Luis M. Viceira	Dynamic Consumption and Portfolio Choice with Stochastic Volatility in Incomplete Markets	10/99
7378	Bruce A. Blonigen Stephen E. Haynes	Antidumping Investigators and the Pass-Through of Exchange rates and Antidumping Duties	10/99
7379	Victor R. Fuchs	The Future of Health Economics	10/99

Copies of the above working papers can be obtained for $10.00 per copy (plus $10.00 per order for shipping for all locations outside the continental U.S.) to Working Papers, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Pre-payment is required on all orders and may be made by check or credit card. Checks should be made payable to the NBER and must be in dollars drawn on a U.S. bank. If paying by credit card, include the cardholder's name, account number, and expiration date. For all orders, please be sure to include your return address and telephone number. Working papers may also be ordered by telephone (868-3900), fax (617-868-2742), or email (orders@nber.org).

You can download these and other papers at the NBER Web site:

www.nber.org

Free searchable abstracts are also available at the site.