

# MEDICAL SAVINGS ACCOUNTS

**And now....a *medical* ISA?**

*Medical savings accounts  
in theory and practice*

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and  
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# 1. The medical savings opportunity

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## Demand and over-demand

How best to finance health care has always been one of the most difficult issues in public policy. Specifically, the problem is how best to provide health care so that people can access it easily when they need it, without exposing it to unmeetable over-demand.

**The demand problem:** *Making health care free* (as the NHS does, for the most part), is designed to ensure that everyone has access to it on the basis of their medical need rather than their wealth or income. But equally, the fact that people have no financial reason to curb their use of the Service leads to an enormous level of demand, which doctors and hospitals struggle to satisfy. Though NHS spending is at record levels, patients still face long waiting lists, and some services are rationed or actually unavailable.

The other extreme of relying on *private insurance to pay for all health care needs* has its problems too. Once again, people have no financial reason to curb their demand for services if an insurer is going to pay for them all; while doctors in this system have every incentive to over-treat. As the insured population of America know only too well, the result is escalating costs and a rise in premiums — which then puts comprehensive medical insurance beyond the reach of many low-income families.

**Rationing attempts:** Yet simply spending more money, either by raising taxes (in the NHS-style social-insurance model) or by paying higher premiums (in the US-style private-insurance model) does not solve the underlying problem of excess demand when services are free. So both systems have resorted to forms of rationing instead.

In the UK, the NHS blacklists certain pharmaceuticals, for example, while some health authorities no longer provide services such as chiropody, in-vitro fertilization, or cosmetic surgery. In America, insurers may restrict patients to using only a limited list of 'preferred providers', while 'health management organizations' work as financial gatekeepers to limit the demand from patients in group or employer-led health care schemes.

But neither strategy is really desirable. The American solution has certainly helped to contain medical costs, but it is very unpopular with patients: people who have been used to getting a wide choice of high-quality services now find their access restricted — and not even by a doctor, but by a financial manager. Meanwhile the UK strategy largely abandons such decision-making at the individual level. Instead, a whole range of particular services are simply denied to everyone, whether or not the demand for them might represent a perfectly legitimate use of NHS resources in the individual case.

**The MSA solution:** However, a third way seems possible, in the shape of medical savings accounts (MSAs).

One version of the MSA principle, called Medisave accounts, has been working for over 15 years now as part of Singapore's compulsory pensions and insurance system.

The medical savings accounts idea has spread rapidly in the United States, as a way of keeping insurance affordable and retaining choice and flexibility for patients, while reducing the incentives for people to put excessive, unnecessary and inappropriate demands on the health care system. A number of American firms now offer their workers various kinds of medical savings accounts instead of the more traditional company health insurance schemes.

The MSA approach would work within an NHS-style social-insurance system too. Properly designed, it could guarantee that everyone with a medical need still has full access to NHS care, regardless of their financial circumstances, while simultaneously reducing the temptation for people to abuse and overburden the Service.

### **The medical savings account principle**

The general idea of medical savings accounts is to make *insurance* and *savings* work alongside each other so that nobody can be left out of pocket because of medical need, while everyone is encouraged to use health care services judiciously.

In the MSA approach, the *insurance* element — either private medical insurance or a state-run system such as the NHS — is re-focused to concentrate on the *larger and more expensive* medical needs. Along with this, families are given *cash savings accounts* which they can use to pay any other medical expenses that are not covered by the state or the private insurer.

**Why it works:** The targeting of the *insurance* element (NHS or private) onto the larger medical needs makes it much less expensive than a system which tries to provide everything.

- First, *the cost of processing small items of service is disproportionately large*. For private insurers, the cost of administering small claims can easily exceed the value of the claims themselves. Likewise, a large part of the NHS resource goes into managing the delivery of minor — sometimes trivial and unnecessary — services to millions of patients.

The principle that trivial demand must be curbed has in fact already been conceded — NHS prescription charges help deter patients from bothering their doctor with self-limiting or other minor ailments that can be treated with cheap over-the-counter medicines.

- Second, if everything is free, *there is no limit to the number of small services that people might ask for, whether or not they are really necessary*. So it is hard to manage, control and target the delivery of services such as small items of outpatient care.

By contrast, people are unlikely to demand major medical treatment (such as hospital in-patient care) unless they think it is really necessary. There is also a smaller range of effective treatment options for the more major medical conditions.

All of this makes it much less costly to deliver a service in which the free coverage is restricted to the larger medical needs.

The *savings account element*, meanwhile, introduces a more rational incentive structure into the demand for the smaller items. The key is that it gives families their own savings pot from which they can pay for the more minor medical expenses — but they can keep the money they do not spend on health care. This brings several benefits:

- First, because they can keep any money which they do not spend on health care, they *have an incentive to demand only what they really believe necessary* — not to demand more tests, medicines and services just because they are free;
- Second, families in the MSA system *make for themselves the everyday value-for-money judgements* that it would otherwise take armies of health managers to analyze;
- Third, because they are billed for services, they come to *appreciate that health care is not in fact 'free' to provide*, which increases the moral pressure on them not to abuse its provision;
- Fourth, it induces families to *become more interested and informed about health issues*, to adopt healthier lifestyles and to opt for more preventative measures so that they might avoid expense later on; and
- Fifth, *decisions about what medical services to purchase can be left more to the judgement of families themselves*. They may well choose services that they cannot get through the traditional health care system, such as weight-reduction courses, stress counseling, or annual check-ups (Gladstone, 1992).

**MSAs in America:** The greater part of private medical insurance in America is provided through tax-privileged employer schemes. A key factor in the annual wage-negotiation rounds, this has tended to become more and more comprehensive in scope and therefore (disproportionately) more and more expensive.

Using MSAs, employers are now finding that they can save money by supplying insurance for the big-ticket items only — which is very much cheaper — and using some of the difference to pay annual contributions into workers' medical savings accounts. Indeed, they have saved money despite the unfavourable tax environment, in which MSA benefits have generally been taxed as wages while traditional employer-based health benefits are a tax-allowable business expense.

Employees like this system too because they get *far more choice* about how their medical needs are met than they could expect under the old group insurance scheme, particularly so if the company had been using a health management organization to control its employee health care costs.

In principle, therefore, the MSA system can *raise employee/patient empowerment, promote best value for money, and reduce medical care costs*. And evidence from American companies now shows that MSAs do indeed promote more prudent health spending, without risking employees' health, and can reduce health care costs by up to 20 percent. Where they have been adopted, MSAs have resulted in lower

employer and employee costs, accumulated savings in workers' medical savings accounts, and high degrees of employer and employee satisfaction.

**Beginnings of tax recognition in the US:** Some large US employers set up flexible spending accounts (FSAs) under Section 125 of the Internal Revenue Code, allowing employees to pay for medical costs out of tax-free savings. However, employees failing to spend the whole of their FSA balance in a year would lose it, so that the perverse incentives to overuse medical services would remain (Goodman, 1992).

More positively, perhaps, Congress has now sanctioned tax-favoured status for a form of MSA, which it calls 'medical savings accounts', under the *Health Insurance Portability and Accountability Act* of 1996.

Unfortunately, this usurps the name that had previously been used to cover all kinds of medical savings account arrangements. It seems right to distinguish the two, however, because Congress's 'medical savings accounts' are limited to the self-employed and small businesses, and impose very specific rules on the type of big-ticket insurance that go with them and on how funds can be withdrawn. Hence our use here of the neologism 'medical savings accounts' to cover the various different forms of the principle.

Nevertheless, the American reforms do indicate that the US government views the potential of the MSA approach very positively. It could well lead to an increasing take-up of the idea by growing businesses and, thereafter, an easing of the restrictions on today's 'medical savings accounts' and the extension of tax-favoured status to wider schemes and other employers.

**The UK situation:** The bulk of health care in Britain is financed and provided by the government, rather than through private medical insurance, but the MSA principle could bring analogous benefits.

Here too, the management of large numbers of very small medical services impose a disproportionately large cost on the NHS. There is no disincentive against people calling out the doctor at night when they could wait until morning, or requesting a home visit when they could easily walk to the surgery, or demanding a consultation and antibiotics for some trivial ailment that they know will soon subside anyway; nor against taking risks with their health that might require much costlier treatment later on. All these impose major costs on the NHS, but since it is free, the only barrier against abuse is people's sense of public-spiritedness or the simple unavailability of services.

A medical savings account system could *reduce NHS costs by giving families an incentive to avoid making unnecessary demands on the Service, cutting the cost of managing and providing millions of small outpatient services, and encouraging people to take better care of themselves*. It could *empower patients with more choice, while still retaining the principles of free and universal access to essential medical care*.

## **Making MSAs work here**

**In the private sector:** In Britain, MSAs could be introduced privately by those employers and trade unions who presently offer comprehensive medical insurance to their workers and members. Just like American employers today, they would

restrict the insurance element to larger claims only, and give back some of the savings to their workers or members in the form of annual top-ups into their new medical savings accounts.

**In the NHS sector:** Implementation within the NHS would be largely analogous. Thus the NHS would continue to provide its care, free of charge, for all major and long-term medical needs. But patients would have to pay for the more minor services — which they could obtain from the NHS or from private providers, as they chose. To ensure that everyone could afford these services, the money saved from restricting the scope of free NHS services would be remitted back to the public as medical savings accounts, opened for each of us by the government and credited annually with money from the health budget.

When faced with medical needs, therefore, families would first use the money in their MSA. This money would be restricted to the purchase of medical services, but the exact choice of what services to buy, and from whom, would be theirs. Once they had exhausted the money in their MSA, the NHS would still be there to provide them with any further treatment they need, free of charge.

Redistributive principles can be built in. For example, wealthier or younger people might be required to top up their MSA spending out of their own pockets before becoming eligible for free NHS care, while poorer people would move seamlessly from MSA-financed care to free NHS services. And people with chronic health needs could also be exempted.

In this way, MSAs can indirectly establish a cost-sharing device without infringing the most important philosophical cornerstones of the NHS: universality, accessibility, portability and comprehensiveness.

At the end of each year, the government would top up each person's account once more from the money it saved by re-focusing the NHS onto the most serious medical needs. A person who had not spent all of the money in their MSA could perhaps withdraw it to spend on other things, or leave it in the account to accumulate interest and to grow, so as to give them a cushion for medical and other needs in later life.



**Diagram 1: Typology of medical savings accounts**

**User-pay systems include:**

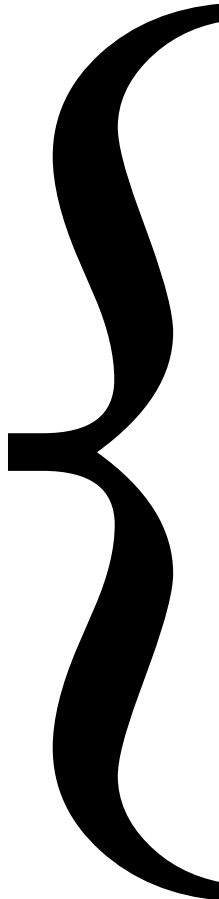
- self-pay for private surgery
- over-the-counter medicines

**Cost-sharing systems include:**

- private insurance with an excess
- social insurance with co-payments
- NHS prescription charges
- Private or state insurance with MSAs

**Third-party payment systems include:**

- non-prescription NHS services
- first-dollar insurance (US)



**Medisave accounts**

Singapore, 1984  
*compulsory savings as part of central provident fund system*

**Flexible spending accounts (FSAs)**

US Internal Revenue Code Section 125  
*tax-free funds for medical expenses, but 'use it or lose it' rule*

**Medical savings accounts (MSAs)**

US legislation of 1996  
*small business and self-employed only must be used with catastrophic insurance*

**Medical savings accounts (MSAs)**

Republic of South Africa, 1994

**employer contributions tax-free**

*excess varies with treatment type*

**Patient protection accounts (PPAs)**

National Center for Policy Analysis, 1998  
*proposal to make MSAs available to all and with all types of insurance*

**Medical individual savings account (Medical-ISA)**

Adam Smith Institute, 1999  
*proposal to combine medical savings with NHS cover for larger items*

## Issues and evidence

Of course, there are many deep-seated concerns that would have to be addressed and overcome before a medical savings account system could be introduced across all NHS users in the UK.

**Issues:** One worry about incentive systems in general is that people might *delay visiting the doctor* and end up with something much worse and more costly to treat. But studies show that cost-sharing arrangements control the over-use of medical services with little or no adverse effects on people's health. In fact, an MSA system prompts people to use preventive techniques and seek early diagnosis precisely in order to avoid the prospect of larger costs later on.

There are issues too about the possible *distributional* effects of incentives. Will people on lower incomes be less likely to get health care services than in a completely free system, and will their general health deteriorate as a result? Similarly, will those with chronic illnesses simply run out of money and then be unable to access the services they need?

Of course, no one wants the UK to adopt any system that induces people to take risks with their health, or which leaves poor or chronically sick people unprovided for; MSAs are not such a system. The whole point is to design a system which curbs the over-demand for unnecessary services while avoiding perverse effects like these.

**Evidence base:** Fortunately there is now a very large base of empirical evidence from which we can measure the real effects of different incentive systems within health care, and so gauge how important or otherwise they might be for medical savings accounts, before setting out the detailed design of an MSA approach for the UK.

Singapore, for example, has many years of experience with its own medical savings account principle, and new evidence is beginning to emerge from the United States as employers there offer their employees an MSA option or switch wholly from comprehensive medical insurance to medical savings accounts.

Looking more widely, the intricate methods of the RAND Corporation's vast and path-breaking 'Health Insurance Experiment' of the mid-1970s has been used to examine the impact of insurance co-payments and user fees from California to China.

The Appendix brings together much of this empirical evidence, and applies it to the design issues facing medical savings accounts. It shows that there is much we can learn from people's actual responses to different health care financing systems.

**Other issues:** One lesson that may come as a shock in the UK is that there is a real — and large — welfare loss in having a system in which all services are provided free of charge to everyone. But of course we can already see this in the NHS, as the unstoppable over-demand for minor and often unnecessary services makes it harder and harder to deliver the full measure of essential care to those who really need it.

The evidence also suggests that incentive arrangements do encourage people to be better consumers of health care — focusing more clearly on the services they really need, and using a wider range of preventive measures to reduce their likely need for future service consumption.

It tells us also that incentive systems do have difficulties in providing truly open access for the poor and chronically sick, but that with careful design this can be done. Indeed, the savings that are made possible from an MSA system can be devoted specifically towards health and social services targeted specifically towards such needy groups.

### **A radical but necessary change**

Introducing the medical savings account principle into the UK, especially within the state-insured (NHS) sector, would be a radical measure. True, it still assumes that most UK health care funding will still come from taxpayers. But for the first time, patients themselves could decide how to spend a large part of that budget, through their use of their own medical savings accounts.

If we are to curb the crippling over-demand of today and yet maintain open access to health care services, something like this seems inevitable.

The worldwide empirical evidence that MSAs can help to reduce the intolerable pressures on free health care systems indicates that the case for introducing MSAs should at least be heard and evaluated. We should not close our minds nor our ears to the idea that sensible and useful economic principles have no place in the provision of health care. And medical savings accounts are only one innovative way in which that might be done.

## 2. Meeting the costs of health care

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### Restrictions in supply

As people grow older, they need more medical services: and the UK population is getting older. As people grow richer, they demand higher standards of health care: and our national income is rising. And as new medical procedures become feasible, as they seem to do at an increasing rate, people start to demand them. All of this — and more — puts a remorseless pressure on the NHS, imposing a greater and greater burden on those who work in it and pay the taxes to sustain it.

The NHS executive and some health authorities have resorted to the only solutions that seem to be available to them: to *ration services* and to *stop delivering* certain treatments and therapies.

Patients may be unaware that they are not getting the best possible medication, or that their surgery might have been done earlier if more beds had been available, so the complaints are muted. But few people think that rationing can really be the best way of relieving the pressure on the NHS. In the long run, indeed, it is likely to cost more: a patient who is prescribed an older, cheaper, drug is more likely to suffer adverse side effects which will need a return visit to the doctor, while a patient who is denied surgery today may spend uncomfortable months unable to work and drawing sickness benefit.

### MSAs and demand

Rationing tries to contain health care expenditures by restricting the *supply* of health care services. Medical savings accounts, by contrast, work by producing a more rational *demand*. They do this by giving back part of the health budget directly to the potential users of medical services themselves, and rewarding them for using those services more thoughtfully.

By controlling demand, MSAs allow universal insurance (either public or private) to work more efficiently. They also help expand supply by promoting competition and innovation in medical services, and giving people the opportunity to purchase services that are not currently available through the public health care system.

### The pros and cons of risk pooling

Health is a risky business. Nobody can be sure when some major medical problem might strike, nor how big the financial burden might be if they were to face the full cost of treating it. These uncertainties have led to the development of insurance — taken out privately by individuals, employers and groups, or provided publicly through the social-insurance system.

**Individual and social welfare gains:** Insurance, private or public, allows people to reduce the impact that uncertainty has in their lives. With private insurance, people pay an annual fee (a ‘premium’) in exchange for the promise to pay them a certain

amount of money, or provide services, if some specified event occurs. With social insurance, people pay taxes to the government in exchange for the same promise. In this way, individuals can avoid the financial disaster of, say, suffering an unexpected heart attack or being injured in an accident.

For people who do want to avoid these big risks, buying an insurance policy improves their welfare — *i.e.* they are better off with the policy than they would be without it (Arrow 1963). But there is a social gain too: we all benefit by sharing our risks with many other people, because the law of large numbers makes the cost much more predictable and bearable.

**Moral hazard losses:** However, insurance in general and health insurance in particular can have distorting effects, one of which is *moral hazard* — insured patients demanding more services than they would if they were not covered. By lowering the marginal cost of care to the patient, health insurance encourages people to use the available services (Pauly 1968), and to demand a greater level of service in response to an insured event than would an uninsured person (Arrow 1963).

Comprehensive medical insurance, public or private, creates perverse incentives like these. When a third party — the government or a private insurance company — covers the whole cost, people have no financial reason to restrain their use of medical services. This in turn produces an excess demand for care, and wastes precious resources.

This *moral hazard* is more the result of rational choice than of questionable morality (Pauly 1968). People may appreciate that their excessive use of medical services will result in higher premiums or higher taxes, but their gains from over-consumption are large while the cost they impose is spread over the entire insured population.

On the other hand, if patients have to pay the whole cost of services themselves, they might delay in visiting the doctor, which could prove more costly and harmful to their health than if they had received prompt treatment or medical advice at the outset.

**The policy goal:** While private or public insurance each increase social welfare by pooling the risk and sparing individuals a great deal of uncertainty, therefore, they do also produce this unfortunate and costly tendency to over-consume.

The goal for insurers and policy makers alike is to strike a balance between the incentives to under-use medical services and the incentives to over-use them. So various forms of *cost sharing* have been grown up, in both public and private sectors. These techniques aim at the welfare loss due to moral hazard, while preserving most of the welfare gain from risk pooling.

### **Traditional forms of cost sharing**

There are many forms of cost sharing which have been introduced by insurers in the attempt to reduce moral-hazard losses. Traditionally, the most important cost-sharing principles that have been applied in the health care sector are those of the *excess*, of *co-payments*, and of *user fees*.

**High-excess insurance:** An insurance policy with a high *excess* is one which covers all expenditures *in excess of* a pre-determined (high) level. A medical insurance policy that has, say, a £500 annual excess would cover all health care expenses in excess of a £500 per year. The insured person would be responsible for all of the costs incurred up to the £500 level each year.

By contrast, the NHS is a no-excess medical system. All medical care is free, apart from some prescription items, and patients are not required to pay any part of the cost of the treatment they receive.

**Potential gains:** Requiring people to pay for the first tranche of their medical care creates a *financial incentive on them to restrain their consumption*. In other words, an excess should reduce people's use of health care services because they have to pay towards them out of their own pockets.

Since relatively few people experience very large medical expenses in any year, high-excess (or 'catastrophic') insurance that covers them only for these larger expenses will be *significantly less costly* than a zero-excess system that attempts to cover them for everything.

The gain is compounded because a higher excess also cuts out the disproportionately large administrative cost of handling small claims. Also, the moral hazard problem may be less for larger claims, since there are fewer effective treatment options for serious conditions and patients are less likely to demand large-scale treatment unless they really do need it (Keeler *et al.* 1977).

**Potential problems:** While the problem of moral hazard may be reduced by imposing an excess, it is not completely eliminated. *Once the excess has been reached, medical care again becomes effectively free*. At this point, incentives are once again distorted and the patient again has no financial reason to restrain consumption.

Furthermore, high excesses might *adversely affect the poor*, who cannot afford much cost sharing. A high excess may curb their access to medical care and may therefore prove damaging to their health.

This latter problem, at least, can be eliminated by subsidizing the access of poorer people to medical care. There are good arguments for this, not only for social or humane reasons, but also to reduce the risk of infectious disease, which would impose costs on the whole population. Thus the excess payable by poorer people may rationally be set lower than the average, or even at zero.

Similarly, adjustments can be made to the size of the excess faced by chronically ill persons, since an excess would simply saddle them with an annual cost without actually restraining their (unavoidable) demand for medical services at all. Again, in such cases the excess can be reduced or eliminated (Newhouse 1995).

**Co-payment.** Co-payment (or 'co-insurance') is another traditional way of attempting to control the moral hazard of health insurance. It requires individuals to pay some fraction of each claim cost (usually a set percentage). So people are paying something towards their medical care, though they pay less than the actual cost.

For example, a health-insurance plan with 25 percent co-payment rate requires individuals to pay for a quarter of all their medical care expenses; an insurance plan

with zero percent co-payments is equivalent to a free health care plan such as the NHS.

**Problems with co-payment:** Co-payment can reduce the moral hazard associated with medical insurance, though it does not wholly eliminate the associated welfare loss. For example, patients with a 25 percent co-payment rate will continue to consume medical services until the last pound spent on their medical care brings them a personal benefit worth 25 pence; the other 75 pence, borne by the insurer, is wasted — a welfare loss (Feldstein and Gruber 1994).

Mark Pauly (1968) argues that there is an optimal co-payment rate for each individual, where the welfare gain from additional coverage equals the loss in welfare from higher premiums. But he does not believe there is one single co-payment rate that is optimal for a whole population, given people's diverse views about what medical services are worth to them. So it is impossible to set any rate that can be defended as 'right' or 'optimal' or 'efficient'.

Once again, poorer people or those with chronic illnesses may be less able to bear the co-payment cost under this cost-sharing strategy.

**Excess and co-payments together:** It is feasible to combine an excess with co-payments. Thus Feldstein (1971a) argues that high-excess catastrophic insurance can be improved by introducing a co-payment feature above the excess.

As with excesses, the poor may not be able to afford a positive co-payment rate, but the co-payment rate can be linked to income or the poor and the chronically ill can be exempted. For example, you could have a basic excess set at 5 percent of family income followed by a 50 percent co-payment rate up to an additional 10 percent of family income. With such a scheme, it is possible to have co-payments and yet still put a ceiling on the cash expenditure faced by any family.

**User fees:** User fees are charges that are *applied to a given service* — a payment, for example, of £5 for every visit to the doctor. The actual cost of the care given may be greater than £5, but patients would pay the cost up to the £5 level and the additional care would be free of charge.

Proponents of user fees argue that they increase efficiency and thus reduce costs: if required to bear a portion of their health care costs, individuals will curb their consumption of medical care and services of lesser value eventually will be eliminated. If the health care system becomes more efficient and costs are reduced, then what we do spend on health care will go further.

**Potential problems:** Opponents of user fees stress three drawbacks. First, user fees may *increase administrative costs* greatly because more resources will have to be devoted to collecting them. Second, user fees *may deter people from seeking medical care*, which may lead to serious adverse health effects later on. Third, user fees may disproportionately *shift the cost burden onto poorer people*.

## **General problems of traditional cost-sharing**

As traditionally practiced, then, traditional cost-sharing strategies all have deficiencies. An excess does not eliminate the moral hazard that occurs when the

insurance or free service cuts in; co-payments still allow systematic welfare losses to exist; user fees can be expensive to administer. But the most serious general accusations against all these cost-sharing systems are their distributional impact and the excessive power that a cash-based system might give to health care providers.

**Distributional worries:** The main argument against the traditional forms of cost sharing is their distributional consequences. Robert Evans (1993) argues that the principal effect of introducing cost sharing into a tax-financed health care system (like the NHS) is *cost shifting*. If cost sharing reduces public expenditures on health care and the savings are used to reduce taxes, then taxpayers will end up paying less and users of health care will end up paying more by way of excesses, co-payments, or user charges.

Since health and wealth are positively correlated, says Evans, this means that *the healthy-wealthy pay less and the sick-poor pay more*. And this is the case with all cost-sharing, even if the very poor and the very sick are excluded. Excluding such groups will mitigate the redistributive impact, but it does not disappear: cost shifting will still occur among the non-exempt population.

**Alternative views:** The argument that the healthy-wealthy benefit from cost sharing at the expense of the sick-poor relies, first, on the assumption that more cost sharing will result in lower taxes, which benefits the wealthy.

But it is not certain that taxes will in fact be reduced. The *savings from cost sharing could be reinvested into the health care system or other social programmes* — which might help poor families more than others. Even if the savings were applied to cutting taxes, the *tax cuts could be skewed to help low-income families* by reducing the basic rate of income tax or cutting consumption taxes.

Nor is it even clear that the poor would lose most from cost-sharing. In fact, it is often the *wealthier people in society who seem to benefit most from social programmes* such as free education and health care (Le Grand 1982; Horry & Walker 1994). People tend to use more health care services as their income increases, so some degree of cost-sharing might even be justified on redistributive principles.

**Provider power:** Another concern is that in any cost-sharing system, doctors will have a *financial incentive to coax patients into buying more services than they medically need*; and because ordinary people are less well informed about medical conditions and treatments, it is easy for doctors to do just that.

Similar 'information asymmetry' may occur in other markets, but in the health care sector it seems particularly severe. Patients may be too worried to make rational decisions about what to do, and may suspect that the risks inherent in doing too little could prove disastrous as far as they are concerned. So they are very much in the hands of the professionals.

On this argument, publicly funded health care and intervention in the health care market are not only justifiable but necessary, because any beneficial effects of cost sharing are eclipsed by this 'supplier-induced demand' (SID).

**No policy guide:** However, the question for public policy is not whether the health care market is perfect, but whether government provision can do any better (Kennedy 1995). The mere existence of uncertainty, information asymmetry and



risk is *not enough to justify government intervention*. The same features obtain in many other areas of the economy such as car repairs and the law. Governments rightly take measures to ensure that customers are not cheated, but nobody argues that we have to nationalize garages and family solicitors' practices.

In addition, SID theorists generally assume that informed patients would not be willing to pay for these supplier-induced services (Newhouse 1993). But if doctors induce demand by (for example) spending more time with their patients and billing them for longer visits, it does not necessarily follow that patients will be worse off: they might well prefer it.

### **From traditional cost sharing to medical savings accounts**

On the positive side, then, traditional forms of cost sharing — such as excesses, co-payments and user fees — help to reduce the moral hazard inherent in free or insured health care systems, and so lessen the welfare loss. But opponents of cost-sharing still worry that it is regressive and may prevent people from seeking the care they need.

Advocates of cost sharing have proposed ways to mitigate the effect of cost sharing on the poor, but none seems to please its opponents.

Medical savings accounts, however, may provide the solution. MSAs may provide an approach that can reduce the welfare loss of health insurance *without* creating financial barriers to care.

### 3. Medical savings in practice

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As we have seen, medical savings accounts (MSAs) are health accounts that are established in conjunction with high-excess health insurance. They can be set up by individuals, by employers, by affinity groups (such as trade unions), or by the government.

#### The American experience

The most common type of medical savings account is the American employer-funded model, which was pioneered by the National Center for Policy Analysis in Dallas, and rose to prominence during America's national debate on health funding in the mid-1990s.

The details vary, but in general terms these employers *establish MSAs for their workers, and deposit a fixed sum into them each year*. On top of this, they arrange a *group medical insurance plan* that has a *high annual excess*. Because this sort of policy is much cheaper, the two elements together cost less than the traditional arrangement of the 'first dollar' health insurance coverage.

Workers can use the money in their MSA to pay for any health care services they deem appropriate, until the fund is exhausted. If they have to make an insurance claim for some serious item, they can use the money in their MSA to pay (or help pay) the policy's excess; but if they have already exhausted their account that year, they would have to pay the excess from their own pockets.

From the moment that the company deposits the funds into an MSA, the money — plus any interest that accrues — becomes the *property of the employee*, though it can be used only on health care services. Any money that still remains in the account after a specified time (usually a year) also belongs to the employee, and can be withdrawn for other purposes (though sometimes there are restrictions on this).

Companies that have adopted the MSA idea have been able to *save money on their employee health care provision*. Employees have also benefited by having *greater choice about the range of health care services they can access*, and by being able to *keep any MSA funds that they do not spend*.

#### A typical example

Table 1 shows how a typical American employer-funded MSA can be seen as a combination of three different health insurance plans.

First, individuals can purchase medical services with funds made available by their employers (up to \$857 in the individual coverage example). These first dollars of coverage are virtually free,<sup>1</sup> since they are paid by the employers and not by the individual workers. However, workers have an incentive to use medical services prudently because every dollar they do not spend on health care will eventually come back to them and can then be spent on other things.

Second, when the employer's contribution has been exhausted, individuals are responsible for the payment of medical care up to the point where the catastrophic insurance kicks in (the next \$643 in the example). This can be seen as equivalent to the excess outlined earlier, with one important distinction; unlike normal excesses, it comes into effect only after \$857 has been spent already (*i.e.* after the employer's contribution has been exhausted).

Finally, once the insurance threshold (\$1,500) has been reached, health care becomes free to the patient at the point of service.

**Table 1: Example of American employer-funded medical savings accounts**

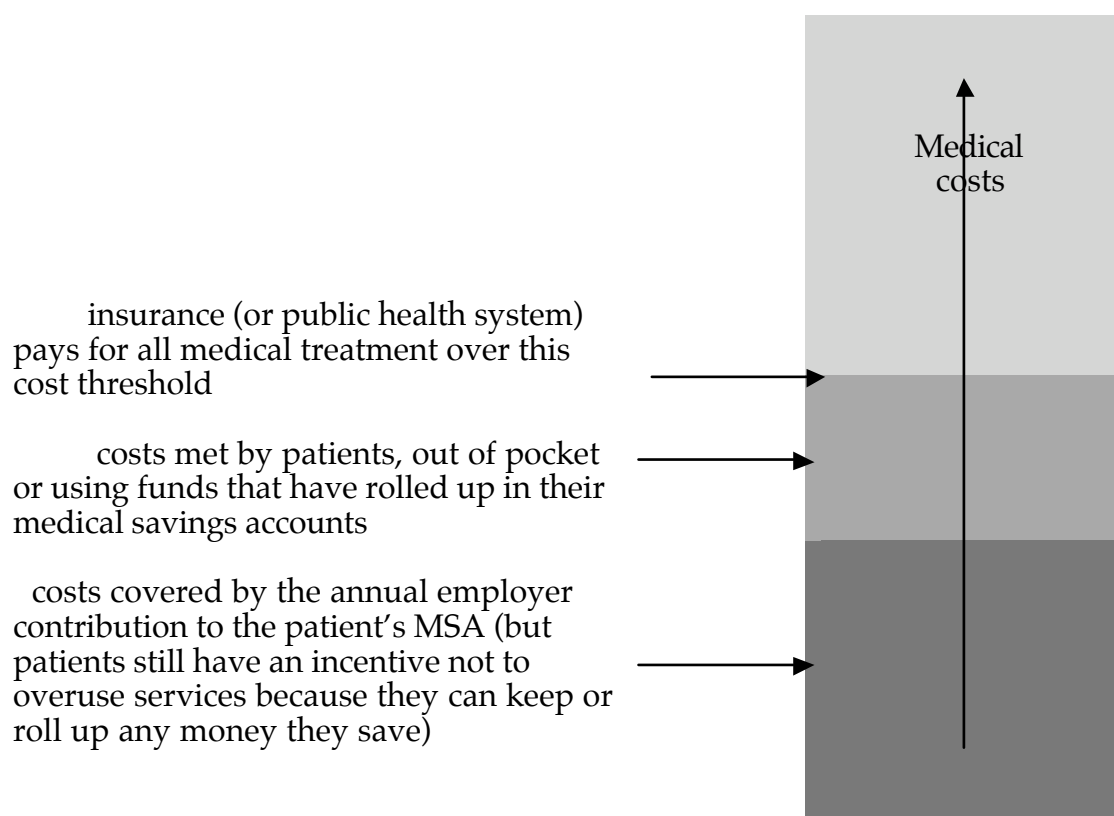
	Individual coverage (insurance threshold = \$1,500)	Family coverage (insurance threshold = \$2,000)
Cost of high-excess health insurance	\$877	\$2,081
MSA contribution by employer	\$857	\$1,167
Contribution by individual (maximum) out of pocket or from rolled-up MSA funds	\$643	\$833
Total cost	\$2,377	\$4,081

*Source: Bond et al. 1996*

In principle, of course, it is possible to invert the bottom two tranches. That is, the patient would pay the first tranche of any health care expenses out of pocket; the MSA would provide the money to pay the next tranche, up to the insurance excess; and then the insurance would cut it and all further services would be delivered free to the patient.

The following sketch illustrates diagrammatically (and not to scale) the sources of payment for a set of individual medical needs.

**Diagram 2: How members of US employer-funded medical savings accounts could finance medical costs**



### Getting the design right

In principle once again, MSA systems can be set up like, or alongside, a company pension scheme, under the supervision of a board of trustees. For administrative purposes, MSAs would be maintained by the employer, by a benefits administrator, by a bank, or even by the government.

During the first year, it seems best that MSA funds should be invested in low-risk, very liquid financial instruments so that money which is meant to be available for medical care services is not lost as a result of risky speculation. At the end of the year, however, MSA holders could be given more freedom to invest unspent funds in riskier instruments such as mutual funds, stocks, or bonds.

This allows for capitalization in the health care market. Any funds invested today gain interest and can be used in the future, perhaps for the more expensive care that most individuals will need when they are older. This opportunity for capital growth stands in contrast to the NHS, where taxpayer-provided funds are spent immediately, with no chance for them to be invested and to grow.

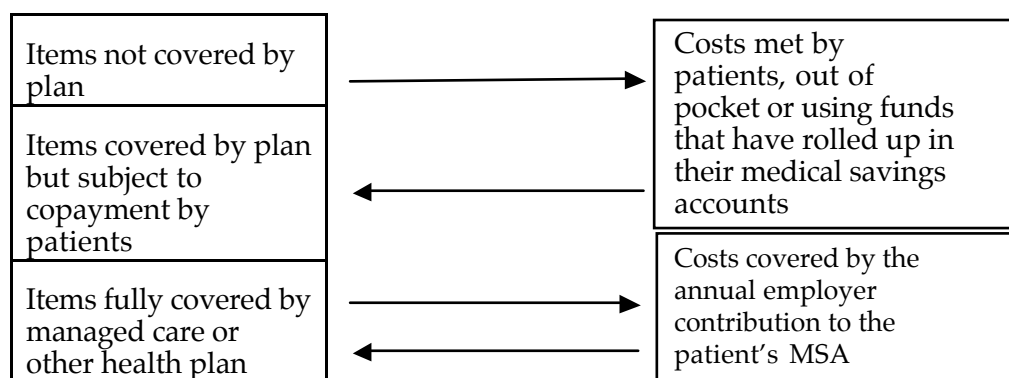
However, the exact design structure of MSAs will have a big impact on how effective they are at controlling health care costs without denying people access to the services that they really need.

## Congress's 'medical savings accounts'

Arguably the 'medical savings accounts' recently sanctioned by Congress do not have the detailed design precisely right and therefore will not realize their full potential. Not only are they restricted to small businesses and the self employed, but they must be combined with specific forms of high-excess health insurance and used to pay small expenses not covered by the plan. This structure is deficient on three grounds (Goodman, 1998):

- it excludes people who are not enrolled in qualifying high-excess insurance, including those in health management organizations and other managed-care plans;
- the 'medical savings account' deposits are designed to pay expenses below the excess only, and in most cases is exhausted at or before the insurance takes over;
- withdrawals are penalized unless spent on medical care or insurance, which makes Congress's 'medical savings accounts' more like pre-payment for medical care rather than real self-insurance, so the incentive for people to over-consume is not curbed.

**Diagram 3: Application of the MSA model within managed care or other systems**



## 4. The positive incentives gain

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### Key incentive issues

The success or failure of an MSA as a cost-sharing instrument depends heavily on the perception that each individual has of their MSA funds (AAA 1995 and Keeler *et al.* 1996).

If the MSA account is perceived as a *contingency fund*, then there is no financial barrier, no financial inducement, and thus no incentive on account holders to change their consumption of medical services.

On the other hand, if the funds are perceived as *potential savings* that can be used for other purposes, then account holders would have a stronger incentive to restrain their consumption of medical services.

Whether an MSA balance is viewed as savings or insurance depends on several factors such as *taxes, restrictions on the account balance, and the source of the contribution*, and these factors will determine the effectiveness of MSAs at reducing the costs of health care.

**Use of unspent funds:** How to treat any unspent funds is one of the most important issues in MSA design. By definition, unspent funds remain the property of the account holder at the end of the year, but several design options are possible.

For example, unused funds could be rolled up in the account, or in another interest-bearing account. They could roll up until the worker retires, and then withdrawn freely, or be used only for medical expenditures, or be partly withdrawn and partly reserved for medical purposes. Or unused funds could be withdrawn at any time, with or without some tax or other financial penalty.

The abundance of different options is a strength of the MSA approach because it gives policy makers more flexibility in achieving the desired level of cost sharing (Barchet 1995). Table 2 summarizes some of the different arrangements possible in an MSA scheme and their effect on the incentive to use the health care system prudently.

Currently in the United States, individuals can use any funds that remain in their account at the end of the year to purchase extra health care services without penalty; but any amounts they withdraw to purchase other goods and services is subject to tax and sometimes to other charges (Matthews 1997).

**Table 2: MSAs and incentives**

Arrangement	Effect upon the incentive to reduce health care consumption
<b>Thresholds:</b> A higher threshold strengthens the incentive to restrain use.	Positive
Threshold as an increasing function of account balance diminishes the incentives to abate health care use as it penalizes individuals who consume less.	Negative
<b>Balances:</b> The longer one has to wait before withdrawing unspent funds, the weaker will be the incentive to restrain use.	Negative
More restrictions on the use of unspent funds result in weaker incentives to restrain use.	Negative
Setting a maximum permitted balance diminishes the incentive to abate use and, once the maximum is reached, eliminates it. A larger permitted balance provides stronger incentive.	Negative
<b>Taxes:</b> Taxing the contribution weakens the incentive to contribute to MSAs.	Negative
Taxing interest income weakens the incentive to accumulate balances and, in turn, weakens the incentive to abate use.	Negative
<b>Savings:</b> If individuals contribute to MSAs as a substitute for other savings, then the incentive to restrain use will be strong.	Positive
Compulsory savings weaken the incentive to reduce use.	Negative

**Wealth effect:** However, the accumulation of unused funds may also create a wealth effect. People who accumulate a positive balance may feel wealthier and this sense of wealth may, in turn, increase their consumption of medical services (because the demand for medical care increases as an individual's income rises). If so, this wealth effect may reduce the effectiveness of MSAs in limiting the demand for health care.

**Tax relief:** Taxes distort incentives and often affect certain segments of the population disproportionately. An important question is whether contributions to MSAs made by account holders themselves should attract tax relief, like private pensions do today. Tax relief for MSA contributions tends to favour individuals with higher incomes because wealthier individuals, on average, face a higher marginal tax rate. This is a standard problem in public finance. However, if MSA contributions are not exempt from taxes, there is little incentive to contribute to them.

**Tax on interest:** Another question is whether interest on positive MSA balances should be taxed. There are several possibilities: it can be taxed as ordinary income at the appropriate marginal tax rate; it can be taxed when withdrawn at the appropriate marginal tax rate; or taxes owed can be accumulated each year and be paid when the funds are eventually withdrawn (AAA 1995). With any of these scenarios, the incentives associated with taxation of the interest on investment are simple: the smaller the effective tax rate, the greater the incentive to have funds in the MSAs at the end of the year, *i.e.* the larger the incentive to purchase health care services carefully.

**Compulsion:** While voluntary contributions may be preferable, MSA contributions could be made compulsory, with the government simply requiring people to put money into an MSA. If only the big-ticket items were free to patients, then compulsion may be considered a better option than risking that some people might delay seeking medical care or advice because of its cost.

An alternative to compulsory contributions is the use of tax credits. Tax credits can provide an incentive to contribute to MSAs without being regressive. But in a voluntary system one must accept that, even if individuals have a strong tax incentive to contribute to their MSA, not everyone may choose to do so.

### Other incentive effects

**Asymmetric information:** As we have seen, any cost-sharing system, including MSAs, may give doctors financial incentives to recommend unnecessary treatments to their patients. Some analysts believe this effect could be strong (Winslow *et al.* 1988; Roos & Sharp 1989).

However, one potential benefit of MSAs is an *incentive for patients to take a greater interest in their health* and their consumption of medical services (Barchet 1996; McArthur *et al.* 1996). At the very least, MSAs will probably stimulate a demand for more information, and this may well act as a brake on the ability of doctors to over-treat (Barchet 1996).

**Savings and intergenerational accountability:** In 1984, Singapore introduced a new health care system based on Medisave, Medishield, and Medifund Accounts — schemes similar to medical savings accounts. Though some have questioned the success of this system,<sup>2</sup> it cannot be disputed that the experience of Singapore with MSAs has shown some of the broader potential benefits of adopting MSAs.

First, Medisave plans encourage saving, which makes more capital available for business development and expansion, generating more economic growth which in turn can be applied to increase social welfare

Second, MSA-style plans *increase intergenerational accountability*. People are required to accumulate funds when their use of health care services is low (generally, when they are young) in order to be able to purchase care in periods of high use (generally, when they are older). Individuals therefore face strong incentives to anticipate future risks and save money. In the UK, by contrast, health care provided to the older population is largely paid for by younger taxpayers rather than themselves. But Singapore has shown that MSAs encourage people to save more and to be more accountable across their whole lives.

**Encouraging preventive medicine:** Those who neglect their own health threaten to impose additional costs on the NHS. This is often used to justify greater government involvement in how we live, be it banning tobacco advertising or raising alcohol duties. But if our objective is to promote healthier lifestyles, the bottom-up incentives of the medical savings account is probably a more effective mechanism than the top-down regulation of society through legal and regulatory controls.



MSAs give people a *systematic incentive to give up life-threatening lifestyles, maintain a healthy diet, use preventive medicine, and act more responsibly about their health* — since by remaining healthy and avoiding the health care system, they will be able to keep and enjoy the money they save.

Some critics have argued that MSAs may deter people from using preventive care because they will be more focused on pocketing the year-end savings than worrying about the uncertain possibility of future illness (which, if large enough, would be covered by their private or social insurance anyway). But the RAND Health Insurance Experiment showed that, while cost sharing does reduce the use of medical services, including preventive care, it will not, for the most part, adversely affect individuals' health.

### **MSAs, the poor, and the chronically ill**

There is a widespread view that health care should be available on the basis of need, and financed on the basis of ability to pay (van Doorslaer *et al.* 1993); and that substantial cost sharing for the poor is simply not an option (Newhouse and The Insurance Experiment Group 1993: 352–53).

However, MSAs can be adapted to limit the cost sharing faced by the poor while still retaining the incentives to use health care efficiently.

For example, the *maximum excess can be set as a function of income*, with lower excesses for families on lower incomes. Or the poor can be subsidized directly; that is, *the government's contribution to the MSAs of less wealthy individuals can be increased*.

However, these alternatives each have problems. Setting the maximum excess as a function of income seems a reasonable solution though it is akin to raising the income-tax rate, and as such could deepen the poverty trap. The latter option resumes some form of means testing, which is costly, unpopular and humiliating to those concerned, and again deepens the poverty trap or tempts people to conceal any income or assets they might have above the cut-off point.

MSAs would also need adjustment in the case of those suffering from chronic illnesses. Traditional cost sharing for this group is like a tax on the sick (Evans 1984): they have no other choice but to pay that portion of their medical bills year after year. However, with MSAs, cost sharing can be reduced or completely eliminated for those who suffer from specific chronic conditions or for those who repeatedly exceed the insurance threshold because of continued ill health.

### **Not like other cost-sharing**

Opponents and critics of MSAs may argue that MSAs are nothing more than traditional cost-sharing, thinly disguised. However, there are important differences between MSAs and the more traditional cost-sharing devices.

First, MSAs *do not have a universal co-payment element*. At most, only those individuals who can afford it are required to contribute to the costs of their health care, and even they will be partly subsidized: once the insurance threshold has been reached, all further health care becomes free to patients.

Second, MSAs *do not work through user charges* and individuals do not have to pay any extra charges when they use services. They pay the entire cost with funds from their MSAs or are covered by the private insurance or state medical plan.

Third, the *insurance excess in the MSA system is not like a traditional excess*, since people have cash in their MSA accounts which can be applied to meet it.

Fourth, and most important, *MSAs can eliminate barriers to care*. If all individuals contribute fully to their MSAs either because of strong tax incentives or because contributions are made compulsory, then there are no barriers to care — there will never be a time when individuals do not have the necessary financial resources to purchase medical services. Funds will be available in their MSAs, and it will be individuals' own decision whether they use the funds in their MSA to purchase health care services or save those funds to spend later on non-medical goods and services.

## 5. A UK medical savings system

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### The hidden costs of free services

NHS care is often described as ‘free’ — *i.e.* free for the patient at the point of service delivery. In reality, however, patients do pay for much of their own health care, and not just through prescription charges.

Nearly all NHS patients are also taxpayers; and they are paying more tax than they need because of the wasteful over-demand for trivial services.

We also pay in terms of the time and anxiety we spend queuing for NHS services. With delays at every stage, a number of patients simply give up and go to the private sector for consultations or treatment instead.

However, the public’s commitment to the NHS is strong, and most people do not want to be forced to go private. They want an end to the rationing and the waiting lists within the NHS. As taxpayers they have been paying above inflation for decades in pursuit of that ideal, but it remains elusive. It will remain so until the over-demand for services can be curbed.

If we are to remain true to the founding aspirations of the NHS, the only workable solution is to find some way of limiting the over-demand while simultaneously ensuring that everyone in genuine need still has access, regardless of their ability to pay.

Medical savings accounts do offer this prospect.

Both the theory and the empirical evidence indicate that MSAs have the potential to increase the efficiency of the health care system, keep health care services accessible even to the poorest and most chronically sick, and empower users in terms of the options open to them and how their money is spent.

### Design testing

However, the effectiveness of medical savings accounts on all these scores depends very much on the practicalities of their design; and the health care sector in the UK is of course very different from other countries in which similar ideas have been tried.

Given that the design of any new system is critical to the outcomes, and hence that the magnitude of the exact effects brought about by MSAs is less than fully certain, a sensible way forward might be to conduct a pilot MSA programme that would shed light on the key issues of concern, including:

- how will MSAs affect the overall demand for health care services?
- will the demand for unnecessary services be curbed?
- will the demand for necessary services be affected?
- will MSAs affect people’s use of preventive medicine?
- will there be differences in demand across income groups?

- how might the health status of different groups be affected?

**Compulsory or voluntary pilots:** The MSA principle could be piloted by applying the model to everyone within a set of NHS districts, or by offering it to people across the country as a voluntary scheme.

Politically, it might be more difficult to test the MSA approach upon the whole population of a health district. Inevitably some people may object simply on principle, and many others will worry that they could be left worse off. Good scheme design could eliminate this possibility, albeit at some cost, but it will still be hard to force patients and providers into such a completely different system.

If take-up is voluntary, on the other hand, there may be organizational difficulties in discriminating between members and non-members, but the political resistance would be less.

Quite straightforwardly, money would be directed annually from the health budget and into the medical savings accounts of the volunteers, who would then have to pay for their minor medical costs, either in an NHS environment or privately, but who would still be covered free of charge by the NHS for their more serious needs.

Some volunteers might suffer a run of small-scale medical problems that left them out of pocket, but others might well be able to accumulate savings year on year, which of course would be theirs to keep; and different people will make different decisions on whether they should enter the scheme or not.

### **A proposal for UK medical savings**

We propose that the MSA idea should be tested in the UK on a voluntary basis, and then extended through the population on the same basis. It will provide UK citizens with a new choice about how they take their NHS services — either as today, with all decision-making and funding being left in the hands of the NHS providers; or with some of the funding to cover minor episodes, and the decisions about how and where to spend it, being devolved down to the individual patient.

Although as we have seen, profound incentive effects result from giving patients more responsibility over how they use health services, most people may well take the funding change in their stride. Most of people's use of the NHS is for minor episodes, and they will see that free NHS care is still available for any big-ticket items they might need. They might be charged for the smaller items, such as doctors' visits, but at least they will have a fund to pay for them. Their new financial empowerment means that doctors will focus rather more on what the patients want, and less on what those in authority believe they should be given.

The financially-empowered patients, meanwhile, will have a financial self-interest in maximizing the value for money they receive, making sure that waste is eliminated, and not over-using health services. All of these should be beneficial pressures on NHS provision.

**Stakeholder medical funds:** The new arrangements might be called stakeholder medical funds (SMFs). They are indeed funds, they are designed to be used on

small-scale medical services, and they give holders a real stake in how those services are to be delivered and by whom.

**Contributions:** An SMF could be set up as an individual or a family plan. The bulk of the annual contributions would come from the government — which would of course be saving as much or more on its own health budget as a result of free NHS services being targeted predominantly to the big in-patient services rather than to millions of smaller episodes.

However, there should be nothing to stop people, or their employers, adding to their SMFs if they chose to do so. We suggest that, like an individual savings account (ISA) or the old personal equity plan (PEP), any personal or employer contributions to an SMF should be made out of taxed income; but that there should be no tax on the growth of any money left in the fund, nor on withdrawals from the fund to pay medical costs.

**Providers:** Stakeholder medical funds could be provided by banks, building-societies, or other approved financial institutions. Some employers or trade unions may wish to set up group arrangements on behalf of their employees or members, using their negotiating and bulk-buying power to ensure that providers gave them better information, advice and customer service, or higher interest on unused funds, than might be available elsewhere.

**Using SMFs:** Members could likewise spend their funds with any approved providers, which would include both NHS and private suppliers. In the interests of patient empowerment, that might include a wide spread of providers: homeopathy, counseling, and much else should be available to patient fund-holders, if they really find them of value.

It seems likely that most payments out of a medical savings account will be made by patients using some form of debit card — just as one can make withdrawals from a bank or building-society account. The card may even give access to the patient's medical records, so that information on the patient would be readily available to any medical provider that the patient chooses to consult.

**Savings/insurance mix:** Stakeholder medical funds could be used alongside NHS care, which of course would be skewed to the delivery of the bigger-ticket items, such as inpatient hospital care. They could also be used alongside private insurance, which people could rely on to pay for the same big-ticket items if they wished, rather than use the NHS service.

Care will be needed to resolve the issue of how much should be deposited in people's stakeholder medical funds and when they would become eligible to use NHS services free of charge. Commonly in the US, the insurance deductible is higher than the annual employer contribution into the employee's fund. Employees therefore face a 'corridor' between savings-financed care and insurance-financed care, where any medical costs have to be paid out of their own pocket.

Of course, if people do not draw on their funds in the first year or two they can quickly build up enough to avoid these out-of-pocket costs.

**Shortfalls:** In the UK, the question would be how much the government deposited each year in people's funds, and when they became eligible to use NHS services free

of charge. As in the US, an unfunded corridor might open up, which some people would be unable to afford.

There are various ways round this problem. In Singapore, other family members become responsible for meeting the shortfall, but culturally this would seem difficult to transpose to the UK. However, if SMFs were designed such that free NHS care became available as soon as a person's annual deposit became exhausted, there would still be some incentive gains curbing over-use of the Service, while nobody would face out-of-pocket costs. Alternatively, one could extend a line of credit from following years' deposits, out of which people could cover a temporary shortfall. Those on the lowest incomes could be provided with free NHS access for all services. So could those with chronic conditions; or there could be a 'per-condition excess' so that patients needing large numbers of small medical episodes did not run out of funds.

**Surpluses:** What to do about shortfalls is one problem, but equally serious may be the issue of what to do with surpluses. If people actively curbed their unnecessary use of medical services, they could accumulate very large balances quite quickly. Such surpluses could be available to be taken out in cash; or partly extracted in cash; or rolled up to spend on any medical or long-term care that might be needed in retirement; or at retirement, some might be taken in cash and some as a regular pension income. In each case the incentive effects will be different, and some testing will be needed before one can say with certainty what works best in the UK.

## A beneficial change

**Provider benefits:** For the NHS, there are the obvious benefits of a *clearer focus on delivering essential care*. The more positive incentives which patients will face under the new system will greatly reduce the strain of serving the many millions of small and often unnecessary claims on the Service.

Since patients can keep or roll up any savings that they do not use on health care, they will be more inclined to demand only what they really believe is necessary, and not to demand more services just because they are free. Mindful of those opportunity costs, patients will come to *appreciate that health care is not in fact 'free' to provide*, which increases the moral pressure on them not to abuse its provision.

NHS management capacity will be freed too, as many of the everyday value-for-money judgements are made by families themselves rather than health service managers.

**Exchequer benefits:** For the government, there should be *significant savings* from focusing free NHS delivery on the major service functions, and administrative savings due to the lower demand for minor (but costly to administer) services. Patients will also have an incentive to *become more informed about health issues and adopt healthier lifestyles*, so avoiding the need for expense later on. Together, these effects should allow for significant savings in the health budget without any reduction in the quality of service provided (or a large increase in quality for the same budget).

**Benefits for patients:** Patients with a stakeholder medical fund would have the benefit of much greater choice in the mix of health services they use, and where

they get them. They may well choose services that they cannot get through the traditional health care system. Their relationship with doctors will change subtly in their favour, empowered as they are by having control over their own small part of the nation's health budget. Their ability to go to other providers will stimulate greater openness and competition in the health care sector; and yet in full harmony with the founding aspirations of the NHS (Bosanquet, 1999) services will remain available to all who need them, regardless of their income.

For all of these reasons, the introduction of stakeholder medical funds holds great potential. SMFs offer incentives for government, providers, institutions, and patients to use the health care system more prudently. Most important, however, an SMF places the spending power squarely in the hands of those who *care* most about the nation's health — the people themselves.

## Appendix: Empirical findings

### The main issues

One of the main goals of medical savings accounts (MSAs) and other forms of cost sharing is to reduce the welfare loss of health insurance and other forms of health care that are provided free at the point of use. If, however, the moral hazard of health insurance is not significant, then it may not be necessary to introduce cost sharing or MSAs. If it is significant, then MSAs have the potential to improve our health care system. So the *empirical evidence on the size of the welfare loss from making health care free* is important.

The *effectiveness of cost sharing in encouraging more appropriate health care consumption* is another important empirical question. It is, of course, directly related to the price elasticity of demand for health care: the more reactive individuals are to changes in the price of health care, the more effective MSAs will be at reducing health care expenditures. Therefore, empirical studies that examine the *effect of price on the demand for health care* are instrumental in the assessment of the merits of establishing MSAs.

Studies that have looked more specifically at the *effect of high-excess insurance, and of MSAs, on health care expenditures* are also important.

Even if people are price conscious, however, it does not necessarily follow that total health care expenditures will decrease when they are given incentives to use the health care system more prudently. Under an MSA system, those on lower incomes will have more resources with which to purchase health care services, and more power to make their own choices about what they consume. They might, therefore, increase their use of health care services despite the incentives not to do so. Or on a more pessimistic view, the existence of prices may make people hesitant to use the health system, which may adversely affect people's health status, which in turn may increase health care costs in the future. The poor would seem particularly at risk, so it is useful to look at the empirical studies that examine the *effect of cost sharing on health outcomes and on the poor*, along with those looking at the *value of public health care spending to the poor*.

Lastly, there is empirical evidence on two other important issues that have already been raised: *whether MSA-style cost-sharing would reduce the demand for preventive medicine*, and *whether cost-sharing would allow doctors to coax patients into buying services that they did not medically need*.

### Does free care produce a welfare loss?

Those who are covered by insurance, or a free health care system, gain from being less exposed to serious financial loss as a result of illness or injury. Society as a whole benefits because these risks and costs are shared by many people. However, there is moral hazard associated with insurance because those who are insured against an event, say, a car accident, will behave differently from those who have to suffer its



full costs. People may take less care of their own health, if the cost of their medical treatment is borne by insurers or by the government.

Feldstein's study (1973) is the most widely cited study on the welfare loss of health insurance. Feldstein estimates the welfare loss of excess insurance by looking at the welfare effects of increases in co-payment rates, and by using time series data for individual American states to estimate the demand for hospital insurance. The welfare effects are calculated by estimating the gross gain from reduced price distortion — with less insurance, prices more accurately reflect the true cost of the services — and the gross loss from increased risk bearing — with less insurance, individuals are at greater risk of paying more if an accident or illness occurs. Feldstein finds that reducing health insurance produces significant welfare gains. These results, and the fact that public insurance and non-hospital care are excluded (which understates the welfare loss), lead Feldstein to conclude that United States could significantly benefit from a reduction in health insurance — by more than \$4 billion (at 1969 prices).

Manning and Marquis (1996) estimate the demand for health insurance and the demand for health services as a function of co-payment rates, excesses, and upper limits on out-of-pocket expenditures (or maximum dollar expenditure [MDE]) using experimental data from the RAND Health Insurance Experiment (HIE). They find a welfare loss of approximately \$480 per family (at 1995 prices) associated with insurance.

The empirical evidence reaches a general consensus that there is a trade-off between risk pooling and moral hazard. The welfare loss of health insurance can be significant and, therefore, health care that is free at the point of use is not optimal: excesses, co-payments and user fees can reduce the moral hazard of health insurance.

To date, these cost sharing mechanisms have been rejected in the UK as potentially erecting a barrier to care. By giving people their own funds with which to purchase care services, MSAs can reduce or even eliminate this barrier. The question then is what effects the incentive of cost sharing might actually have on resource use.

### **The effect of cost sharing on resource use**

In the mid-1970s, the RAND Corporation<sup>3</sup> began what turned out to be the most significant medical care insurance study ever undertaken: the Health Insurance Experiment (HIE). The central focus of the HIE was to study the effect of cost-sharing on medical service use and health status. More than 7,000 non-elderly families from six different regions of the United States participated in the experiment; no one above 65 years of age was included in the study. Participants were assigned to one of 14 fee-for-service insurance plans or to a prepaid group practice and were studied closely for a period ranging from three to five years.

All of the insurance plans had a limit on out-of-pocket expenditure (maximum dollar expenditure). The plans were as follows:

- One plan with zero co-payments (free care).

- Three plans with 25 percent co-payments and MDEs of 5, 10, or 15 percent of family income, to a maximum of \$1,000.
- Three plans with 50 percent co-payments and MDEs of 5, 10, or 15 percent of family income, to a maximum of \$1,000.
- Three plans with 95 percent co-payments and MDEs of 5, 10, or 15 percent of family income, to a maximum of \$1,000.
- Three plans with 25 percent co-payments for all services except out-patient mental health and dental, which were subject to 50 percent co-payments and MDEs of 5, 10, or 15 percent of family income, to a maximum of \$1,000.
- One plan with 95 percent co-payments for out-patient services and zero percent co-payments (free) for in-patient services and an MDE of \$150 per person, subject to a maximum of \$450 per family. (This plan is known as the individual excess plan.)

Factors such as age, gender, race, family income, and family size were included in the analysis, as were four different measures of health used to account for differences in people's initial health status, such as general health, physical disability, chronic illnesses, and mental health.

Four different dependent variables were used in the HIE's analysis of the effects of cost-sharing on the use of medical services and on health: the probability of using medical services; medical expenditures (including all services except dental and out-patient mental health expenditures); annual number of doctor visits; and hospital admission rates.

The insurance plans were grouped into five categories, including free care, various degrees of co-payment, and an individual excess.

The demand for medical services was then estimated using two different econometric models, which yielded results that were quite similar. The results of estimates derived from the multi-equation model are summarized in Table 3. When individuals have access to free medical care, there is an 86.7 percent chance that they will use the health care system in a given year (Table 3, row 1, column 1). As cost sharing increases from 0 percent (free) to 95 percent, there is a significant decline both in the probability that medical services will be used and in the medical expenses incurred per person in the population. The column '*t* vs. free' lists the results of statistical significance tests on the differences in probabilities and expenses between the free plan and the three cost sharing plans. These '*t*-tests' show that the differences are all significant.

**Table 3: Predicted average annual use of medical services  
for a standard population**

Plan	Probability of any medical use, excluding dental (%)		Medical expenses per person, excluding dental (\$1991)		Total spending as % of free plan
	mean	t vs. free	mean	t vs. free	
<b>Free</b>	86.7 (0.67)		1,019(43)		100%
<b>25 %</b>	78.8 (0.99)	6.69	826 (38)	4.05	81%
<b>50 %</b>	74.3 (1.86)	6.33	764 (43)	4.91	75%
<b>95 %</b>	68.0 (1.48)	11.57	700 (35)	6.74	67%
<b>Excess</b>	72.6 (1.14)	10.69	817 (45)	3.78	80%

Source: Newhouse *et al.* 1993: 44.

Note: Standard errors in parentheses. Estimates are predicted from a four-equation model developed by Duan *et al.* 1982, 1984. The difference in expenses between the 25 percent and 50 percent plans is significant at the 5% level ( $t = 1.97$ ) and between the 50 percent and 95 percent plans is significant at the 6% level ( $t = 1.93$ ).

The last column in Table 3 represents the total spending of each plan as a ratio of the free plan. On average, individuals on the 25 percent plan spend 19 percent less than individuals on the free plan; individuals on the 50 percent plan spend 25 percent less, while the ones on the 95 percent spend 33 percent less. Medical expenses per person fell from an average of \$1,019 (free plan) to as low as \$700 (95 percent co-payment plan). The demand for all types of services falls with cost sharing although some services are more affected than others. For example, not shown in Table 3 is the fact that children's hospital admissions are less responsive to changes in cost sharing.

The findings of the HIE challenge the claim that heavy cost sharing raises overall health care costs because of its incentive to delay seeking care. Total expenditures in the high co-payments group (95 per cent) were well below those in the free-care plan. It appears that incentives to delay seeking care were outweighed by other incentives. In addition, the different sizes of MDE — 5, 10, and 15 percent of income up to a maximum of \$1,000 per family (\$500 to \$600 per individual) — did not lead to significant changes in medical use (*i.e.* spending). As well, the HIE estimates indicate that the risk associated with a higher MDE is not significant. For these reasons, the HIE results seem to indicate that the MDE should be set at the high end of the different sizes examined (Newhouse *et al.* 1993).

As a result of having an MDE, the difference in the various co-payments plans is much less than is suggested by the difference in the nominal co-payment rates. For example, the average cost-sharing rate was 16 percent in the 25 percent plans, and 31 percent in the 95 percent co-payments plans (table 4). The lower average co-payment rates result from there being a diminishing number of people who are subject to the co-payment rate for the whole period as the co-payment rate increases. While the nominal co-payment rate may be 95 percent, so many people reach the excess (at which point care becomes 'free') that, on average, the co-payment rate is only 31 percent over a specified period.

Increases in the co-payment rate have two separate effects: individuals have to pay more, thus reducing use, and, as the co-payment rate increases, the likelihood of

exceeding the MDE increases. That is, when the co-payment rate is high, people are contributing more out-of-pocket to the cost of their medical care, therefore, they will reach the MDE faster than those people with a lower co-payment rate. Since health care is free once the MDE has been exceeded, more individuals will have access to free care when the co-payment rate is high. Keeler *et al.* (1977) have stressed the importance of examining excesses and co-payments has part of a sequence and not in isolation, and the HIE results support such an argument.

**Table 4: Percentage of families exceeding the maximum dollar expenditure (MDE) limit and the average co-payment rate**

Co-payment rate (%)	Percent exceeding limit	Average co-payment rate (%)
25	20.8	16
50	21.5	24
95	35.0	31

Source: Newhouse *et al.* 1993: 358-359

Although the RAND HIE was performed almost twenty years ago and in the United States, it is not clear why people in the UK should see the trade-off between health and money much differently from their American counterparts. As well, the HIE has been used to study the effect of cost sharing in China and the results were similar to those of the American experiment (Sine 1994). It is important to note, however, that the HIE looks only at the non-elderly population and that, therefore, the results may not be readily applicable to the elderly.

**Price elasticities:** The results of the RAND HIE can be expressed in terms of elasticities, *i.e.* how individuals change the amount of medical care they use when the price of care changes. Table 5, produced by Manning *et al.* (1987), shows that as the co-payment rate increases from the range 0 percent to 25 percent to the range 25 percent to 95 percent, the elasticity for all acute medical and out-patient care increases. That is, people at the higher co-payments level will reduce their use of medical care services more than people at the lower level of co-payments when the price of care increases.

**Table 5: Arc elasticities for various types of care calculated from average co-payment rates**

Range of nominal co-payments variation (%)	Range of average co-payments variation (%)	Elasticity for all care	Elasticity for out-patient care
0-25	0-16	0.10	0.13
25-95	16-31	0.14	0.21

Source: Manning *et al.* 1987: 268.

Note: An arc elasticity is a measure of the responsiveness of the quantity demanded to price over an interval (arc) on the curve representing the demand for a good or service, whereas a point elasticity measures the responsiveness of the quantity demanded to price at a specific

point on the demand curve. The elasticities measure the negative relationship between the price and demand for health care. That is, as the price increases, demand diminishes.

Prior to the RAND HIE, several studies had attempted to estimate the price elasticity of demand for medical services using non-experimental data. Phelps and Newhouse (1974) use data from various sources to calculate the elasticities of several services including hospitals, doctors, prescription drugs, and average stay in hospital. Table 6 summarizes these findings. Newhouse, Phelps and Marquis (1980) argue that inherent statistical problems make the interpretation of these results difficult. As Phelps points out; 'Perhaps the only agreement in the literature by the mid-1970s was that "price mattered"' (1992: 119). On the other hand, Feldstein and Gruber (1994) argue that RAND HIE elasticities most likely underestimate the true values.<sup>4</sup>

**Table 6: Elasticity estimates for various medical services**

Study	Services covered	Elasticities
Feldstein (1971b)	Hospital days	0.67
Davis–Russell (1972)	Hospital days	0.5
	Out-patient visits	1.0
Rosett–Huang (1973)	All doctor and hospital expenses	0.35 to 1.5
Phelps–Newhouse (1974)	All hospital, doctor and prescription drug	0.07
	Office visit expense	0.14
	Hospital admissions	0.06

*Source:* Adapted from Phelps and Newhouse 1974: 341.

*Note:* Elasticities are approximate point elasticities, except Phelps-Newhouse, which uses arc elasticity. Arc elasticity is a measure of the responsiveness of the quantity demanded to price over an interval (arc) on the curve representing the demand for a good or service, whereas a point elasticity measures the responsiveness of the quantity demanded to price at a specific point on the demand curve. The elasticities measure the negative relationship between the price and demand for health care. That is, as the price increases, demand diminishes.

While there is no consensus on the true price elasticity of demand for health care services, all of the studies reviewed conclude that the price elasticity of health care services is greater than zero — an increase in the price of health care services leads to a reduction in use. Most elasticity measures are between zero and one, where a price increase will reduce the demand for health care by less than the percent increase in the price. There are exceptions: the category of out-patient visits (Davies-Russell 1972), with an elasticity of one, shows a one-to-one relation between increase in price and decrease in demand, and the upper range of elasticities obtained in the Rosett-Huang study of all doctor and hospital expenses reduce the demand for health care by more than the percent increase in the price.

## High-excess insurance

The impact of high-excess insurance on individuals' use of health care services is important because high-excess insurance is an integral part of the way in which medical savings accounts are organized. High-excess insurance and medical savings accounts differ in how they require individuals to pay for medical services before the insurance threshold is reached. With Feldstein's 'major risk' insurance, for example, individuals face a excess and possibly a co-payment rate while MSAs make use of contributions from government, employers, or individuals to pay for health care.

Feldstein and Gruber (1994) study the potential effects of implementing major risk insurance (MRI) in the United States.<sup>5</sup> They examine the catastrophic insurance policy that Feldstein proposed in 1971 — a 50 percent co-payment rate with a maximum out-of-pocket limit of 10 percent of income (50/10 proposal; 1971a) — and attempt to answer four questions:

- Would a major risk insurance (MRI) policy reduce excessive spending?
- How does MRI affect different income groups?
- What are the welfare effects of shifting to MRI?
- Could a publicly provided MRI be financed by eliminating the current favourable tax treatment of health insurance premiums paid by employers?

The first three questions have implications for the UK health care system.

Since the size of the effect on health spending depends heavily on the price elasticity of demand, Feldstein and Gruber examine the outcomes of elasticities ranging from zero to 0.5 (Feldstein and Gruber 1994: 7, n.10). Using data from the National Medical Expenditure Survey, Feldstein and Gruber determine that the proposed MRI would affect 89 percent of people with insurance, who collectively represent 36 percent of total health expenditures.

Table 7 shows the effects of MRI on health care spending at both the individual and national levels. The first plan, 'Original,' shows health care spending prior to the implementation of MRI. The average spending per insurance holder (family or individual) is \$3,985 out of which \$747 is out-of-pocket and \$3,238 is insurance. The MRI plan is the 50/10 plan proposed by Feldstein (1971a). In a zero elasticity scenario, the split of costs between out-of-pocket and insurance is different but the total costs are the same as in the original plan. With a price elasticity of 0.33, total average spending decreases by \$728 to \$3,257; with a price elasticity of 0.50, spending decreases from \$3,985 to \$2,758 (for a savings of \$1,227). At the aggregate level, reductions in consumption would produce savings of \$60 billion to more than \$100 billion depending on the elasticities. Even though higher cost sharing would apply to only 36 percent of spending and the price elasticity is a conservative 0.33, the MRI policy still reduces annual aggregate spending by an estimated 18 percent.

**Table 7: Expenditures effects of alternative major risk insurance plans**

Plan	Elasticity	Average (1995 \$)			Aggregate (1995 \$)	
		Out-of-pocket	Insurance	Total	Total	Saving
<b>Original</b>		0,747	3,238	3,985	328.7	
<b>Major risk insurance (MRI) Plan</b>	0.00	1,127	2,857	3,985	328.7	
	0.33	0,873	2,385	3,257	268.7	60.0
	0.50	0,768	1,990	2,758	227.5	101.2

*Source:* Adapted from Feldstein and Gruber 1994: table 3; spending for 1995 projected

Since the insurance threshold is set at 10 percent of income, the MRI policy pays for more of the health care of lower income families than it does for higher income families. Table 8 illustrates the effects of Feldstein's 50/10 proposal on four different income groups. The results show that average out-of-pocket spending under MRI increases with income irrespective of the elasticity, except for those people below the poverty line. Higher price elasticities diminish the strength of this effect but not the fact that it is greater than in the original plan. Higher income individuals reduce their total spending on health care significantly more than do lower income individuals as the elasticity increases. A 50/10 MRI policy reduces total spending by all income groups. Lower income groups spend more on insurance but much less on health care out-of-pocket so that their total spending decreases. Higher income groups spend more out-of-pocket but less on insurance so that their total spending also decreases.

**Table 8: Effects on spending of a major risk insurance (MRI) plan with a 50 percent co-payment rate and a maximum dollar expenditure limit of 10 percent of income, by income group**

Plan type	Elasticity	Average Spending (1995 \$)			Total Spending (1995 \$ billions)		
		Out-of-pocket	Insurance	Total	Out-of-pocket	Insurance	Total
Income below the poverty line							
Original		1,304	4,089	5,392	10.8	33.7	44.5
50/10	0.00	421	4,971	5,392	3.5	41.0	44.5
	0.33	389	4,905	5,294	3.2	40.5	43.7
	0.50	370	4,624	4,995	3.1	38.2	41.2
Income between poverty and twice poverty							
Original		610	3,469	4,079	9.2	52.1	61.3
50/10	0.00	,708	3,171	4,079	13.6	47.7	61.3
	0.33	768	2,798	3,567	11.5	42.1	53.6
	0.50	692	2,321	3,013	10.4	34.9	45.3
Income between twice poverty and \$75,000							
Original		647	2,773	3,421	28.3	121.1	149.5
	0.00	1,078	2,342	3,421	47.1	102.4	149.5

50/10	0.33	844	1,883	2,726	36.9	82.3	119.2
	0.50	743	1,540	2,283	32.5	67.3	99.8
<b>Income above \$75,000</b>							
<b>Original</b>		863	3,872	4,735	13.4	60.1	73.5
50/10	0.00	1,854	2,881	4,735	28.8	44.7	73.5
	0.33	1,312	2,058	3,371	20.4	31.9	52.3
	0.50	1,122	1,538	2,659	17.4	23.9	41.3

Source: Adapted from Feldstein and Gruber 1994: table 4.

Feldstein and Gruber estimate the welfare effects of introducing an MRI policy by calculating the effects of more prudent health care consumption and changes in the distribution of risk separately. Feldstein and Gruber's findings support the conclusion of the empirical literature reviewed earlier, that there is a trade-off between risk pooling and the moral hazard of insurance. Their results are extremely relevant to MSAs as they indicate that the combination of a high-excess insurance with a co-payment rate (0.33 to 0.50) can reduce health care spending and improve total welfare: and like a co-payment scheme, MSAs combine a high-excess insurance with financial incentives to restrain consumption of health care services. Feldstein and Gruber also show that by setting the catastrophic insurance threshold at 10 percent of income, a 50/10 MRI policy need not hurt less wealthy individuals.

### Medical savings accounts

Keeler *et al.* (1996) explore the impact that implementing MSA legislation for all but the elderly could have on health care costs in the United States. Their study is based on the RAND HIE Simulation Model and examines 23,157 sampled households. The legislation that is tested allows all Americans who purchase catastrophic health insurance to set up a tax-exempt MSA, which could then be used to pay medical bills up to the point where the insurance threshold is reached. Four different health insurance plans are examined:

- an employee-funded MSA;
- an employer-funded MSA;
- a fee-for-service (FFS) policy;
- a health maintenance organization (HMO) plan.

In addition, high- and low-excess MSA plans are examined. The insurance threshold at which the catastrophic insurance begins is set at \$1,500 for an individual and \$3,000 for a family in the low-excess MSA and at \$2,500 for an individual and \$5,000 for a family in the high-excess MSA.

To examine the impact of MSAs, a behavioural simulation model is used to estimate the change in health spending if all Americans (except the elderly, *i.e.* those of age 65 or older) abandoned their present health insurance plans and adopted an MSA plan. Then, a plan-selection model is used to estimate the change in health expenditures if only the individuals expected to benefit from an MSA plan switch to one. Keeler *et al.* provide a model of a market in which three plans are offered: a fee-for-service policy (FFS), an MSA-catastrophic insurance plan, and a health maintenance organization plan (HMO). Individuals in this model attempt to maximize the expected value of the health care they receive and minimize the amount of



out-of-pocket expenditures, risk, and changes in income that occur. Table 9 summarizes the estimated effects of each plan on spending.

**Table 9: Results of each medical savings accounts plan when all Americans (except the elderly and those in institutions) adopt it (family averages)**

Plan	Average spending per family (1996\$)	Percent change in spending (relative to FFS and HMO plans)	Percent of families spending more than the excess
Fee-for-service (FFS)	5,414		10
Health maintenance organization (HMO)	5,414		0
Employee-funded \$3,000 excess family MSA plan	5,437	0	37
Employer-funded \$3,000 excess family MSA plan	5,065	6	33
Employee-funded \$5,000 excess MSA plan	5,061	7	23
Employer-funded \$5,000 excess family MSA plan	4,729	13	20

Source: Adapted from Keeler *et al.* 1996.

The design of MSAs affects the results. If all Americans switch from FFS and HMO plans to the low-excess, employee-funded MSAs, there is no significant change in health spending. In fact, average spending increases slightly, from \$5,414 to \$5,437. This should not be surprising, as it reflects the competing effects of the low excess and the introduction of cost sharing. Cost sharing induces individuals to restrain their consumption of medical care services but once they exceed the excess there is an incentive for individuals to spend more on health care. Conversely, if the same individuals switch to the high-excess employee-funded MSAs, health expenditures decrease by between 6 and 13 percent. In short, if all Americans except the elderly adopted MSAs, health care expenditures could decrease by up to 13 percent.

Since, however, these results may not be a good proxy of what would actually happen if MSA legislation were enacted because the legislation would not oblige all Americans to switch from their current health care plans to MSAs, Keeler *et al.* (1996) repeat the experiment simulating consumer choice among plans. They find that health expenditures fluctuate by between -2 and 1 percent; *i.e.* health expenditures either decrease by 2 percent from what they are currently or they increase slightly. These results do not support the high expectations that are placed on MSAs by many of their American advocates. Keeler *et al.* (1996) contend that the discrepancy between the expected savings and their estimates is because MSAs cannot solve the problem of over-insurance caused by tax-subsidies of employer medical insurance. They show, however, that MSAs have the potential significantly to change the way in which health care systems operate and have the potential to generate some cost savings.

Ozanne (1996) also attempts to estimate the effect of MSAs on health care expenditures in the United States. He compares an MSA plan with a typical comprehensive insurance policy. From this comparison he constructs measures of the prices individuals pay for medical services. Ozanne combines these measures with the RAND HIE price elasticity estimates in order to predict changes in health care expenditures. He predicts that if all adults except the elderly switch to MSAs, medical spending in the United States would decrease by between 2 and 8 percent.

In addition to the many empirical studies of MSAs and their effects on health care spending, there are many case studies of successful employer-funded MSAs. Although these studies suffer from the absence of any control group, it is still useful to assess the experience of employers and employees with MSAs. In an American employer-funded MSA, the employers purchase a catastrophic insurance policy for their employees and deposit some of the savings (because high-excess insurance is cheaper than low-excess insurance) into their employees' MSAs. The employees use the funds made available by the employer to purchase medical care services. Once these funds are exhausted, the employees are responsible for the payment of medical care up to the excess at which the catastrophic insurance begins.

Bond *et al.* (1996) gather data from 27 Ohio firms that offer MSAs to their employees — which they do despite the less favourable tax treatment of MSAs compared to traditional employee health insurance plans. All of the firms studied offer MSAs with similar insurance threshold plans: \$1,500 for individual coverage and \$2,000 for family coverage. The average employee's out-of-pocket expenditures are \$643 for individuals (a \$1,500 excess less an \$857 MSA) and \$833 for families (a \$2,000 excess less an \$1,167 MSA). This is significantly lower than the out-of-pocket expenses of traditional plans. The average cost to the employer of coverage for families is 23 percent lower than the cost under traditional family plans while the average cost of coverage for individuals is 26 percent higher than the cost under a traditional plan (Table 10).

**Table 10: Average costs of traditional plans  
and medical savings accounts in 27 Ohio firms**

Plan	Coverage for single individuals		Coverage for families	
	average (\$)	range (\$)	average (\$)	range (\$)
<b>Traditional premium</b>	1,375	650 2,059	4,235	2,480 7,220
<b>Total cost of MSAs to employer</b>	1,734	686 2,556	3,248	1,716 4,583
<b>insurance</b>	877	386 1,431	2,081	1,184 2,934
<b>contribution</b>	857	144 1,500	1,167	200 2,000
<b>Plan cost under equal-cost MSA*</b>	1,427		1,893	

\*where out-of-pocket maximum cost to employees under MSA plan equals the out-of-pocket maximum cost under traditional plan.

Source: Bond *et al.* 1996: 53.

The MSAs examined result in a decrease in the employees' actual out-of-pocket health expenditures. The employers' expenditures could have been made roughly equal under both plans if the employers had increased their employees' maximum out-of-pocket expenditures so that the employees were spending an amount under the MSA plan that was equal to the amount that they were spending under the traditional plan. However, the MSA plans of these firms allowed for a decrease in employees' out-of-pocket health expenditures from what they had been spending out-of-pocket under their traditional health plans. Despite higher employer costs for the individual plans, the total average cost of the MSA plans was 12 percent less than that of the traditional plan.

The data on the Ohio firms did not contain any information on the average amount of funds remaining in the MSA at year's end. This is unfortunate because it is an important aspect of an MSA plan that any funds unused at the year's end belong to the employee and can be used as the employee chooses. Bond *et al.* (1996) look at other MSA plans for information on unspent balances and other forms of savings. For example, employees of Golden Rule Insurance had, on average, \$602 remaining in their account at the end of 1993 and \$1,002 at the end of 1994, for a total \$1,604 plus interest at the end of two years. *Forbes Magazine* introduced MSAs for their employees in 1992; as a result, *Forbes's* health care costs decreased by 23 percent (\$400,000) and they paid \$125,000 in bonuses to its employees. In total, Bond *et al.* surveys 17 firms who offer MSAs and found that, on average, the funds remaining at the end of the coverage year amounts to roughly \$600 for individual coverage and \$900 for family coverage.

The Evergreen Freedom Foundation performed seven extensive case studies of companies that offer employees health coverage through MSAs (Barchet 1995). All of the companies surveyed realized significant decreases in costs and showed high levels of employee satisfaction.<sup>6</sup>

While the successes of the employer-funded MSAs examined by Bond *et al.* and the Evergreen Freedom Foundation may not be enjoyed by all employers switching to an MSA plan from traditional insurance coverage, these companies have shown that MSAs can be conducive to more prudent health spending without compromising individuals' health. Where they have been adopted, MSAs have resulted in lower costs to employers and employees, accumulated savings, and high degrees of employer and employee satisfaction.

The empirical literature in the United States indicates that MSAs and similar arrangements have the potential to cut health care bills by up to 20 percent. Since Americans already face financial incentives on the use of health care while people in the UK do not, the potential savings in the UK — which could be re-invested into improvements in our health care system — could be even greater.

### **Cost sharing and health outcomes**

While the effects of cost sharing on the use of health care can be predicted, the effects on health are less clear. Even if cost sharing manages to decrease the use of medical services, it does not necessarily follow that total expenditure for health care will decrease. Higher prices that lead to lower use may adversely affect individuals' health, which may, in turn, increase health care costs. The RAND HIE is one of a very few studies that examine the effects of cost sharing on health.

The Insurance Experiment Group uses five measures (see Newhouse *et al.* 1993: ch. 6) to examine participants' health: (1) general health (physical, mental and social); (2) physiological health; (3) health habits; (4) prevalence of symptoms and disability days; (5) the risk of dying. The predicted values of health are estimated using several variables, including age, gender, family income adjusted for family size and composition, and health at enrolment in the experiment. As well, various insurance plans are examined.

On the whole, reduced services due to cost sharing are found to have little or no net adverse effect on health (Table 11). In addition, no significant differences in the risk of dying (for the average person) or measures of pain and worry are found. Moreover, days of restricted activity dwindle with higher levels of cost sharing. The most important determinant of health at the end of the experiment is typically health at enrolment.

**Table 11: Predicted health status at the end of the RAND HIE by selected health measures and insurance plans**

	Cost sharing plans				Free plan	Av. differences in health between free and cost sharing plans (% confidence interval in brackets)	
	95%	25/50%	Excess	Average		Predicted	Actual
<b>Physical health</b>	86.0	85.0	84.9	85.3	85.3	0.0 (1.6, 1.5)	0.3 (2.3, 1.7)
<b>Mental health</b>	75.6	75.5	75.8	75.6	75.5	0.2 (1.1, 0.8)	0.1 (1.1, 1.0)
<b>General health</b>	68.1	68.0	67.9	68.0	67.4	0.6 (1.5, 0.3)	0.9 (2.1, 0.3)

*Source:* Newhouse *et al.* 1993. Each measure of health is based on a scale of 100.

The HIE also looks at the effect of cost-sharing on the health of high-risk individuals such as the poor and the sick-poor. The health of this disadvantaged segment of the population is severely affected by cost sharing — indicators such as mortality rates and blood pressure worsen among high-risk individuals. The results indicate that free care can benefit low-income groups.

The HIE also examines the appropriateness of the services that were forgone. Lohr *et al.* (1996) conclude that cost sharing reduces both necessary and unnecessary care. However, the type of cost sharing plan was found to have no effect on most measures of health and a decrease in necessary care should result in lower health outcomes. Lohr *et al.* suggest that this phenomenon occurs because some of the harm done by inappropriate services is outweighed by the benefits of appropriate care.

### **Cost sharing and the poor**

The RAND HIE examines the effects of income on the demand for medical services. Table 12 exhibits the differences in the responses of different income groups to cost sharing. Most of the differences between the income groups are statistically significant (as is shown by the '*t* vs. lower third' column). The probability of any use of medical services increases with income. The probability of any in-patient use, however, shows contrasting results; use of in-patient care decreases with income for the family plans. Overall, the percentage reduction in expenditure due to cost-sharing did not show any major differences by income group. However, Newhouse *et al.* point out that the 'ultimate test of a reduction in use, however, is its effect on [health] outcomes, and these did differ by income group' (1993: 340). For example, the estimated risk of dying was more than twice as high for those classified as poor than for those in the high income group.

**Table 12: Predicted annual use of medical services by income group for a standard population**

Plan	Income group				
	Lower third	Middle third		Higher third	
	Average	Average	<i>t</i> vs. lower third	Average	<i>t</i> vs. lower third
<b>Probability of any use of medical services (%)</b>					
Free	82.8	87.4	4.91	90.1	5.90
25 percent	71.8	80.1	5.45	84.8	6.28
50 percent	64.7	76.2	4.35	82.3	4.86
95 percent	61.7	68.9	3.96	73.8	4.64
Individual excess	65.3	73.9	6.09	79.1	7.09
<b>Probability of any use of in-patient services (%)</b>					
Free	10.63	10.14	0.91	10.35	0.35
25 percent	10.03	8.44	2.95	7.97	2.75
50 percent	9.08	8.06	1.78	7.77	1.66
95 percent	8.77	7.38	2.79	7.07	2.46
Individual excess	9.26	9.44	+0.31	9.88	+0.68
<b>Expenses (\$ 1991)</b>					
Free	1,033	965	1.78	1,060	+0.53
25 percent	891	771	3.17	817	1.47
50 percent	800	721	1.89	773	0.49
95 percent	762	648	3.09	691	1.41
Individual excess	798	778	0.57	878	+1.38

Source: Newhouse *et al.* 1993: 46.

Note: Standard errors corrected for intertemporal and intrafamily correlation. In general if the absolute value of the *t* statistic is greater than 2, the hypothesis that there is no difference between groups is rejected

**User fees in Canada:** Beck (1974) studies the effect of user fees upon the poor. In 1968, the government of Saskatchewan, in Canada, introduced user charges for

doctor services; for each office or home visit and for each emergency or hospital out-patient visit. Additionally, hospitals introduced a per-day user fee (to a maximum of 90 consecutive days). These user charges were removed in 1971. Beck finds that the user fees resulted in a decline in the use of doctor services by the average family of approximately 6 to 7 percent. However, the poor experienced a reduction in doctor services of 18 percent. He concludes that the imposition of user charges introduced a barrier to services to lower income groups.

In a later study, Beck and Horne (1980) examine the effects of the introduction and removal of these user charges. The data come from a database of about 40,000 Saskatchewan families and cover the period from 1963 to 1973 for ambulatory services and 1966 to 1973 for hospital services. On average, the use of doctors' services declined by 5.6 percent per year, but there were no significant differences in the probability that patients would be admitted to a hospital, or that their average length of stay would change, with the introduction or removal of user fees.

**User fees in California:** In 1972, the California State Department of Health Care Services introduced a user charge on certain Medicaid beneficiaries for the first two doctor visits and the first two drug prescriptions per month. The user charges were imposed only on Medicaid beneficiaries who had some 'additional financial resources' (see Roemer *et al.* 1975 for more details).

Roemer's group was asked by the department of health to study the effect of these new financial incentives. The Medicaid beneficiaries were divided into two groups: the ones who faced a user charge (co-pay) and the ones who did not (no-pay). Due to the design of the experiment, the co-pay group, by definition, had more financial resources than the no-pay group. (But the authors could not control for differences in socio-economic characteristics nor for the effect of the many administrative changes that were introduced during the experimental period.)

Roemer *et al.* found a significant difference between the co-pay and no-pay groups in visits to doctors at their offices. Members of the co-pay group, when compared to the members of the no-pay group, significantly reduced their use of doctors' services. Moreover, there was a significant reduction in diagnostic tests (*e.g.* urinalyses), preventive procedures (*e.g.* Pap smears) and drug prescriptions when the user fee was introduced. The hospitalization rate (*i.e.* the number of hospital admissions) amongst the co-pay group increased to higher levels than it did amongst those on the no-pay scheme. It seems that the poor were indeed getting a worse service.

In 1982, the State of California ended its assistance program for its 'medically indigent' adults. It no longer provided financial assistance for medical services for people between the ages of 21 and 65 who were poor and medically needy and did not receive financial assistance from any federal program. Lurie *et al.* (1984, 1986) studied the effects of this on the health of the poor. The results were revealing.

After only six months, a deterioration in patients' access to care and health was observed. There was a noticeable and significant increase in uncontrolled hypertension. Hypertensive patients, with no access to free care, experienced higher blood pressure and general health decreased. A follow-up study was performed to control for the possibility that this was only a temporary phenomenon. It found that the deterioration in health due to the termination of the California benefit program was not temporary. General health had declined further and blood pressure was still

high. It was even found that lack of access to care played a part in at least four deaths.

**Conclusion.** This evidence supports the findings of the HIE that those both sick and poor need to be treated differently from the rest of the population. In an MSA plan, this would entail fully subsidizing the excess of those both sick and poor.

### **Income and the demand for health care**

It is often assumed that the poor consume a disproportionate share of health care and thus benefit more than the wealthy from a taxpayer-funded health system such as that in the UK. Phelps (1992) uses the RAND HIE data to calculate income elasticities for different types of illnesses. These estimates suggest that income elasticity of demand for medical services is positive — that is, people tend to demand more health care services as their income increases — and ranges from 0.12 (for ‘well-care’ check-ups) to 0.22 or more (for acute and chronic conditions).

In cross-sectional studies such as the HIE, medical technology is held constant but increases in income can stimulate the demand for new medical services. Since time-series data and cross-country studies do not take the level of technology as fixed, they usually generate higher estimates of income elasticity, sometimes significantly greater than 1.0 (Phelps 1992) — that is, the amount of health care demanded increases by more than the percentage increase in income. However, these estimates may not apply to the UK because the pure income effects will be small or zero when all coverage is free (Phelps 1992).

Several studies (Forster 1976; Alderson 1970; Le Grand 1978, 1982) examine the distribution of public spending in Britain. Le Grand finds that the wealthiest one-fifth of the population receives 40 percent more public money for their health care than the poorest one-fifth: there seems to be little the NHS can do, on its own, to reduce the inequality in its use (Le Grand 1982: 51).

### **MSAs and preventive care**

The RAND HIE studies the effect of cost-sharing on preventive care. Preventive care is defined for children as visits associated with the diagnosis or procedure codes for examinations, immunizations, or tuberculosis tests. For adults, it is defined as visits associated with immunizations, annual physical examinations, administrative examinations, routine gynecological examinations, and office visits listed as well-care visits (for more details, see Newhouse 1993: 176-80).

Although cost-sharing reduces the consumption of preventive services, the differences in use between the free plan and the three cost-sharing plans are only marginal.

It is often argued that MSAs can make individuals more responsible with respect to their own health because of the financial incentives they provide. The finding that there is a slight decrease in the consumption of preventive care when cost sharing increases, means that MSAs may not result in higher consumption of preventive medicine. However, if the introduction of MSAs results in less use of medically

desirable preventive medicine, these preventive programs could be exempted from cost-sharing, prompting people to use more of them.

### **MSAs and the poor**

The RAND HIE (Newhouse *et al.* 1993) finds that the reduction in medical services used as a result of cost-sharing has little or no net adverse effect on health. Although studies on the effect of cost-sharing on health status indicate that the health status of the poor and the sick may worsen if cost-sharing is introduced or augmented, they do not show that the rest of the population will necessarily experience a decrease in health status if cost-sharing is introduced. Therefore, if high-risk individuals are excluded from any cost-sharing programs, there is little evidence to support the argument that an increase in cost sharing will lead to a general decline in health.

The results of the Saskatchewan Experiment and the California Co-payment Experiment may lead one to reject user charges. Beck and Horne (1980) and Roemer *et al.* (1975) conclude that user charges may not even lead to lower health care expenditures. However, MSAs need not impose a financial barrier to care. MSAs allow policy makers to exempt a certain segment of the population (the sick, the poor, and the sick-poor) while providing financial incentives to wealthier individuals to either contribute resources to the health care system, or refrain from using it excessively.

### **MSAs and supplier-induced demand**

Wherever cash contributions are made for health services, doctors may have an incentive to encourage patients to consume more of those services — the phenomenon of supplier-induced demand.

The size of the literature about SID renders a complete and detailed review impossible here. Ferguson (1994), however, provides a basic review of different interpretations of SID. He divides models of inducement into four categories:

- (1) market-level models;
- (2) individual-level model;
- (3) doctor response to price incentives;
- (4) small area variation (SAV).

**Market-level models:** Ferguson analyses three types of market-level models. First, he examines models that are built on the idea that an increase in the number of doctors will increase the use of health care and thus costs. Essential to this hypothesis is the notion that this increase in use is not medically necessary (*i.e.* it will not improve a patient's health). Studies that examine the relationship between use and the supply of doctors usually use a basic model that assumes that the number of medical services demanded is determined by the number of doctors and other variables such as price, waiting time and income. Studies that use this method (Fuchs and Kramer 1972; Fuchs 1978; Richardson 1981) are seen as the backbone of SID theory. Fuchs's results (1978) show that a 10 percent increase in the number of doctors leads to a 3 percent increase in demand for health care. However, this type of study has been heavily criticized by both sides of the SID debate.



Second, Ferguson examines disequilibrium models. It is often argued that because of its complexities (*e.g.* public insurance and subsidies), the health care market will always be in a state of disequilibrium; that is, the supply of health care will never equal the demand for it. Cromwell and Mitchell (1986) and Ferguson and Crawford (1989) use disequilibrium models to test the SID hypothesis. Cromwell and Mitchell find that a 10 percent increase in surgeons per capita leads to a 0.9 percent rise in all surgery per capita and a 1.3 percent increase in elective procedures per capita. Ferguson and Crawford find evidence of persistent disequilibrium but no support for the SID hypothesis.

Third, Ferguson (1994) examines models of imperfect competition. Stano (1987) finds that SID is more important when the local medical market is closer to a monopoly (*i.e.* when there are very few doctors providing services). As the supply of doctors increases, the importance of SID diminishes. Ferguson concludes his review of market-level models by stating: 'neither the equilibrium nor disequilibrium market-level models ... give much support to the SID model' (1994: 73).

**Individual-level model:** As opposed to the market-level models which use market-wide data, individual-level models use micro-level data. Stoddart and Barer (1981) use data from 1,300 British Columbia families who received ambulatory care during 1973/1974. Their results support the inducement hypothesis. However, there are several serious econometric problems with the study (Ferguson 1994). For example, Stoddart and Barer use a test that compares the R<sup>2</sup> values of equations with different variables. (R<sup>2</sup> values represent the proportion of the change in the studied variables that is explained by the other variables in the model of equations.) Comparing R<sup>2</sup> values between equations — let alone those of equations with different variables — is not considered proper econometric analysis.

Ferguson (1994) also examines the work of Wilensky and Rossister (1981, 1983), which uses data from the 1977 US National medical Care Expenditure Survey. They test supplier-induced demand by estimating the effect of the availability of doctors on several variables such as the probability of doctor-initiated visits, the number of visits to the doctor, expenditures on services, and the likelihood of services being used. Wilensky and Rossister find that the availability of doctors has a positive but small effect on these measures: there is no serious doctor-induced demand, and its policy relevance is small. (Wilensky and Rossister 1987: 626)

On the other hand, Tussing (1983) and Tussing and Wojtowycz (1986) use a method similar to that of Wilensky and Rossister. Using 1981 data from a survey of health care use in the Republic of Ireland, they find support for the SID hypothesis: the supply of doctors increases the number of doctor-initiated doctor visits.

**Doctor response to price incentives:** The SID literature has recently devoted particular attention to doctor responses to price incentives (*e.g.* fees). Ferguson (1994) points out that there is no consensus in the literature on how to formulate this hypothesis. For example, some argue that a decrease in fees followed by an increase in the quantity of services supports the SID hypothesis because doctors are trying to maintain their level of income. Others argue that an increase in services that follows an increase in fees is also evidence of SID because doctors now make more money per visit and, therefore, they induce unneeded visits.

Hickson, Altemeier, and Perrin (1987) examine the response of medical service providers to price changes. They constructed an experiment: 18 pediatric resident doctors in a pediatric clinic were assigned randomly to two group practices (fee-for-service and salary). The results show that fee-for-service doctors scheduled more visits, provided better continuity of care, and were responsible for fewer visits to the emergency room. Salaried doctors missed more visits recommended by the American Academy of Pediatrics than fee-for-service doctors. The effect on total costs was not clear because fee-for-service doctors had increased costs due to more office visits but also reduced costs from less use of emergency room care.

**Small area variation (SAV):** The literature about small area variation (SAV) examines the reasons why geographic regions with similar populations and similar incidences of illness use doctors' services at different rates. Most studies of SAV have found a significant relationship between the availability of resources and their use. (For a review of the literature, see McLaughlin *et al.* 1989; Paul-Shaheen, Clarke, and Williams 1987; Joseph and Phillips 1984.) Intuitively, it makes sense that, if more resources are available to patients, they will take advantage of them. If a previously unavailable eye laser surgery that can help patients with glaucoma see better becomes available, it is not surprising that such patients will opt to have the procedure performed. This positive relationship between resources and use, however, is often used as evidence of SID. (See, for example, Folland and Stano 1989; Wennberg, Barnes and Zubkoff 1982; Park *et al.* 1986; Vayda 1973; McPherson *et al.* 1981.)

Reviews of the literature by Ferguson (1994: 124-27) and Feldman and Sloan (1988) suggest that there is little evidence for SID. Rice and Labelle (1989), on the other hand, conclude the opposite. While the Saskatchewan experiment is often presented as evidence that doctors do, in fact, induce demand, its own authors do not conclude that their findings are necessarily the result of SID.

It does not seem that a consensus is likely, and this offers little comfort to policy makers. The only consensus is that there is no consensus. But Tussing makes the interesting point that patients are more likely to resist demand stimulation when their out-of-pocket costs are high (1983: 229). In other words, giving people financial incentives like those in medical savings accounts may make it harder for doctors to induce demand than they could do when care is paid for by insurers or by the state.

# Notes, references, bibliography

## Notes

1. Though there is an opportunity cost associated with the employer's contribution. That is, the money put by an employer into an individual's MSA cannot be spent elsewhere — on wages, for example.
2. For a more detailed analysis and evaluation of the introduction of Medisave, Medishield and Medifund accounts in the Singapore health care system, see Hsiao 1995, Massaro and Wong 1995, and Asher 1995.
3. The RAND Corporation, based in Santa Monica, California, is a non-profit institution that tries to improve public policy through research and analysis. It attempts to achieve complete objectivity by avoiding partisanship and disregarding vested interests. For a more in-depth discussion of the design of the HIE experiment, see Newhouse 1993: ch. 2.
4. The HIE (Newhouse *et al.* 1993) elasticity estimates, based on the experimental data, range from -0.10 to -0.22 for all care and from -0.13 to -0.31 for out-patient care.
5. Feldstein and Gruber use data from the 1987 National medical Expenditure Survey (NMES), which is collected by the Agency for Health Care Policy and Research. The sample used contains 6,000 insurance units and the data are weighted to correct for any changes in income and demographic mix between 1987 and 1995. Health care spending is defined as expenditures on doctors and hospitals.
6. The firms surveyed were the Golden Rule Insurance Company Plan in Indianapolis, IN; Valley Surgical Group in Phoenix, AZ; Morris County Hospital in Kansas; Dominion Resources in Richmond, VA; Progress Sharing Company in Saco, ME; Quaker Oats Company; and Windham Hospital in Willimantic, CT.

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