

# Incentives and Choice in Health Care

edited by Frank A. Sloan and  
Hirschel Kasper

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# 1

## Introduction

Frank A. Sloan and  
Hirschel Kasper

Health and health care are important to us as individual patients, health care providers, and the broader economy more generally.<sup>1</sup> Better health for more people takes resources: the skill of the surgeon, the creativity of the pharmaceutical researcher, and the time to exercise, among many others.

As its title implies, this book is about the role of incentives in health and health care decision making. Its central theme is that a vast body of empirical evidence has accumulated to demonstrate that incentives affect the choices of individual consumers as well as the suppliers of health care services, including students making choices about their careers, practicing physicians, hospitals, and pharmaceutical manufacturers. Government and private decision makers who seek to influence choices about health and health care should pay considerable attention to how people's behavior is affected by their "economic" incentives, both the financial and nonmonetary ones. To economists, any carrot or stick that affects resource allocation is an economic incentive or disincentive. The carrots and sticks are not limited to financial rewards and penalties.

While we know a lot about individuals' and organizations' responses to incentives, however, there is still much to be learned, which adds complexity to the design of appropriate incentives. For example, if Medicare were to cut the fees it pays to physicians by five percent—a type of proposal that reappears frequently—how would physicians respond? Would physicians reduce or increase their work hours and the number of services? Would certain disadvantaged populations among the elderly be disproportionately affected? How many fewer people would train to be physicians, two or two hundred? We have some answers to these questions, but there is still much to be learned.

Many concepts and empirical findings are presented in this book. To all but the health care experts, many of these concepts and findings will be unfamiliar, perhaps even provocative. The objective of this chapter is to provide the background and context for the discussion that follows as well as a road map to the book.

Incentives have long been a focus in the discipline of economics. Within economics there are applied topics that concentrate on a particular sector or situation, such as the behavior of organizations or the regulation of the environment. Most of the research on the role of incentives in health and health care, especially the financial ones, has been conducted by economists specializing in the field of health economics—a subfield of microeconomics. The vast majority of the authors in this book regard themselves as health economists, but economists from many fields have contributed to our understanding of health economics, including several Nobel laureates.

Applied microeconomics almost always involves the empirical analysis of data that are based on a conceptual framework provided by an underlying theory. The research questions may be broad, such as an analysis of hospital competition, or narrow, such as a cost-benefit analysis of a particular drug or an evaluation of a specific public policy change, but good theory leads the researcher to seek the requisite data needed to test hypotheses implied by the theory.

Health economics deals with both the allocation and financing of resources used to produce health services, and the role of health and other factors in improving personal well-being, often termed “utility” by economists. These researchers frequently study the effect of one variable on another, *all else* being equal. All else may be held equal either as a theoretical analysis or a statistical exercise. Sometimes one variable affects another by working through a third, a fourth, or many variables. In that event, no less than the simpler case, all the relevant variables must be explicitly considered.

Even the more theoretical studies in health economics incorporate the relevant institutional aspects of health care. Examples include the predominance of health insurance coverage, the large share of hospitals under not-for-profit ownership, the inherently asymmetrical relationship between physicians and their patients, and the various forms of regulation, such as the regulation of entry into the medical professions, including professional licensure; requiring certificates of need to allow hospitals, nursing homes, or outpatient surgery facilities to be built; and the government approval of new drugs.

As an academic field of inquiry, there was virtually no *sustained* health economics research before 1945 and relatively little until after 1965, the year that the law establishing the Medicare and Medicaid programs was enacted in the United States. Nonetheless, between the years 1945 and 1965, three pathbreaking studies were published. All dealt in one way or another with distinguishing institutional arrangements in the provision of health care.

The first, which analyzed incomes in various professions including dentistry and medicine, was Milton Friedman and Simon Kuznets's (1945), *Income from Independent Professional Practice*. In addition to assembling data on national income in the 1930s, Kuznets had gathered data on income in various occupations and completed a draft study in 1936. Friedman picked up the project, completing it as his PhD dissertation in 1945. The importance of this study for health economics was its focus on the entry barriers to occupations imposed by licensure and the resulting effect of increasing physicians' incomes above the level that would prevail under competition.

Reuben Kessel (1958) published an article in the first issue of the *Journal of Law and Economics* on price discrimination by physicians—a common practice before health insurance coverage was widespread. He argued that contrary to the conventional wisdom, multipart pricing of physicians' services (with poor families paying less) was not an act of charity. Rather, he asserted, such price discrimination reflected the exercise of market power by physicians to raise their incomes.

One implication of the work of Friedman and Kuznets as well as Kessel is that the effect of the institutional arrangements in markets for physicians' services was to some extent the physicians' financial gain rather than patients' protection. By contrast, an important article by Kenneth Arrow (1963) described the existing institutional arrangements in health care markets as "second-best" alternatives that ultimately serve the public interest. The first-best option for everyone would be to insure one's own health. Absent the feasibility of this, however, consumers require other protections, such as the not-for-profit ownership of hospitals.

### **Incentives, Private Choices, and Roles of Governments**

Broadly speaking, health economics deals with issues related to the financing and delivery of health services as well as the effects of such services and other decisions in the production of health. Health

economists investigate positive issues—that is, empirical relationships among variables and normative issues—that is, how resources should be optimally allocated to produce a level of health that maximizes the well-being of persons in a society.

People, firms, and health care organizations are motivated by incentives. Not all of the incentives that affect decisions are financial but many are. Prestige and personal satisfaction also motivate people. Financial incentives are often the most effective because they can be altered most easily. To achieve socially desirable outcomes, incentives must be structured appropriately. In most markets, prices perform a crucial role in providing inducements for suppliers to furnish the quantities and kinds of goods and services that consumers most desire, given the resources at their disposal. For many goods and services, governments are largely on the sidelines, sometimes policing abuses or imposing taxes to raise revenue, or monitoring performance, such as gas mileage standards on automobiles.

By contrast, governments in most high-income countries, even in the United States but to a lesser extent than in many others, are active participants in their countries' health sectors. One principal rationale is redistribution. Absent government intervention, market forces may lead to a situation in which less-affluent populations and populations disadvantaged for other reasons, such as the geographic remoteness of locations at which health services are delivered, may have "inadequate" access to health services. This is a common rationale for public provision of health insurance, subsidies to medical students and their universities, and low-interest loans for hospital construction.

While there is a broad consensus that some redistribution of resources is appropriate, there is no agreement on either the amount of redistribution that is appropriate or how it should be accomplished. Also, in seeking to redistribute resources, there has been a tendency on the part of some to view public policies as almost exclusively redistributive, as if there were no incentive effects. Returning to an example mentioned above, for example, there is a widespread perception among some observers that the government can cut fees to physicians by 5 percent in an attempt to reduce a government deficit without any effect on the supply of physicians' services. The explicit reason for such policies is largely to reduce public spending, coupled with a secondary, more implicit justification, that "rich" physicians can afford such fee reductions. The possibility that such cuts could affect incentives often

takes a backseat in such discussions or is viewed as pleading on the part of special interests.

Another key rationale for government intervention is to correct “market failures,” that is, when markets do not provide the “right” goods to the “right” people at the “right” time. Markets fail, for instance, when there are “externalities” in consumption. For example, vaccinating person B against a contagious disease may have health benefits for person A. Yet absent some government intervention, person B will not take account of the benefits to person A, unless perhaps A is a close relative. Governments also intervene to counter market power on the part of sellers, such as physicians and hospitals. As explained below, some abuses of market power are particularly critical in health care.

An alternative to government intervention is to implement private arrangements to cope with market failure. This is one rationale for the dominance of private nonprofit organizations in health care in the United States and other countries.<sup>2</sup>

## **The Important Institutional Features of Health Care**

### *Health Insurance*

In many industrialized countries, health insurance is provided by the government. In the United States, health insurance is provided both publicly and privately. The use of personal health services is to some extent random because the onset of illness is random—that is, often unpredictable. As a result, risk-averse individuals, presumably most people, seek to reduce the risk of unforeseen large expenditures, which is the major function of health insurance. Risk-averse people are better off with insurance for this reason.

While insurance is welfare enhancing—that is, it improves the personal well-being of society’s members in the aggregate by providing protection against financial losses in the event of an illness—there is an important respect in which it could be welfare decreasing. In the popular view, it is not possible to have too much health insurance. After all, are people not better off if medical care is “free”? This view neglects the fact that resources are used and people pay for such care whether or not it is provided at no out-of-pocket cost at the point of service. Individuals are taxed to pay for public insurance. Most private insurance in the United States is employer based. But the general consensus among economists is that employees, not employers, foot most,

if not all, of the bill of employer-supplied insurance premiums in the form of reduced wages and/or other fringe benefits.<sup>3</sup>

While health insurance reduces a person's expenditure risk—that is, their exposure to a large expenditure in the event that the person becomes severely ill—it also can distort a person's choice about how much health care to consume. The tendency to consume more medical care as a result of having insurance is termed “moral hazard.” Moral hazard, which results from the provision of health insurance coverage, leads people to take *advantage* of their insurance, which is a misallocation of resources. Had people been required to pay the full cost of their care, they would have obtained less, but been better off on the *whole* because they would consume more of other goods and services, even spending more leisure time with their families.<sup>4</sup>

Both governments and private organizations employ various ways to reduce moral hazard. One alternative is to limit the supply of health resources by erecting barriers to entry. For example, before a new hospital can be built, most states require that its advocates demonstrate that a hospital is needed. Another approach for combating this moral hazard is to monitor the utilization of health services, disallowing insurance coverage for services considered to be of low marginal value. Still another way is to increase cost sharing—that is, raise the share of the payment to the provider that the insured consumer bears. While increased cost sharing also increases expenditure risk, it reduces moral hazard.

Moral hazard is only one problem that arises in health insurance markets. Another is “adverse selection,” a phenomenon that can arise when health insurance is provided privately rather than by a government.

Adverse selection may arise when there is asymmetric information—that is, when consumers know more about their own health risks than do insurers. Adverse selection can lead healthier consumers to avoid high-cost complete health insurance coverage or eschew coverage altogether, leaving the market to individuals at higher risk for adverse health outcomes.

In theory, adverse selection can lead to the unraveling of insurance markets.<sup>5</sup> This process works as follows. Not knowing each insured person's health risk, insurers frequently do not charge different premiums to high- versus low-risk individuals. Thus, for any premium that allows the insurer to break even, insurance is an attractive purchase for high- but not low-risk individuals. Fewer low-risk persons demand



insurance as a result. To break even on the remaining persons it covers, the insurer must raise premiums in the following year. And again, the lower-risk individuals among the higher-risk persons drop out of the insurance market. This process of unraveling continues until only a few high-risk individuals remain in the market. All the rest of the population is made worse off because they have lost a vehicle for reducing expenditure risk at actuarially fair premiums—that is, at premiums that cover the losses that may be anticipated from a person with a specific set of observable characteristics. Although conceptually plausible, the quantitative significance of adverse selection in health insurance markets is an empirical question. Among the currently uninsured in the United States are some healthy young men who prefer to buy health insurance.

Health insurance also has important effects on the decisions of the suppliers of health care. From the mid-1930s when private health insurance markets began to develop in the United States to the early 1980s, the amounts paid to hospitals and physicians depended on how much the services cost—for instance, how much the hospitals and physicians charged for their services. Cost- and charge-based reimbursement proved to be increasingly expensive. From a hospital's standpoint, increases in reported costs resulted in higher payments to the hospital.

These cost and charge pass-through systems were replaced by payment on a fixed-price basis. The public insurer Medicare, the largest one in the United States, pays hospitals a fixed price per case under its Prospective Payment System. Physicians are paid by Medicare under a fixed-pricing system based on the Resource-Based Relative Value Scale that seeks to account for the resource costs incurred in each patient encounter. Since the mid-1980s, private health insurance plans often negotiate fixed fees with providers. Changing from a cost and charge pass-through system of paying health care providers to fixed-fee systems has, not surprisingly, substantially altered the incentives that providers face. In particular, the fixed-fee systems offer an incentive for hospitals and physicians to operate more efficiently, but they may also have side effects such as affecting providers' willingness to accept patients covered by such fee arrangements for care.

There are other important information asymmetries as well. Physicians are more knowledgeable about medical issues than are their patients. Ideally, physicians would provide unbiased information to their patients. Professional norms are designed to combat any tendency that physicians

might have to take advantage of their superior information, compared to the patient's knowledge, about the patient's health status.

Society has designed a wide variety of ways of dealing with the information asymmetry, such as implementing various forms of regulatory scrutiny ranging from policies that bar market entry to providers deemed to be of low quality or untrustworthy, to the imposition of tort liability, to employer and/or public or private insurer scrutiny of utilization and quality.

In recent years, an increasing emphasis has been placed on educating health care consumers about their options. This has taken the form of public health announcements as well as direct-to-consumer advertising by pharmaceutical companies and report cards on hospital performance. Even though information provision also has potential pitfalls—for example, direct-to-consumer advertising may give the seller more market power—such advertising may help consumers know more about their treatment options, perhaps leading to better health.

There have also been attempts, both extensive and expensive, to educate physicians on the efficacy of alternative treatments. Given the rapid rate of technological change, the evidence on efficacy is always changing too, and it is costly to get new information promptly to all the providers who can use it. Innovators such as research hospitals and private manufacturers often sponsor educational conferences.

### *The Dominance of Nonprofit Organizations in Some Parts of Health Care*

Economists have attributed the dominance of the not-for-profit ownership in the hospital sector to the fact that it is so difficult to identify and purchase the specific “quality” of hospital care one wants. Some types of quality are easily monitored by consumers, such as the features of the hospital room and how quickly hospital employees respond to calls from patients. Other aspects of quality, however, are not observable by consumers. An example would be how well the radiologist reads the patient's X-ray or the accuracy of dispensing in the hospital pharmacy. The latter aspects of quality are noncontractible. When noncontractible quality is important, society may grant financial incentives to encourage entry of organizations that are not profit seeking. This is the theory. Whether or not not-for-profit hospitals indeed perform better than their for-profit counterparts is an empirical question to be examined later in this book.

## Health and Health Behaviors

The ultimate goal of consuming health services is to improve one's personal health. Economists have made major strides in understanding the decisions people make that affect their health. One key theme of this research is to cast decisions about health within a standard micro-economic framework. In this framework, medical care along with other health "inputs" such as physical exercise and a good diet go into producing improvements in health. Recently, though, some economists have begun to question the validity of the standard assumptions that are generally made in their field about household decision makers.

### *The Production of Health*

A framework developed by Michael Grossman (1972a, 1972b) views health as a "stock," a form in which wealth is held, much like an automobile, a house, or a financial asset. An individual's stock of health yields daily flows of healthy days, much like a house yields residential services and an automobile provides daily transportation. Like houses and cars, a person's health depreciates as one grows older. And like houses and cars, renovation and reconstruction is sometimes possible. But when health declines to certain point, the person dies.

Many factors go into the "production" of this health stock. Health is produced by medical care as well as various health behaviors such as good diet and nutrition, physical activity, not smoking, not consuming illicit drugs or alcohol to excess, washing one's hands, medical care, and so on. The demand for health services is derived from the individual's demand for health. In this framework, numerous prices, not only of medical care, ultimately affect personal health. Other prices relevant to health include the prices of cigarettes, beer, tennis shoes, and foods that are rich in calories and unsaturated fats.

In a standard economic model, individuals decide on health inputs based on prices, their views of the marginal products to them of various inputs (some of which, such as cigarettes, have negative marginal products), discount rates reflecting the trade-off between receiving benefits now versus receiving them later (think exercise), the value they attach to being in good health, and their perceived value of consuming more/less of the many nonhealth goods.

Technological improvements may increase the marginal product of health inputs. The invention of antibiotics made physicians far more

productive in treating strep throats and thereby avoiding the complication of rheumatic fever. Various scanners, such as CT scanners, revolutionized the diagnosis of many conditions. Such technological changes may not be neutral. That is, they may increase the marginal products of some inputs relative to others. A flu vaccine, for example, is a substitute for visits to physicians by persons with the flu. On the other hand, the invention of new chemotherapeutic agents for treating cancer plausibly increases the demand for physician time along with an increase in the demand for such drug therapies.

Since health care contains an important probabilistic or stochastic element, the value of the marginal product of any input varies for each specific person. The random nature of one's future health introduces uncertainty. Thus, an individual's risk preferences also affect that person's demand for health inputs.

### *Rationality, Irrationality, and Health Care Choices*

A critical building block of economic analysis is the assumption that people try to make rational decisions. Rationality does not require omniscience but rather that individuals try to use all the information at hand in making decisions, including those that have implications for the future. Scholars in other social science disciplines are less prone to rely on the assumption of rationality and often define it differently. A common retort by economists when criticized for employing an assumption of rationality has been this: judge our models not by their assumptions but by how well they predict actual observed behavior.<sup>6</sup>

In recent years, many economists have begun to question the assumption of rationality and are exploring the implications of alternative assumptions underlying decision making. Some are conducting empirical studies of this subject under the general heading of behavioral economics and are discussed in some of the following chapters.

### **Overview of Book**

The chapters following this one consider and report our understanding of the effects of various incentives for many crucial issues in health care.

Chapter 2, "To Find the Answer, One Must Know the Question," by Henry Aaron provides another overview of health economics, but from

a policy perspective. In several of the areas that Aaron identifies, economists have made substantial progress, but public policy demands ever more precise answers, such as how to best structure cost sharing in health insurance plans as well as how to structure medical malpractice insurance to best achieve the goals of injury deterrence, compensation, and reducing the high administrative cost of tort liability. By contrast, while some important research has been conducted on the economics of epidemics, much remains to be done. Results could inform decisions about optimal resource allocation to cope with possible pandemics.

Aaron's report on the state of research reflects both his overview from the standpoint of a long-term health economics researcher and his practical experience employing existing research as Assistant Secretary of Planning and Evaluation in the U.S. Department of Health and Human Services in the 1970s.

Chapters 3 through 7 focus more specifically on issues about the demand for health and health care. Chapter 3, "Human Capital: Theory and Empirical Evidence," by Donna Gilleskie first describes the Grossman health capital model. From there, Gilleskie discusses theoretical extensions of the model—the most significant of which is to incorporate the effects of uncertainty. There are many empirical applications of the Grossman model, including empirical studies of demand for medical care and other inputs affecting health, such as diet, exercise, and tobacco and drug use. Several studies have focused on the relationship between health and education. Education has several potential effects on health, including but not limited to the individual's ability to process information. Gilleskie's own research has centered on developing structural models of household decision making about health and health care. She explains her own work on the use of medical care and absences from work during episodes of acute illness as well as three other applications of the structural approach to modeling: the use of mental health services during childhood, choices of prescription drugs when the effects of the drug can only be learned by trying it, and a study of annual smoking, exercise, alcohol consumer, and medical care use decisions over a lifetime.

Chapter 4, "What We Know and Don't Know about the Effects of Cost Sharing on the Demand for Medical Care," by Joseph Newhouse and Anna Sinaiko focuses on demand for medical care. Newhouse led the Rand Health Insurance Experiment (HIE) during the 1970s and 1980s. That experiment gathered substantial information about price elasticities of demand for various types of personal health services for

families with different income levels, and separately for children and adults. The study also conducted pioneering research on the effect of health insurance coverage on health outcomes. The HIE started the movement to measure health outcomes—research that has mostly been conducted by noneconomists during the past two decades.

Several important changes identified in the chapter have occurred since the HIE was conducted. Nevertheless, it seems unlikely that another HIE will be conducted soon, since running a randomized experiment with hundreds of families over many years is so costly.

As explained above, two key issues in any insurance market are adverse selection and moral hazard. Chapter 5, “Adverse Selection and Moral Hazard: Implications for Health Insurance Markets,” by Mark Pauly deals with the theory and empirical evidence on both issues. Pauly is widely recognized as the leader in economic research on health insurance.

First, Pauly characterizes ideal insurance to serve as a benchmark for comparing insurance in the presence of moral hazard and adverse selection. He concludes that moral hazard is indeed an important issue. Given moral hazard, there is a rationale for high-deductible plans, such as the typical Health Savings Accounts, but an impediment to the diffusion of such plans is the tax treatment of employer-provided health insurance benefits. These employee benefits are currently excluded from employees’ income for the purposes of the U.S. federal personal income tax. A person paying a marginal tax rate of 25 percent, for example, obtains a twenty-five cents per dollar subsidy on personal health care spending. For this reason, it may make sense for individuals to demand health insurance, which covers highly predictable services, such as annual physical exams or even toothpaste (the latter is not covered in any plan, to our knowledge) rather than more cash income. For high-income families in particular, or even families that confront progressive state and local income taxes, the 35 to 40 percent marginal income tax rate may far exceed the administrative cost of the insurance policy, making complete insurance coverage a good deal.

In contrast to moral hazard, Pauly calls adverse selection a “paper tiger,” more important in theory than in practice. Even if not critical in health insurance, however, adverse selection may be a significant phenomenon in other markets, depending on their specific characteristics.

As discussed above, consumer information is an important issue in health care. Two countries allow the direct-to-consumer advertising of

prescription drugs: the United States and New Zealand. Ernst Berndt and Julie Donohue analyze the economic effects of this form of advertising in chapter 6, "Direct-to-Consumer Advertising in Health Care: An Overview of Economic Issues." Interestingly, before the passage of the U.S. Food and Drug Act in 1906, which established the Food and Drug Administration (FDA) to review the safety—and later also the efficacy—of prescription drugs, direct-to-consumer advertising was prevalent in the United States. Physicians and others were free to advertise their potions and elixirs to the general public. There was a widespread perception that consumers were easily duped by such ads, and would thus spend their money on potentially dangerous and ineffective products. Parallel to the professionalization of medicine, physicians were made the gatekeepers of prescription drugs, and the advertising of drugs by pharmaceutical manufacturers was directed at them, not the general public.

In the late 1990s, the FDA permitted direct-to-consumer advertising in the United States for the first time in the modern era. Such ads remain controversial. Some critics remain skeptical that consumers can adequately process the information in the ads, even given the regulatory restrictions as to ad content. Economists generally are suspicious of advertising that mainly has the effect of reducing the elasticity of the demand curves facing individual firms, thereby increasing the seller's market power to raise price. This is a concern for direct-to-consumer advertising as well. Alternatively, however, such advertising may remind persons with chronic diseases (or chronic diseases yet to be diagnosed) to visit their physicians to discuss the wide variety of available therapies. In that event, such advertising may be welfare increasing. Berndt has conducted a number of highly regarded empirical studies of pharmaceuticals in recent years and is probably the leading economic expert on direct-to-consumer advertising.

The final chapter on demand is "*Reefer Madness, Frank the Tank, or Pretty Woman: To What Extent Do Addictive Behaviors Respond to Incentives?*" by John Cawley. It looks at different kinds of human behavior. As noted previously, economists have long realized that some behaviors, not only medical care, are important inputs in the production of health. Those behaviors are hard to model, and often seem counter to economists' usual assumption that people are rational and forward-looking in their decision making.

There have been attempts to reconcile observed consumption of addictive goods with the assumptions of rationality and forward-

looking behavior. The most notable study, “The Theory of Rational Addiction,” is by Gary Becker and Kevin Murphy (1988). Another attempt is a theoretical study based on the notion that when people first try addictive goods, they do not know whether or not they are addictive types.<sup>7</sup> This is determined after some of the good is consumed. For those who learn that they are addictive types, it is too late, and they are hooked.

Other disciplines, such as social psychology, view addiction quite differently. The field of behavioral economics seeks to bridge the disciplines of economics and psychology, and addiction is proving to be a fertile area for such research. We leave it to readers to determine whether they are more like Frank the Tank or *Pretty Woman*. Interestingly, Cawley entered this field by studying the economics of obesity, which he began exploring as a student at the University of Chicago—a university regarded as seldom sympathetic to the perspectives of behavioral economics.

Chapters 8 through 12 focus on the supply of personal health services. The chronological order of the five chapters reflects a distinction often made in economics between the long run and the short run. In the short run, some factor of production is fixed. In the long run, all factors are variable. On the demand side, health capital is largely fixed in the short run. Among the supply chapters, chapters 8 and 9, which deal with career choice and biomedical research, are long-run oriented. People and firms are deciding whether or not to enter a market. Pricing and output decisions of physicians and hospitals in the remaining chapters are short-run decisions in that exit-entry decisions have already been made.

The decision of whether to become a physician is clearly a choice with personal and financial consequences to be realized over a span of four decades and in some cases more. Few physicians quit medicine entirely for other fields, though they may move to another “market” by changing their specialty, becoming administrators, or working in another region. In chapter 8, “Medical Career Choices and Rates of Return,” Sean Nicholson investigates two related issues. First, are the rates of return on medical education in general and specialty training excessive? And second, do prospective rates of return affect career choices in medicine?

The first concern in particular is an old one. Friedman and Kuznets (1945) investigated this issue some six decades ago, clearly presuming



that a barrier to entry such as a requirement that members of a profession be licensed would result in excess returns to education in the protected field, reflecting the excess supply of medical school applicants.

Actually determining whether or not returns are excessive is quite difficult since entrants are presumably motivated by many factors in deciding on an occupation or a job. For example, unless chefs like heat, they will demand a compensating differential for working in a hot kitchen. If doctors have to put up with bureaucratic managed care, medical malpractice suits, and telephone calls in the middle of the night, presumably their compensation would be higher than for those professionals with comparable investments in their human capital who do not have to put up with such disturbances.

Money may or may not be a powerful incentive in career choices. If it does not matter—that is, medical students decide on a particular specialty just for the love of it—then returns to practitioners just represent economic rents that serve no social purpose. Of course, even if “nonfinancial” factors dominate, economists still have contributions to make in thinking about this because the determinants of career choices is an important empirical issue for students, patients, and policymakers. It is possible that students may be quite rational and forward-looking in making career decisions, but irrational when it comes to the consumption of an addictive substance. One size may not fit all. Much of Nicholson’s work is in labor economics, but he has done important work on the specific topic of his chapter in the recent past.

An entry decision for an existing firm is whether to invest in research and development in a new pharmaceutical product. In chapter 9, “Effects of Incentives on Pharmaceutical Innovation,” Frank Sloan and Chee-Ruey Hsieh discuss the role of incentives in pharmaceutical innovation. Technological change in this field has led to dramatic improvements in population health. Yet there is probably no area in the health field in which the issue of the role of incentives is more controversial.

In one camp are those who view incentives as important. Companies undertake substantial investments in research to find and develop new and better drug products. Absent adequate returns anticipated in advance, companies will not undertake investments, which have potentially significant health benefits.

In the other camp are those who view much pharmaceutical research and development as investments in mostly “me-too” products that

offer little or no therapeutic advantages over existing products, and believe that returns to such innovation are excessive. According to the second camp, certain controls are needed to prevent companies from earning economic rents by introducing new products that lead merely to substantial increases in health expenditures. These controls may take the form of price controls and/or stringent utilization standards.

A critical feature of the pharmaceutical sector is that there is a large initial fixed cost of research and development. Thereafter, the marginal cost of producing and distributing drugs is small. The low marginal cost itself may act to encourage price controls—a particular temptation in countries that generally import, rather than manufacture, drugs. The authors' empirical evidence supports the view that incentives are useful as a stimulus for research and development.

Obviously, "Me-toos" are not limited to drugs. After all, one could say that after the Toyota Prius was introduced, all other hybrid cars were me-toos. Just like a particular drug may be a better match for an individual, given its side effect profile, an alternative to the Prius may better satisfy a given consumer's wants. Perhaps that driver wants to haul material for a garden, or to be able to accelerate from a stoplight faster than most anyone else. Me-tooism is common, and not a unique characteristic of the pharmaceutical industry, though the regulatory authorities in some countries look askance at new brands that seem to replicate existing drugs.

Chapter 10, "Physician Fees and Behavior: Implications for Structuring a Fee Schedule," by Thomas McGuire discusses one of the major controversies in health economics: whether standard models apply to the physician market, or alternatively, whether physicians can and do induce demand for their products. To the extent that they do the latter, observed demand patterns for health reveal less about the satisfaction of patient wants.

After years of disputing this issue, McGuire and Pauly (1991) put an end to much of the controversy, at least within the economics profession, by developing a model that reconciles the two views of the markets for physicians' services. In Chapter 10, McGuire explores these views, but then goes a step further to recommend a pricing system that would be appropriate if induced demand is in fact a key empirical phenomenon. Under the proposed system, a patient's doctor would get a fixed payment per period—say, per month—for being that person's doctor. But in addition, the doctor would be paid less than the marginal cost for the surgical procedure. At least in theory, this approach would

guarantee the patient's adequate access to physicians' services, but would make the doctor a lot less likely to recommend the surgical procedure. Even if the physician were to still recommend the procedure, the doctor would be more likely to frown than to "beam."

Chapter 11 by Brian Golden and Frank Sloan, "Physician Pay for Performance," addresses an issue gaining popularity in the health policy world: namely, paying more to physicians who perform better on some predetermined criteria. There is no open dispute about the principle of paying more for better service. Rather, the controversy is about whether the quality of physician services can be measured sufficiently accurately by an external body so that these incentives can really lead to improvements in patient care without wasting money and creating an environment in which gaming to attain higher payment is likely to occur. As of 2007, the pay-for-performance train had already left the station. Many health care providers are not happy about this, but the push to improve the quality of care and reduce medical errors is sufficient enough that many private and public decision makers are unwilling to wait for conclusive findings from empirical studies.

The chapter not only reviews economic evidence on pay for performance but also synthesizes relevant research findings from the fields of social psychology and sociology. This chapter includes the usual explanations that pay-for-performance systems often produce unanticipated and perverse incentives, yet also identifies the conditions under which pay for performance may be most and least effective.

In chapter 12, "Competition, Information Provision, and Hospital Quality," Gautam Gowrisankaran discusses issues related to the public provision of information about hospital quality. Perhaps in theory, given entry regulation of hospitals, including state licensure, every hospital is "good enough," but that is no longer the perception of health professionals or consumers. Traditionally, patients have largely relied on physicians to make the decision about which hospital is most appropriate for the patient. In recent years, however, at least in the United States, patients are increasingly having a role in this important decision. Hospitals are selected for various reasons, including their proximity to patients' residences, where patients' physicians have admitting privileges, and the physical features of the hospital itself, such as the size and ambience of the hospital rooms. Outcomes are also a factor in choice. Physicians can at least casually observe outcomes of care from a number of admissions to a given hospital, and they can

discuss this with their colleagues. For most patients, by contrast, admission to a hospital is a rather rare event.

To the extent that consumers are substantively involved in the choice of a hospital, there is the issue of how they should make comparisons. At first glance, it would seem that one could simply examine various outcome measures, such as the percentage of patients admitted with a heart attack at the hospital who die during the stay. A problem with such simple comparisons is that some hospitals may have specialized facilities to care for patients with more serious heart attacks or patients with heart attacks who have other coexisting illnesses. If so, the comparisons will be biased. A good hospital may get more patients who are critically ill just because it is a good hospital. To make accurate comparisons, it is essential to adjust for the patient mix—a process called risk adjustment.

Risk adjustment is not a trivial exercise, particularly because certain characteristics of the patient that may be observable to the patient's physician and even to the patient may not be observable to the researcher. Unless risk adjustment is done properly, the dissemination of information on the outcomes of care may be highly misleading.

Chapter 13, by the coeditors, summarizes the other chapters. A substantial amount of research is described in this book. This body of research has important implications for the further development of theory (although no new theoretical findings are reported in this book), the empirical analysis of critical issues relating to individual and firm behavior, and public policy. This chapter's discussion is organized around these three themes.

Thus each chapter is self-contained so readers can explore, in accordance with their interests, how incentive affect the behavior of patients, physicians, hospitals, and other health care providers. The chapters in this book describe the economists' current understanding of many of the individual factors that determine health and health care. Anyone interested in good public policy will be able to use these chapters as the foundation to improve and widen access to health care in this country and elsewhere.

## Notes

1. See, for example, Lopez-Casasnovas et al. (2006).
2. See, in particular, Arrow (1963).

3. Pauly (1997).
4. Mark Pauly (1968) wrote a brief article about the moral hazard resulting from insurance coverage as a comment on Arrow's (1963) article, introducing the concept and its relevance to the field of health economics. Generally brief comments, even to important articles, are not remembered, but Pauly's note is still widely cited today.
5. Rothschild and Stiglitz (1976).
6. Friedman (1953).
7. Suranovic, Goldfarb, and Leonard (1999).

