Should We Be Worried About High Real Medical Spending Growth In The United States?

An economist’s view of what to worry about—and what not to worry about—in understanding health spending growth.

by Mark V. Pauly

ABSTRACT: This paper argues that increases in medical spending growth are not necessarily causes for alarm or reasons for strong action. Especially in the private sector, increases in employers’ payments for benefits should often be offset with smaller raises; whether employees’ cost shares should be increased depends on a comparison of benefits and costs. Problems are more severe for public-sector spending, for the uninsured, and for those responding to distorted incentives.

Medical care spending growth has recently begun running further ahead of inflation, population growth, and growth in gross domestic product (GDP), resuming a pattern that was interrupted in the mid-1990s. Does this represent a phenomenon worth worrying about? To an economist, optimal worrying is concern about a problem that has a feasible solution; as Frank Knight, a distinguished Chicago economist, once said, “Calling a situation hopeless is equivalent to calling it ideal.” Is the situation of rising medical spending improvable—either in theory or, if improvable in theory, in practice, using things we know we can do?

So should we optimally worry, and, if so, about what? By “we” I mean both employers, who arrange the insurance that finances most private medical spending, and policymakers, who represent both the general public and government. In this paper I first attempt to debunk the uninformed obvious: It is not correct to say that the current relatively high levels of medical spending growth are necessarily a concern. It is also not correct to say that they are necessarily a function of a benevolent invisible hand and therefore of no concern. Whether we should engage in productive worrying (as usual in economics) all depends. I outline those cases about which (if they correspond to reality) we need not worry and those cases about which we (or at least some of us) should. The second batch is more challenging, since (as noted) defining something as a problem means that one must

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have a solution in mind, and we tend to get less agreement on solutions than on problems. I close with suggestions of how to minimize the amount of unproductive worrying when it comes to medical care spending.

The Irrational Extremes: ‘The Economy Can’t Stand It’ Versus ‘Don’t Worry, Be Happy’

The touchstone for economic evaluation of any change is a comparison of additional or marginal benefits from the change with its marginal cost. We know that rising medical spending represents in large part the use of more inputs (generally to produce either more quantity or more quality) applied to production in this sector. I assume, because it seems so obviously true, that these additional inputs, on balance, did some good for health and welfare. Once that assumption is granted, it is easy to see that there is nothing necessarily undesirable about having more resources flow into the health care sector, because they do some good. The key question is a quantitative, not a qualitative, one: Was the benefit (even if positive) greater than the cost?

At the macroeconomic level, higher health spending can be caused either by the use of more resources or by higher prices or incomes for the owners of those resources. This information matters, for a paradoxical reason. New resource inflows into medical services have always been positive but have waxed and waned in total and relative to price or profit increases. If the cause of high spending growth is largely higher prices or incomes for suppliers, with no change in the use of real productive resources, the macroeconomic effect is only a transfer. Since foreign owners are rare in this sector, these are almost entirely transfers among Americans: from those who are primarily medical care consumers, who ultimately pay even for “employer-paid” health care, to input suppliers. One American’s rising medical spending is another American’s rising income. In recent years the most prominent members of the net beneficiary class have been registered nurses (in “shortage”) and those who own stock in pharmaceutical firms. Of course, the losers appropriately worry and the gainers celebrate, but there is in this case no unequivocal case for worry from a public policy perspective; it depends in large part on who we think deserves to gain or lose.

The medical care sector has also been a source of real employment growth (as well as higher wages), and the growth rate in this quantity appears to be accelerating again. Is it desirable for the economy to create these kinds of jobs and pay well for them? The answer depends on whether the value of what new people do in the medical services sector is larger or smaller than the value they could have created elsewhere in the economy. My assumption/assertion above about rising benefits probably means that at least some of this new employment was efficient; the problem is that without confidence that the system for demanding or valuing the output of this sector is behaving properly, we don’t know whether every last worker generates benefits greater than opportunity cost.
This nihilistic conclusion also points to the other error of extremes: If we don’t know that new care was worth less than its true cost, we also don’t know that it was worth more. We can line up the usual market imperfections as suspects for the failure of markets: imperfect information, moral hazard in insurance, taxes and regulation, and public goods in the form of externalities from care and benefits from research and development. But we do not know whether these deviations from theoretical perfection mean that there are feasible correctives to be implemented. We do not even know whether, if present, they would cause the growth of real spending to be too high or too low.4

The upsetting conclusion is again that theory cannot be used to provide cheap answers. We will have to deal either with direct measures of value or with analyzing the process by which decisions are made and resources deployed.

**Why Not To Worry**

- **We’ve seen this before.** Let us move from sublime but not very useful theory to direct empirical evidence bearing on the impact on the economy. Extrapolating current spending and GDP trends implies that medical care could eventually be the beast that ate the economy. Will this happen? One reason to say that it won’t is based on noting that we have seen situations of rapidly rising spending several times before, and life went on, even getting better for most of us. The long-term trend in real growth of medical spending per capita going back to the mid-1960s is about 4 percent. There have been several periods, less lengthy than the period 1994–1997, in which spending growth fell below the trend. These were all followed by a swing of the pendulum in the opposite direction, before the growth rate settled down to vibrating in a narrower range about the trend. More generally, rates of growth of medical spending display considerable variation, so that a one- or two-year “blip” does not necessarily or even usually mean a change in trend.

What we are starting to see now looks somewhat like the surges above trend that followed periods below trend that we have seen in the past. Exhibit 1 shows the rates of growth in real medical spending per capita over several decades; it clearly illustrates the oscillating character of this time series.

Our experience since 1994 is perhaps slightly different because the low growth lasted longer than before and was less directly attributable, in either initiation or end, to public policy influences. Still, both the failed Clinton health reform effort and the managed care backlash must have had something to do with what happened. The actual data for 2002 are not yet in, but they probably will show a real growth rate well above the trend. In addition to the usual “rebound” factor, these years have seen a coincidence of a higher rate of introduction of good but high-price drugs (relative to the number going off patent), a return to the “profit” part of the insurance underwriting cycle, and resistance from and retaliation by beleaguered providers who had previously engaged in substantial price discounting. All of these factors appear to be temporary, so that the most reasonable forecast is
that high growth will eventually tail off and the growth rate will eventually return to (or even fall below) the average yet again. That may, however, be small consolation now.

We also have to put the medical care GDP share in perspective, as one of the most nonsensical statistics ever collected. For one thing, changes in its level depend on both the growth in GDP and on consumers’ tastes for other items of consumption, so it fluctuates widely for reasons having nothing to do with health care. For another thing, both the medical care sector and the entire services sector of which it is a part have been growing as a share of GDP since the nineteenth century, helped by and probably caused by improving productivity in agriculture and manufacturing—which obligingly shrinks other spending to accommodate medical spending and leads to the higher real income that people may disproportionately prefer to spend on medical care rather than on root vegetables. There is no “natural” limit to the GDP share; all that matters is whether the value of medical spending at the margin is higher or lower than the other spending that it displaces.

It’s technology, stupid. In the aggregate, higher spending is probably worth it. The evidence strongly suggests that some of the improvement in health outcomes and life expectancy in the United States has been attributable to the use of more and more-expensive medical goods and services. Based on the work of David Cutler, Mark McClellan, and Joseph Newhouse, this seems to be especially true for treatment of heart and circulatory ailments. Reasonable estimates of the dollar value of such health improvements greatly exceed the dollar increase in spending on treat-
“Higher patient cost sharing is a way to reduce spending without inviting a managed care enforcer.”

ment. However, this conclusion does not hold for all items of increased spending or all diseases; probably some of the increased spending produced benefits that were positive but worth less than their cost. Perhaps we could have had lower spending growth at the cost of only moderate reductions in health gains. There is no documentation of which I am aware that suggests that identifiable additional spending has had zero effect, that it was totally useless. That is, although there surely is waste in the medical care sector, there is no evidence that it is getting worse over time. More on this later.

- **Rising employer costs are not a problem once we get used to them.** The loudest (although not necessarily the most consistent) recent complaints about rising medical care spending have come from employers, which pay part of their worker compensation in the form of medical benefits. In contrast, although out-of-pocket payers and the government have lamented “inflation,” they have done so more quietly. Some of this employer complaint is yet additional evidence (if more was needed) that many employers do not know what they are doing when it comes to choosing and financing medical benefits. They must think that higher spending for health benefits falls straight to the bottom line, whereas (in both theory and practice) such increases should be and are largely paid for by workers who receive lower money raises, and they have few real consequences for total compensation cost. To be sure, any employer's life would be easier and happier if medical benefits costs did not rise and thus require giving employees news about smaller raises, but the strong employer reaction to “meltdowns” in health benefits seems disproportionate to a modest rough spot in employee relations or collective bargaining. Higher benefit spending growth does mean that employers will think harder about what to do but not necessarily that there is something that could or should be done.

An employer's more legitimate worry comes in part from the observation that the wage offset is neither perfect, instantaneous, predictable, nor self-adjusting. Longer-term union contracts may also constrain wage adjustments, as would the minimum wage for those (few) employers providing benefits to people at that wage level. Also, observing that your benefit costs rose 13 percent is much less of a problem if all other employers you compete with for labor are experiencing the same thing, but how do you know? It can never hurt to have your benefit costs grow more slowly for the same benefits. And if some of your (lower-wage) workers can go to other firms not offering benefits and take a chance on not needing care or getting free care, that option's cost never inflates, so your firm is at a greater disadvantage the more that cost increases.

The conclusion is that employers do need to work (if not worry) when benefit costs change, both by scanning the competition in the labor market and by search-
ing the horizon for new ways of offering benefits that do more good than harm. However, they should have been doing both of these tasks even if benefit costs were not rising, and the fact of above-average increases per se does not mean that there is necessarily a new solution waiting to be discovered that was somehow overlooked in the past.

Employers have largely reacted to rising premiums in ways that are easy to understand but (some of them) hard to appreciate. The benefits department tries to “shift the cost” back to workers in the form of higher cost sharing or premium sharing, not realizing how hard that will make the task of the compensation department. (Of course, higher patient cost sharing is a way to reduce spending, although not necessarily to hinder its growth, that does not require inviting a managed care enforcer, and employers should explore such alternatives—not because employers cannot “afford” higher costs, but rather because employees may prefer to assume some out-of-pocket risk to reduce total spending and increase their take-home pay.) Firms with below-average (for their market) employee premium shares argue that they can no longer be so “generous,” even provoking strikes on that account, rather than just adjusting future wages. And, as has been the case for decades, benefit managers decide that there must be enough waste, fraud, and abuse in the way the insurance and medical services sectors run their business that these spending increases (largely, as noted, attributable to beneficial new technology) can be avoided by better bargaining, better searching, or offering gratuitous advice to suppliers on how to manage. There must be a relatively painless (for them) solution, employers believe; the eternal quest to find this Holy Grail is likely to be as unproductive in the future as it has been in the past (unless you count managed care as productive, which I would, but many would not).

Given the near-spectacular increases in worker productivity recently, it may be appropriate to put a moratorium, or at least a brake, on frantic short-run employer efforts to “do something” and let wage increases slip a little to still decent and acceptable levels—at least until one can decide whether alternatives, like some versions of defined contribution, information on outcomes, or cost-reducing quality initiatives, do more good than harm. This will also permit one to see if the current double-digit increase for “outside” (non-self-insured) coverage is just a stretched-out version of the premium cycle, rather than a change in which there will be no tomorrow.

Why To Worry

Having argued that some of the “problem” is not as bad as it seems, in the interest of being a two-handed economist, I now suggest some situations in which rising spending unequivocally does cause problems. I defer to the next section a discussion of whether solutions exist for these problems.

- Excess burden of taxation. Government-financed medical care and tax-subsidized medical insurance are more adversely affected by rising spending than
was the case in the previous simple economic model of consumers (or employers on their behalf) buying health insurance or health care at prices paid at the point of service in the market. In the private market case, if you want the service, you must pay; the cost is limited to whatever you must extract from your wallet, bank account, or paycheck. When government buys medical insurance (as it does for nearly half of the market, measured in dollars), it does not ask for voluntary payments. Instead, it uses taxes (or sometimes government borrowing financed eventually by taxes).

The problem with most taxes is that people pursue various ways of reducing them: by working less, by driving less, by adjusting asset holdings, or by taking income in untaxed ways. But when everyone does this, tax rates have to be raised further to collect the same revenues; the only lasting effect is the distortion in behavior. This distortion has a cost; brave economists who have estimated it argue that it can be 30 percent or more of revenues collected (depending on the type of tax used).8

When the amount that government must pay (or cannot avoid paying) for Medicare and Medicaid rises more rapidly, that potentially raises questions of either additional excess burden (if taxes will increase) or displacement of other government spending. If the other spending actually provided larger net public benefits than does Medicare or Medicaid spending, its displacement represents another kind of excess burden. The point then is that, relatively speaking, rising spending is more of a problem for the public sector than for the private sector. The difficulty the political process has in budgeting and raising or rearranging taxes and expenditures adds to this problem.

This problem also affects almost everyone else in the country who gets public insurance but pays for it through the tax loophole embodied in the tax exclusion for employment-based health insurance premiums. The higher the premium grows, the larger the value of the tax exclusion and therefore the larger the erosion of the income and payroll tax bases. But if tax rates are increased to make up for this loss, excess burden gets a separate and additional boost.

Intergenerational warfare. Even if government could collect payments for Medicare in a nondistortive way, the pay-as-you-go character of much of its funding means that today's young will largely pay for the benefits of today's growing number of near-elderly. Higher Medicare costs mean that this transfer will be more onerous, and such a burden seems likely to provoke political dismay and very likely costs (if only for further study) associated with worse-than-expected outcomes.9

Stimulus to the uninsured. There are too many uninsured Americans, and the number seems difficult to reduce even in periods of high prosperity and low growth in medical spending.10 The evidence is reasonably conclusive that rising medical spending and premiums (along with more slowly growing money income, the one perhaps being a partial cause of the other) somehow causes more people (mostly lower-income but not poor) to become uninsured.11

The consequences of uninsurance are thought to be adverse and severe. People
are uninsured in part because of the availability of charity care, but cutting that safety net would be even worse. Some kind of insurance subsidy to lower-income workers might be a rational solution. The point here, however, is that a period of rising insurance costs puts even that subsidy on an inflationary treadmill. So we have a real problem, and dedication will be required to cure it.

- More moral hazard than we need. Health insurance makes expensive services look cheap to patients and more profitable to providers.\(^\text{12}\) As a result, middle-class people who are well insured consume more and more-expensive services than if they were less well insured.\(^\text{13}\) For poor people, this stimulus to use (up to a point) satisfies social goals, but for the nonpoor majority, this insurance-induced use, which costs more than it is worth, is called “moral hazard.” Other things equal, it would be desirable to reduce moral hazard, by either demand-side devices like cost sharing or supply-side devices like managed care.

The idea that there is moral hazard in health insurance (and in most of the rest of life) is well known.\(^\text{14}\) One less obvious but important point is that in reality there is an optimal amount of moral hazard. It is an undesirable side effect of something people properly desire: protection against risk. Like ants at a picnic, it is something that must be tolerated to get something we prefer. True inefficiency, in this imperfect world, occurs either when moral hazard is larger than it needs to be (for a given level of insurance coverage) or when moral hazard–inducing insurance is stimulated beyond its optimal level. We know that the tax exclusion does the latter.\(^\text{15}\) For the former, legions of consultants armed with benefit redesigns, medical protocols, or disease management ideas promise to deliver if only they are paid up front.

Another sometimes overlooked point is that the existence of moral hazard logically implies only that increases in insurance will cause increases in spending, not necessarily that merely high but stable levels of coverage need do so. In a fully static world, high but stable levels of coverage would lead to high but stable levels of spending. The corollary is that things that reduce moral hazard, such as managed care and patient cost sharing, tend to lower spending growth rates as they are being phased in but cease to have an effect once they are extended to almost everyone. This is the most credible explanation for why managed care “lost its magic” by 1998. In that case as elsewhere, it is far from obvious that devices that are effective for “cost containment” as they are introduced can retain any of that effectiveness in dealing with the twin stimuli for spending growth: new price increases and new technology.

There is some evidence that high levels of cost sharing are associated with lower rates of spending growth.\(^\text{16}\) There are no such results for managed care, and
the overall effect remains imprecise both in theory and in practice.

However, even the “change in levels” theory may help to explain some of what has been happening. Outpatient drug spending has been growing at rates that are high even for medical spending. At the same time, there has been a substantial increase in the proportion of drug expenses paid by private insurance, although there appear to be lags in any causal effect. Still, the implication would be that drug spending growth should eventually slow down unless there are exogenous discoveries of new products valued more highly than existing products. There is a possible relationship between moral hazard today, drug profitability, research and development (R&D), and the flow of new products. What is unclear is whether any positive relationship would represent inefficiency as long as insurers are free to refuse to cover specific new or experimental products whose benefits are insufficiently large.

Can These Problems Be Solved?

Here I consider a number of methods to lower spending growth in ways that do more good than harm. I do not claim that such ways necessarily exist, but if they do, it is obviously worthwhile to identify them.

■ Trying old remedies. As already noted, for rising medical spending to be a problem worth worrying about, the situation must not only be improvable in theory, but also correctable in practice. “Correcting” the problem by raising cost sharing or making care management stricter is almost always possible, but the real question is whether such controls can be designed well enough to make the higher degree of exposure to risk of high out-of-pocket spending or arbitrary care management decisions worth it. I think it fair to say that we have no large-scale evidence that this is so. The jury voted against managed care, is still out on higher drug copayments, and has barely been seated on high-deductible defined-contribution schemes.

It is not as if there is no prior experience with higher levels of patient cost sharing; we passed through that station on the way to our current destination. If consumers did not want to stick with the higher outpatient cost sharing that prevailed in the 1970s and 1980s, is there any reason they should be expected to tolerate it now? Spending is higher—but that makes out-of-pocket risk higher, too. Incomes are higher, which makes higher copayments more affordable but less necessary to reduce premiums. Higher cost sharing may be needed to offset weakened managed care, but the point is that in some way or another, we have been here before and weren’t buying.

Conversely, if consumers were not attracted to strict closed-panel managed care plans in the 1990s, will they accept them now? If higher levels of (proportional) coinsurance—which makes more expensive providers more costly to consumers than less expensive ones are—have not swept the field, will relabeling this kind of cost sharing as “triple tier” or “quality surcharge” meet the market test
now? I remain skeptical (although ever hopeful) that beyond satisfying the need to
do something, these new versions of cost sharing will have a large market impact,
especially if they are paid from tax-shielded “funny money” spending accounts.
Moreover, even if they did “work” to reduce spending in a way that consumers are
willing to accept, the effect on growth rates of spending is still likely to be
one-time, of limited duration.

Exhibit 2 illustrates some of these points. It shows smoothed trends in Amer-
ica’s marginal propensity to spend on medical services: the fraction of growth in
GDP devoted to medical care. It shows that medical care has never come close to
eating up the growth of GDP. It also shows that even this trend can be reduced, as
was done most recently in the mid- to late 1990s. It is reasonable to argue that this
reduction occurred because citizens chose to do so, and its recent reversal oc-
curred because they did not like what happened. That is, the apparent return
since 2000 to higher GDP shares represents not some irresistible force but rather a
choice against managed care as a cost-constraint medicine, because of side effects
that are unpalatable in a rapidly growing economy.

Reduce waste: this time we really mean it. Employers tend to look more
carefully at the medical care sector when benefit costs rise more rapidly. When you
look at anyone else’s business, you tend to see a great deal of waste; we are all
proto-consultants and kibitzers. Is there any reason to expect pressures on suppli-
ers to work this time, given the trend of past failures and past backlashes? If hospital
systems choose to go bankrupt instead of getting their act together, and if doctors
organize protests instead of getting with the trend to commodification, we are back
to Knight’s maxim. Short of vertically integrating employers into the delivery of
medical services (which is not out of the question), so far few new efforts to elimi-
nate waste without cutting quality have been proposed or tested with appropriate
control groups in generalizable settings.

EXHIBIT 2
Five-Year Moving Average For Marginal Propensity To Spend On Medical Care,
1970–2001

<table>
<thead>
<tr>
<th>Year</th>
<th>Marginal Propensity</th>
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<tr>
<td>1970</td>
<td>0.05</td>
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<tr>
<td>1980</td>
<td>0.10</td>
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<tr>
<td>1990</td>
<td>0.15</td>
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<tr>
<td>2000</td>
<td>0.20</td>
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I do not wish to overstate this point. Although international comparisons are always risky, it does seem clear that direct government intervention to control spending (by, in various ways, making it illegal for consumers to pay more or sellers to collect higher revenues) can slow spending growth. The issue is the existence of side effects (queues, lower quality, and the like) and the tolerance for such interference in the U.S. context.

■ Going down the way we came up: evaluating and limiting new technology in an acceptable way. The burden of the economic analysis of medical spending growth is that the primary and consistent source of such growth, year in and year out, is new technology that is more beneficial than its predecessor but also more costly. The commonsense conclusion from this observation, which has been vigorously ignored by most advice on what to do, is that more effort should be devoted to determining if new technology can be slowed, modified, or limited. A few large health plans now practice technology evaluation, and there is a quest for evidence on outcomes of new medical interventions, both of which could in principle provide the basis for such limitations. Moreover, the theoretical freedom that health plans have to refuse to cover experimental goods and procedures provides a method for doing so. But my strong sense is that the kind of evidence economists think to be most important—evidence that at least in some uses a new beneficial technology is not worth the cost—has not been generated by these evaluation efforts and would not be persuasive for public policy or legal protections. Even the New York Times endorses the idea that some good things may not be good enough but then can only generate examples of things some doctors assert to be totally useless, while others strongly beg to differ on the “totally” part. The result so far is no action.

That we might find an acceptable method for spotlighting and discouraging new interventions of positive but low value (or that we might find an acceptable discourse to get agreement on leaving the good they would do undone) is, I suspect, what many economists would think to be an ideal solution. But again, with Frank Knight and past history at their elbow, it would be hard to be optimistic that this constrained ideal could be accomplished.

■ Acceptable rules of the game. I think that few would disagree with the proposition that determining the cost-effectiveness of various medical interventions in either a legislative or legal setting is unlikely to work perfectly. Researchers differ on methods, and members of the political class, under the pressure of special interests, are even less likely to get it right. One idea that is attractive to some is to reopen Adam Smith and to advocate reform of obvious distortions in markets that may lead to inefficient outcomes. The usual suspects here include (but are not limited to) reduction in the tax subsidy, avoiding regulatory limits on consumer information or insurer benefit design, public provision of information, and more vigorous antitrust policy. Were these reforms to be put in place, then one might have more confidence in accepting as appropriate whatever rate of growth of spending is generated by a “pretty good” (if not perfect) market. This rate (even if it is high) is at least as good a
candidate for the best rate we can expect as any other alternative.

Here again, for this solution to work, both knowledge and will are needed. I believe that it is possible to pursue this route, but I also believe that we are now very far from agreeing on a generally acceptable destination or the means to get there.

**Constructive Or Consistent?**

To this point I have been decidedly pessimistic that there is a painless (or even a low-pain) solution to the “problem” (and the opportunity) of spending growth driven by technological change. Articles about curtailing medical spending growth, like light French movies, are supposed to have wistfully happy endings, but after so many years of trying, punctuated by the managed care backlash, anyone’s optimism should be wearing thin. It may actually be harmful to suggest that “surely all of us working together” can find away to maintain historical rates of improvement in medical care quality and still keep care affordable; a fruitless if well-meaning search for ways to do so expends energy on searching for and checking out the latest magic bullet and delays the necessary focus on developing language and methods for making and sticking with unavoidable trade-offs. Here I am not arguing that everything good has already been invented; I am only suggesting the need for healthy skepticism and hard-nosed realism, combined with constrained optimism, as necessary components of an effective reaction to rising medical spending.

This paper has largely been an exercise in confronting important questions by destroying presumed answers rather than coming up with new ones. We do not know that the current rate of medical spending growth is “too high” or that there are ways to slow it without doing more harm than good. We do know that there is more to medical care than spending, and more to medical spending than cost. Finally, we know that rates of growth will eventually be reined in once the opportunity cost of what is being sacrificed gets too high; we just don’t yet know how. Employee benefit managers are paid to worry about such things, but they should do so whether the current rate of spending growth is high or low; for the rest of us (as citizens or policymakers), worrying is, I argue, unlikely to be productive.

That is, we do not have a clear picture of at this point of when and how this process will work this time. I would not bet a great deal on the return of either aggressive managed care or aggressive patient cost sharing. I would hope for, but also not bet a great deal on, reforms that would make medical care and medical insurance markets acceptably competitive. My guess, in any case, is that things are going to have to get a lot worse before there is a will to make them better.

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NOTES
4. M.V. Pauly, “Market Insurance, Public Insurance, and the Rate of Technological Change in Medical Care” (Geneva Papers on Insurance and Risk, forthcoming).
9. I am indebted to a referee for this point.
20. Ramsey and Pauly, “Structural Incentives and Adoption of Medical Technologies.”