Prologue: The ratio of physicians to population has increased sharply over the last two decades as a consequence of federal and state policies that have encouraged the education of more medical doctors. But controversy stalks the question over what this increasing supply means to the future configuration of American medical care. In this article, economists Harold Luft and Peter Arno take a different perspective than most of their professional colleagues who have addressed the issue of physician supply. They argue that in today’s rapidly changing health care environment it is not useful to take econometrically based models of physician supply that are based on past experience and project them into the future to determine implications for cost, access, quality, and other health policy issues. While projections of the impact of growing numbers of physicians on the U.S. health care system are needed, Luft and Arno offer some alternative models and scenarios for making these predictions. They argue that a combination of models provides a better starting point for discussions of future implications. Luft, who is professor of health economics at the Institute for Health Policy Studies in the University of California, San Francisco (UCSF) School of Medicine, received his doctorate in economics from Harvard University. He worked at the postdoctoral level at the Harvard Center for Community Health and Medical Care and spent five years as an assistant professor at Stanford before joining UCSF. Arno is assistant professor of health care administration at Baruch College/Mt. Sinai Medical School at City University of New York. He received his doctorate in economics from the New School for Social Research and worked as a Pew Postdoctoral Fellow at the UCSF Institute for Health Policy Studies.
There is little question that the supply of physicians relative to population is increasing in the United States. The consequences of the increasing physician supply are more difficult to predict because there is substantial controversy among health economists about whether conventional marketplace dynamics apply to the analysis of physicians’ services. In normal competitive markets, an increase in supply results in price reductions that, in turn, may induce increased consumption. Empirical studies of the medical care system, however, sometimes contradict these two basic behavioral patterns. Fees were sometimes positively, rather than negatively, related to physician supply; even without price declines, the per capita consumption of medical care also seemed positively related to supply.

To explain this anomalous behavior, two related target-income theories were proposed: the fee control model and the physician-induced demand model. The first suggests that as physicians find themselves with fewer patients, they raise their fees to maintain a desired level of income. The second suggests that as the ratio of patients per physician falls, clinicians create demand by recommending procedures and services that would not otherwise be done, thereby increasing utilization and expenditures per capita. If either or both of these models reasonably describe the medical care market, the increase in physician supply will result in substantial increases in expenditures and/or utilization of services. If more conventional market forces dominate, however, fees will fall and accessibility of services to patients should improve.

In this article, we first review briefly the evidence for and against the various hypotheses surrounding physician supply with a major focus on an institutionalist view of the changes in the organization and financing of medical care. We then offer one of many possible alternative scenarios of the effects of increased physician supply on cost of, utilization of, and access to medical care.

This approach to forecasting is rather controversial; many people prefer to use econometrically based models with a strong empirical foundation. However, one can argue that with the major changes in payment systems currently underway, the past is a poor guide to the future. In this context, we offer these notions to encourage creative thinking about the future of the medical care market rather than as the best way to forecast such changes.

Alternative Models Of The Market For Physicians’ Services

The market for physicians’ services incorporates many features not found in traditional economic markets. The widespread availability of health insurance lowers the net money price, and because physicians offer a service rather than a commodity, the time price associated with
waiting for and transportation to physicians may affect the demand. The free flow of information of classical markets has been severely hampered in medical care until quite recently by restraints on advertising; even without such restrictions, medical care is not an easily described or advertised service. Furthermore, the highly technical aspects of medicine place physicians in a unique dual role as providers of both information and services. In response to these complicating factors, several models of physician markets have been developed over the past two decades. These models, summarized in Exhibit 1, consist of the conventional market model and three types of target income models wherein increases in physician supply result in fee increases, outward shifts in the demand curve to increase utilization, or both.\(^1\)

### Exhibit 1
**Predicted Responses To An Increase In Physicians Per Capita**

<table>
<thead>
<tr>
<th>Impact on</th>
<th>Fee control model only</th>
<th>Induced demand model</th>
<th>Both</th>
<th>Traditional market model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>Increase</td>
<td>Constant or fall</td>
<td>Constant or increase</td>
<td>Fall</td>
</tr>
<tr>
<td>Time prices</td>
<td>Fall</td>
<td>?</td>
<td>?</td>
<td>Fall</td>
</tr>
<tr>
<td>Patient visits per capita</td>
<td>?</td>
<td>increase more than expected via money and time prices</td>
<td>Increase more than expected via money and time prices</td>
<td>Increase via money and time prices</td>
</tr>
<tr>
<td>Revenuc per MD</td>
<td>Constant</td>
<td>Constant</td>
<td>Constant</td>
<td>Fall^b</td>
</tr>
<tr>
<td>Collective physician revenue</td>
<td>Increase</td>
<td>Increase</td>
<td>Increase</td>
<td>Fall^b</td>
</tr>
</tbody>
</table>

^a Usually not discussed  
^b Results depend on price elasticities

**Target income models.** The fee control model suggests that physicians have so much market power that increases in physicians per capita lead to fee increases rather than decreases. The market feature allowing this unusual economic behavior is health insurance, which insulates the patient from the cost of care. Some evidence supports the positive correlation between fees and physician density, but other results are not consistent with this fee increasing hypothesis.\(^2\) This hypothesis is particularly difficult to test because of the wide range of services for which fee data are necessary, the difficulty in controlling for quality of care, and differences in local cost of living and price levels. Moreover, one of the major theoretical issues unanswered by the target income hypothesis is how the target is set. If physicians have such market power, why aren’t...
their fees even higher than they are now?

The supplier-induced demand model argues that increased physician supply leads to a shifting outward of the demand curve. Prices do not fall, but utilization of services per capita increases, thereby allowing total income per physician to remain constant or at least fall less. Again, some find evidence to support this model. One major criticism of the supplier-induced demand model is that it focuses on only one price— the nominal fee level—while ignoring access costs. If increased supply reduces travel time and office waits, the total cost of care has fallen even if fees remain constant.

Empirical tests are clouded by physicians’ ability to reclassify or unbundle services. Thus, a more general target income model posits physicians’ influence over some combination of fees and demand. One major critique of the debate over induced demand is the implicit assumption that the extra services are unnecessary. An alternative view is that few situations in medicine are clear-cut and a broad range of indications are consistent with generally acceptable practice.

If physicians in an area happen to be conservative users of hospitals, a given population will support a relatively small number of surgeons at a target income level. On the other hand, if indications in a locality for surgery are broad, more surgeons can be supported by the same population. Thus, one can observe a positive correlation between physicians per capita and use per capita, but this is the result of variability in indications, rather than supply. If true, it will be impossible to convincingly identify causal influences from cross-sectional data.

Traditional market forces. Support for the traditional role of market forces comes from several types of studies. Time and access costs were not incorporated in early models of fee control or supplier-induced demand. When examined, nonmoney prices have been shown to have fallen, so fee rigidity and increased utilization are not sufficient evidence to reject the notion of classic market forces. Similarly, there is evidence that physicians are increasingly locating in rural areas. Also, the real income of physicians remained constant during the 1970s again belying unfettered market power.

Trends Related To Physician Supply

While the ratio of physicians per capita has increased markedly since 1970, the impact of this increase is not necessarily what would be predicted by any of the “pure models.” In spite of the increase in available physicians, both the physician services index of the consumer price index and the mean fee per office visit for a new patient rose by 8.9–9.0 percent per year during the period 1970–82 in contrast to 8.2 percent for the general level of inflation. On the other hand, while
Physician visits per capita rose from 4.6 to 5.0 between 1970 and 1973, there was a slight downward trend thereafter suggesting limits to simple demand creation. While patient visits per week fell at an annual rate of 1.1 percent, the number of hours worked per week declined only slightly.

Overall, mean net income from medical practice rose 7.4 percent per year, less than the inflation rate of 8.2 percent, but more than earnings of all private nonagricultural workers. Finally, the proportion of the population not seeing a physician in the preceding twelve months fell from about 27.6 percent to 25.1 percent and both the wait for appointments and in physicians’ offices fell somewhat.

The increased supply of physicians has not resulted in extensive price competition, and while the time price for care may have fallen, this is not reflected in conventional price indices or budgets. Crude measures of visits per capita show essentially no change. Instead, the relatively stable real incomes of physicians seem due to a combination of higher fees, more services, and more expensive services per unit. Thus, the evidence can be interpreted as supporting each of the competing hypotheses.

The Market For Physicians’ Services

One explanation for the conflicting empirical results is that the market for physicians’ services is far more complex than the relatively simple models suggest. Each model may reflect different components of this complex market, and some segments of the market may be much more price-sensitive than others.

Primary care physicians and the doctor-patient relationship. Physicians are differentiated in many ways, of which specialty is the most obvious. At the specialty and subspecialty level, the need for many providers in a market area is often not met. However, primary care physicians are usually available in sufficiently large numbers to meet the assumption of a competitive market—if they provide interchangeable services.

Primary care physicians actually perform a complex range of services, some of which are quite routine. However, they are also the providers who diagnose, and sometimes treat, problems whose cause and cure are not obvious to the patient. Regardless of whether the problem is truly life-threatening, the patient may fear that an incorrect diagnosis, treatment, or referral could have substantial deleterious effects. Thus, patients may well value longstanding relationships with primary care physicians to develop a sense of trust.

A second feature of the physician market is its complex system of referral patterns, which may reflect perceptions of expertise and quality. While the mechanics of the referral process are not well understood,
since the primary care physician is not responsible for the fees charged by
the specialist, price is unlikely to be a consideration.

The role of health insurance. Some argue that insurance eliminates
the price sensitivity required for markets to work; others argue that
copayments are sufficient. In fact, both sides are correct in different
settings. Most conventional health insurance coverage is composed of a
deductible, often $100–200 per year, followed by a range of expenditures
in which the consumer is liable for some coinsurance, usually 20 percent.
Beyond a certain stop loss point—often $1,000 in out-of-pocket expense
—percent coverage for eligible expenses becomes available.

About a quarter of the population has no physician visits within the
year, and over half have only one to four visits. Thus, about three-
quarters of the population in any given year probably has most of its
medical care interactions in visits within the insurance deductible. These
people are directly bearing much of their medical costs and may meet the
requirements of competitive models. At the other end of the spectrum
is the small number of people who consume large amounts of medical
care. Some have chronic conditions such as arthritis that require ongoing
management. In other cases, major interventions are required for acute illneses. In general, the cost of such interventions quickly rises beyond
the deductible into the range where the patient pays very little of the
cost. Furthermore, treatment is often provided by a specialist with whom
the patient has little prior experience.

Combining discussions of referral networks with patterns of insurance
coverage suggests some traditional market discipline with respect to
routine office visit prices. Even then, the infrequency of purchase and
the importance of a trusting relationship suggest that price sensitivity will
be limited. For specialty services, insurance reduces price sensitivity even
further.

Changes In The Medical Care Market

While it is too early to know the effects of all the changes currently
taking place in the medical care system, several things may seriously
disrupt the existing referral and pricing system. The most obvious is an
increased emphasis on cost containment in contrast to expanding access,
which affects both the public’s and the provider’s views of acceptable behavior. In turn, there are strong pressures to alter existing referral
patterns. Finally, the development of new information technologies
makes changes more feasible.

Changes in the financing environment. Until the early 1980s, the
medical care system in the United States was a system without budget
constraints. Particularly in hospital care, there was little price sensitivity
and almost no incentive to reduce inputs. The Medicare program now
uses a fixed price per admission and some states have converted their Medicaid programs to fixed prices per patient day. Simultaneously, many employers have raised copayments and deductibles, and imposed other constraints.

Remarkable changes have occurred in hospital use since 1983. Admissions and length-of-stay have fallen dramatically. It is difficult to believe that the new Medicare incentives directly account for this—only 25 percent of Medicare payments to hospitals in the first year were subject to prospective payment. Furthermore, Medicare rewards admissions, yet their increasing trend stopped in 1983 and has now turned downward for the over-sixty-five population. For those under sixty-five, the changes are much more dramatic. One explanation for these findings is that the announcement of prospective payment led physicians to accept the idea that less, rather than more, is desirable. If one believes that the wide variations in practice patterns are based on little other than habit, then perceptions may be very powerful.

Prospective payment under Medicare affects hospitals directly, but hospitals have control only over costs per unit of service, such as radiological film, while physicians are responsible for ordering the services. Thus, hospitals have begun to identify those physicians who keep their patients in the hospital longer, or who order more ancillary services. In the past, sophisticated hospital administrators knew who were the “heavy hitters”—physicians who ordered a large fraction of the admissions. Under prospective payment, however, the need is for accurate data on the true costs and revenues associated with those admissions. The change in financing arrangements for hospitals is probably only beginning. One can anticipate the incorporation of some inpatient physician fees into a form of diagnosis-related groups (DRGs) with implications for the physician referral system, which will be discussed later.

Private health insurance has also begun to focus on much more aggressive cost-containment efforts. The proportion of major employers who raised the deductibles paid by their employees has increased markedly in recent years. Some employers are also providing information directly to their employees on price differences among physicians and hospitals in an effort to encourage more prudent purchasing.

Changes in perceptions. There seems to be a much greater acceptance of the perspective that reductions in medical care utilization may be achieved with little adverse effect on health status or that those who would be affected, such as the terminally ill, would not benefit much from increased services. (Note, the reality may actually be quite different.) While the public is not yet ready to severely ration medical care, its confidence in medicine has fallen dramatically since the mid-1960s, and it seems quite willing to impose various constraints on providers. More importantly, some of the crucial actors in the system are beginning to
implement changes in response to these perceptions.

Various insurers now require second opinions in advance of selected surgical procedures. Others require preauthorization of hospital admissions and concurrent review of inpatient care. While the effectiveness of such programs is not entirely clear, the lack of organized outcry by physicians is remarkable.

Perhaps even more remarkable has been physicians’ willingness in some areas to become involved in new market arrangements. In California, approximately 25 percent of physicians indicated ties to a prepaid program such as a health maintenance organization (HMO). Other physicians have been instrumental in establishing preferred provider organizations (PPOs) that are designed to contain cost and utilization through traditional review mechanisms, fee constraints, and more importantly, the channeling of patients to cost-effective providers.

**Shifting referral patterns.** New delivery systems are posing a severe threat to the traditional system of referrals. HMOs attract enrollees through lower medical care and insurance costs. They also withdraw patients from the open fee-for-service market more than they attract physicians from the pool of providers. Many of the newer HMOs are not yet large enough within local markets to have a full range of specialists on site. Instead, they contract with selected specialists and, because the HMO is responsible for the costs of specialty care, fees and utilization patterns are important factors in their choice of specialists. Furthermore, the balance of power is very different from the past, when specialists received referrals from a large number of independent primary care physicians, each accounting for a small fraction of the patient load. In contrast, the specialists selected by an HMO will find that a substantial fraction of referrals are controlled by a few decisionmakers.

PPOs also alter patient referral patterns by selecting primary care providers who serve as gatekeepers, and by restricting the list of specialists. Thus, one effect of PPOs will be to increase the relative power of primary care physicians vis-a-vis specialists. Second, PPOs will have to develop better information on relative costs and outcomes to justify their choices of specialists. This may lead to new and more objective criteria for referral patterns.

At the same time that referral patterns are under attack by HMOs and PPOs, disruptions are occurring within the open fee-for-service system. There has been a rapid growth of urgent care centers and similar primary care settings that compete with both hospital emergency rooms and independent physicians for minor acute care. These centers offer episodic treatment with easy access through extended hours, convenient locations, and aggressive advertising. Some are sponsored by local hospitals to expand the sources of inpatients and replace independent primary physicians as sources for referrals. Primary care physicians have recog
nized the threat and many are expanding their office hours, enhancing telephone consultation, and otherwise improving access while emphasizing continuity of care. Changing information technology. Economic analyses of the medical care market often cite the lack of price information as a barrier to efficient market processes, and professional opposition to advertising is portrayed as the culprit. Supreme Court rulings have removed the legal barriers to advertising, but, in contrast to dentistry and optometry, there has been relatively little price competition in medical services. The explanation may be the complex bundle of services received by patients, so that the total package of care including return visits, lab tests, and surgical procedures is more important than the price per unit. Because of the great uncertainty in each case and the historical separation of hospital and physician costs, physicians rarely use comprehensive pricing and instead use the contractor’s equivalent of time and materials pricing. (One should note, however, that surgical fees traditionally incorporate all associated pre- and post-operative visits.) While the risk associated with variability in patient costs is too great for individual physicians to accept, insurers and groups can use the law of large numbers to reduce the aggregate risk. In doing so, they will want to examine the total costs associated with individual physicians’ practice patterns.

In the past, the only way one could examine practice patterns was to review medical records by hand, and records would generally not include cost data or charges associated with referrals. The development of large-scale claims files for patients with detailed diagnosis and procedure codes, as well as the sharp fall in computing costs, is beginning to make the development of practice pattern profiles feasible. While the initial focus has been on inpatient care—and this is strongly encouraged by DRG-based prospective payment—it will not be long before physician practice profiles for selected diagnoses will include ambulatory care, and, eventually, population-based utilization and expenditure rates. With such data in hand, insurers will be better able to select cost-effective practitioners. At the same time, clinical studies using outcome measures will be able to test whether more aggressive treatment results in any improvement in outcomes. If it can be demonstrated that substantial reductions in utilization can be achieved at little risk, the pressures to do so will be enormous.

| Projecting The Future |

The original question we faced was: “What is the likely impact of the increasing supply of physicians on cost, utilization, and access?” To address this question, one must first decide whether the experience of the past is a reasonable predictor of the future. If the underlying
structural relationships among actors in the economy remains the same, then a well-specified and estimated model of past experience may provide fairly accurate predictions of the future. In the case of the physician market, one is faced with a choice between a classical market model and the target income hypotheses with markedly different predictions. Recent empirical studies seem to offer more support to the role of market forces; rather than arguing that the market for physicians’ services closely approximates the classic model, we find that a combination of models seems more realistic.

The preceding discussion of the characteristics of the physician market suggests that the experience of the last two decades will not directly predict the future, and simple econometric modeling of the past will not be very useful. Instead, one may try to describe alternative scenarios based upon observed and expected changes in the system. While the development and evaluation of such scenarios is well beyond the scope of this article, we will offer one that seems plausible to serve as a starting point for future discussion.

We begin with a few underlying assumptions: (1) The pressure for cost containment by public and private payers will continue; (2) The ratio of physicians per capita will continue to increase, at least through the end of the century; and (3) No major technological breakthroughs, such as an anticancer vaccine, are forthcoming. Our time horizon will focus on the short and intermediate range, between now and the year 2000. A fifteen-year time horizon is short enough so that the stock of physicians is unlikely to be altered significantly by even rapid changes in medical education policy, given the length of the training pipeline and the speed with which universities change.

For the next few years, it is reasonable to expect that major cost-containing structural changes will focus on inpatient care. This is not to preclude freezes in physician fees, which may lead to responses similar to those seen during the Economic Stabilization Program when inflation continued via recoding and unbundling of charges. Such moves and countermoves, however, are not of fundamental importance except as they educate professionals and policymakers about potential strategies. Although the DRG system may be modified and enhanced, it is unlikely that Medicare will return to a cost-based reimbursement system.

The current conflicting incentives created by prospective payment for hospital care and fees for professional services are not likely to be tolerated for long. Surgeons are already fairly accustomed to receiving a lump sum per procedure, so a DRG-based fee is not too large a step; for medical specialists, however, the change would be substantial. There are several ways in which inpatient professional costs could be incorporated in a per admission fee, with markedly different implications for physician relationships. One version would incorporate the hospital and
professional components into a single lump sum. This would provide the strongest incentives to reduce hospital costs. Of course, the power relationships will be influenced by whether the lump sum is given to the hospital, which then pays the physician; the physician, who pays the hospital; or a third group, such as the medical staff, which then pays both the hospital and specific physicians.

A second version would keep hospital and physician payments separate, but that, too, will represent an important change. Consider the effect of even a minimal change, such as expanding the surgeon’s fee to include other professionals involved in the case. The surgeon would then be not only the medical leader of the team, but would be in the role of prime contractor, with the anesthesiologist, surgical assistants, and medical consultants as subcontractors.

The short-run focus on prospective payment for hospital care will tend to reduce hospital stays and the use of ancillary services, but it includes incentives to increase, or at least not reduce, hospital admission rates. Some of the recent drop in admissions may merely reflect a shift to outpatient surgery, which does not reduce costs proportionate to its impact on admissions. Thus, the next stop is likely to be to prospective payment per enrollee, either through HMOs, PPOs, or other competing delivery systems. Enrollees will be attracted to such systems through offers of comprehensive coverage at lower total costs, and competitive pressures will force the systems to attract cost-effective providers. (This is not to suggest that such a competitive system, which is similar to that outlined by Enthoven in 1978, will necessarily work well.)

A change in the focus to cost per capita or per enrollee, rather than per admission, will shift the locus of control to the primary care physician, who will be given gatekeeper authority with the mandate to reduce expenditures for specialists and inpatient care. Then, the referral physicians are likely to be analogous to major subcontractors in the building trades. Some subspecialists, particularly those who provide high-quality care in a cost-effective way, are likely to be very busy and maintain high incomes. Others will be forced to leave the field because most subspecialists are already underutilized and the total volume of specialty services is likely to fall still further. Furthermore, with low volumes proficiency may fall and malpractice costs may rise. Thus, the expanding physician supply, especially in specialty fields, will be exacerbated by cost-containment pressures. However, unlike an open-ended reimbursement system, the prospective cost-containment models will constrain both fees and the indications for hospitalization. Some specialists may continue their migration to areas with less supply, but primary care physicians in such areas may find that lower-cost and higher-quality services can be obtained through referrals to high-volume urban settings.
While the various delivery systems will initially be competing largely on the basis of total costs, once costs are similar, the HMO experience suggests that accessibility and style of practice become important factors in enrollee choice. It is likely that office hours will be extended, telephone consultation expanded, and waiting times shortened. One may even see the return of house calls for the bedridden as an alternative to hospitalization. While there may be increased use of nurses and other nonphysician personnel, substitution may be minimized because the general surplus of physicians will force down their wages.

**Uncertainties in the scenario.** There are several major uncertainties in this scenario. Among these are the market behavior of capitated plans, the handling of uncompensated care, and medical malpractice. As will be seen, each could result in a crisis that gets played out in the political arena, making it much more difficult to predict outcomes.

The preceding discussion assumes that the various capitated and other delivery systems compete on the basis of relative efficiency, offering tradeoffs between alternative mechanisms to contain costs and perhaps differences in access and style, but in some sense the competitive behavior is fair. That is, plans do not aggressively attempt to attract low-risk enrollees or disenroll those of high risk. Similarly, we were assuming there is no substantial involvement of fly-by-night operators in the market. However, if the market is not orderly, if fraud, abuse, and deceptive marketing schemes are uncovered, then there is a strong potential for scandal with an uncertain political reaction. The experience of the prepaid health plans in California in the early 1970s provides a noteworthy example of how an unfettered market strategy could erupt in the local press and legislative hearings resulting in a regulatory backlash.

As various payers, both public and private, move towards prospective payment at negotiated or competitive rates, hospitals and other providers will find it increasingly difficult to care for those without insurance. Some providers may turn away such patients, while others will find themselves with an increasing proportion of such patients. Again there may be a strong political reaction, the outcome of which is difficult to predict. For example, one scenario might be that the large public health systems in areas such as Los Angeles, New York, San Francisco, and Chicago decide to run fully integrated delivery systems, including primary care physicians on salary or capitation. However, the prospect of being frozen out of the Medicaid market may lead independent physicians, and possibly hospitals, to support internal taxes on providers or systems so all payers pay a proportionate share of the costs of uncompensated care. Given the local nature of many of these problems, states are likely to develop different approaches. If they do not, pressures might develop for a federally supported voucher system.

The issue of malpractice is increasingly raised as a problem by physi-
cians—the question here is how it may influence our scenario. On one hand, suits may be brought by patients claiming that the new cost-containing delivery systems result in undertreatment and thus adverse outcomes. Malpractice insurers may then raise their rates for physicians participating in plans such as PPOs or may refuse to cover such physicians. Simultaneously, the breakdown of existing referral relationships may make it easier to elicit damaging testimony from local practitioners.

On the other hand, alternative delivery systems may be able to use the malpractice crisis to their advantage. Many HMOs already self-insure, thus reducing the individual practitioner’s concerns about coverage. Furthermore, if internal peer review and monitoring systems are effective, the incidence of errors should be reduced, thereby lowering the plan’s costs. Simultaneously, some delivery systems might try to split apart claims for negligence—or true malpractice—from adverse outcomes given standard treatment. This might be done through a separate insurance policy covering future medical and disability costs similar to workers compensation. The intent would be to reduce the adversarial aspect of malpractice claims while recognizing that the patient should not necessarily bear the full costs of adverse outcomes.

**Conclusion**

In the last several years, there has been increasing empirical support for the notion that physician services are affected by market forces. Nonetheless, one should not view the alternative hypotheses as being mutually exclusive. There is probably some supplier-induced demand, or at least a broadening of indications for treatment, as well as discretion in fee setting, even if market forces are also in operation.

If the behavioral relations of the past remain intact, we need only choose the most appropriate among the existing econometric models to provide fairly precise estimates of the impact of increased physician supply. Various changes in the financing of medical care, perceptions, referral patterns, and information technology, however, suggest that new behavioral relationships will be coming into play. The problem is that it is impossible to know precisely how the modified system will work.

There are major sources of uncertainty even in the scenario of the future we presented. If the scenario is reasonably accurate, it suggests that the physician surplus will be even more extreme than anticipated, utilization of referral and specialty care will fall markedly relative to present trends, access may improve, costs will be lower, and aggregate physician incomes will fall. However, a pessimist might note that since the outcomes of such a scenario are so painful to providers, it is extremely unlikely to play out in this fashion.

Others may put forward alternative scenarios of the future, keeping in
mind certain givens about the ratios of physicians per capita, demo-
graphic changes, and the like. The potential impact of various policy options can then be examined, and predictions be made as to their likely effects. To give a sense of how rapidly the situation can change, if we had been asked three years ago to predict the impact of the increasing supply of physicians, assuming no changes in the open-ended cost-based reimbursement system, the most likely answer would have been rapidly increasing expenditures, more utilization, improved access, and higher fees. Today the predictions are markedly different, yet the only substantive change is in policies toward reimbursement. Thus, discussions of the future must be sensitive to similarly far-reaching changes in policy parameters.

A more extensive version of this paper was presented at a Symposium on “Providing and Paying for Medical Education: Past Present and Future” at Vanderbilt University, May 3-4, 1985. We are indebted to Robert Hughes, Deborah Gamick, John Iglehart, and Frank Sloan for helpful comments. This research was supported, in part, by a grant from the Pew Memorial Trust, and support for Vanderbilt for the symposium was provided by the HCA Foundation.
NOTES


4. Wilensky and Rossiter, “Relative Importance of Physician-Induced Demand.”

5. See the papers on variations in medical practice, *Health Affairs* (Summer 1984).


