Notes - Gruber, Public Finance

Chapter 15 - Health Insurance

US is only major industrialized nation that doesn’t try to give universal health care access to its citizens. 46 million people have no health insurance. Yet, gov spending on health care is almost 1/2 of health care spending in US. (spending on health care is more than 1/5 of federal budget).

Including both private and gov spending, spending on health care was 1.9 trillion - 16% of GDP - in 2004. US (gov and private) spends more as a percentage of GDP on health care than other industrialized countries. $6,470 on average spent (by gov or privately) on health care for each person in US.

Much of health care funded through insurance.

Individuals or firms pay monthly premiums to insurance companies. Insurance companies pay medical providers some of the costs of medical care used by the individual. Under most plans the individual also pays for some of the costs.

Three types of payments:

Deductibles - individuals pay the full cost of care up to some limit. $100 deductible means you pay the first $100 of medical costs and the insurance company pays the rest.

Copayment - individuals make a fixed payment every time they get medical care, like $10 per doctor’s visit.

Coinsurance - individual pays a fixed percentage of each medical bill.

68.1% of population had private health insurance in 2004. Of those only 14% buy insurance on their own, the rest gets it through their employer.

Employers offer insurance to employees, usually to get it an employee must work full time and have worked for a minimum length of time. Employees usually must pay a share of the premiums. Some employees choose not to take employer-offered insurance - most employers do not require it.

Why do employers provide insurance? 1. Risk pooling. It is easier for insurer to predict the pooled risk of a large group of people than to predict the risk of a single person. It can then charge a premium that covers claims costs, administrative costs and profits.

Two things increase the predictability of medical risk distributions. One is the absence of adverse selection. As long as people are not choosing their employer based on their health, the insurer will be able to approximately predict the medical risk of a pool of workers based on their age and sex. The other thing is the size of the pool. As the group size grows, the expected pooled risk of the group comes closer to the population expected risk, by the law of large numbers.

Most people work in large enough firms, so that the pooled medical risk can be
predicted by the population medical risk.

2. Another reason why insurers prefer to have large groups covered by the same policy is administrative costs. There are large fixed costs to providing a policy - such as the costs of designing the policy or of calculating the insured’s expected risk. These fixed costs can be spread around if the size of a pool is large to get lower average costs.

In fact, large firms offer health insurance to their employees more than do small firms. 98% of firms with more than 200 workers offer it, compared to 47% of firms with less than 10 workers and 72% of firms with 10-24 employees. This is due to both a higher premium offered to smaller firms due to the higher risk of insuring a small group of people, and to the fixed administrative costs which translate into a higher premium as well when they are spread across fewer people.

There is a tax subsidy to employer-provided health insurance. Wages are subject to taxes, but compensation in the form of health insurance is not. If you are paid a dollar in health insurance you keep the full dollar, whereas if you are paid a dollar in wages, you keep only \(1 - \tau\) of it, where \(\tau\) is your tax rate.

Nongroup insurance. 70 million people are neither covered by employer insurance nor public insurance. Of these 37% have nongroup health insurance. Who are these people, what income levels, etc.? The nongroup health insurance market is not a well-functioning market - some people are unable to get it or must pay an extremely high price if they have preexisting conditions. Often such policies will not pay for costs associated with an illness that the insured had when signing up for the policy.

Public health insurance - Medicare and Medicaid

Every citizen who has worked for 10 years in Medicare-covered employment and their spouse is eligible at the age of 65. Cannot access it earlier than 65. Also covers those receiving disability insurance. Financed by a payroll tax on 1.45% each on employees and employers.

Medicaid is financed by general tax revenues, by both federal and state governments. Eligible: Those who qualify for cash welfare programs, children whose parents earn below 200% of federal poverty line, pregnant women typically below 200% of poverty line, only for expenses associated with pregnancy, low-income elderly and disabled for non-Medicare covered health costs and nursing homes. Mothers and children are almost 70% of program recipients. Nursing homes expenditures make up 20% of Medicaid spending.

TRICARE/CHAMPVA are health insurance for formerly or currently in military and their dependents.

Uninsured - 45.8 million. 2/3 of uninsured are in families with income below twice the poverty line. 21.1% uninsured in families with incomes above 40,000 per year. In 2004, 70% uninsured came from families where one or more mem-
bers were full time workers but were either not offered insurance by employer or chose not to take insurance offered. 1/5 uninsured are children.

Uninsured tend to use emergency room more heavily as primary care.

What happens if an uninsured person is in an accident?

Federal law says that all hospitals with emergency rooms must admit emergency patients. You can’t be turned away because you can’t pay or have no proof of insurance. If an emergency exists, the ER staff must stabilize your condition. If a hospital doesn’t have the facilities or the doctors to treat a problem, it has the right to transfer you.

Many people do not move to more productive jobs for fear of losing insurance. this can result in a mismatch between between workers and jobs - workers may stay in large, older and less dynamic firms that offer health insurance, rather than move to a smaller more dynamic firm that does not offer health insurance. Note that employers are not required to offer health insurance in most states.

Chapter 15.2

How generous should health insurance be to patients? Insurance provides consumption-smoothing benefits, but also costs in terms of moral hazard. For Social Security, generosity is measured by replacement rate - ratio of benefits to earnings before retirement. For health insurance, generosity is measured by the share of medical spending that is reimbursed by the insurer.

One must consider both the generosity of the insurer to patients and to medical care providers. The most generous insurance policy to patients pays providers the full cost of medical care, at no cost to the patient. The most generous plan to providers reimburses them fully no matter what the procedure or type of care chosen is. Should providers be limited on how much care they can be reimbursed for?

One possible limit could involve the predictability of a medical event, and the price of treatment. Insurance against unpredictable events that lead to a large loss of income provides more of a consumption-smoothing benefit to risk-averse people than insurance against predictable events that don’t lead to large income loss.

Consumption-smoothing benefits of health insurance for patients

Risk averse people choose to buy insurance against adverse, unpredictable events that would lower their income. But some events insured against in health insurance are predictable - a checkup with a doctor is often covered by insurance, as well as an unpredictable event such as a heart attack.

Insurance is more valuable in covering unpredictable events than predictable events - more consumption-smoothing benefit is provided by insuring against unpredictable, especially major events.
There is only a small utility gain of insurance against a minor event. Suppose Sam has an income of 30,000, a utility function of $U(I) = I^{1/2}$, and faces a 1% risk of being in a car accident, in which case he loses $100. His utility with no insurance is $0.99 \times (30,000)^{1/2} + 0.01 \times 29,900^{1/2} = 173.2$. His utility with actuarially fair full insurance is $29,999^{1/2} = 173.2$ (rounded off - it’s still slightly higher than without). His utility is essentially the same with insurance as without insurance. The consumption-smoothing benefits of having insurance versus not having it are greater the greater the potential loss is relative to one’s income.

Also, if medical bills are predictable, people are better able to self-insure through saving, as opposed to insurance.

Should insurance be less generous? One idea involves the moral hazard costs of health insurance (here, moral hazard refers to the fact that a person chooses to buy more medical care if they are insured due to its lower price).

Illustrated in Feldstein (1973). Diagram: Horizontal axis shows number of visits to doctor’s office (could also represent number of medical procedures or drugs taken). Vertical axis shows cost of each visit. Assume the marginal cost of an additional doctor’s visit is constant at $100. Thus the supply curve for medical care is the horizontal line at $100. Assume the patient has a downward-sloping demand for health care - wants to consume less health care the higher the price of health care. Assume the patient is insured as part of a large group. The only costs to him of additional visits are the copayments, which are $10 per visit. The optimal amount of doctor’s visits is where the demand curve intersects the supply curve, which is also the social marginal cost curve. But with a copay, of only $10, the patient will choose the number of doctor’s visits where the horizontal line at $10 intersects with the demand curve, because the horizontal line at $10 is the private marginal cost of an additional doctor’s visit. The deadweight loss is the triangle between the SMC curve, the PMC curve and the demand curve. This deadweight loss is due to moral hazard.

The benefit of having such a small copayment is consumption smoothing.

However there are counterarguments to the idea that small copayments lead to inefficient spending on health care. First, you can’t necessarily always equate the demand curve with the social marginal benefit curve. The demand curve depends on how much an individual can afford as well as how much they are willing to pay for medical treatment. The social marginal benefit curve probably lies above the demand curve, due in part to externalities of health care.

Access motive - traditional analysis overstates costs of moral hazard. Because some of the additional medical care used when there is insurance is due to the fact that people can now afford better treatment. Suppose you had an illness that cost 1 million to treat, if someone gave you 1 million you would immediately spend it on medical care, but you don’t have 1 million. If you had insurance to cover the illness, you would get it treated. Then there is no moral hazard.
involved. The value to you of the treatment is very high, even though you couldn’t afford it without insurance.

Technically, moral hazard is the difference between the health care you would buy with 1 million dollars of insurance as opposed to with 1 million dollars in cash. If you would get treated when you have insurance, but not if someone handed you the cash, then the insurance is causing moral hazard. But if you would buy the treatment with either the insurance or the cash, there is no moral hazard. Insurance has allowed you to transfer resources from the healthy state to the ill state. Moral hazard is measured by the substitution effect of the insurance - how much you change behavior in response to changes in relative prices. The income effect of social insurance programs - how much you change behavior because you are richer - is not moral hazard.

Second, having a low cost of routine checkups can avoid much larger costs later on. For example, many health conditions, such as diabetes, high blood pressure, cancer, heart conditions, glaucoma can be treated better if they are diagnosed earlier. The costs of treatment are usually much higher (or the effects are much more severe) if the conditions are not found early. This gives a good reason to provide low-cost routine doctor checkups.

Also, why would insurers offer to pay for routine doctor checkups? They are predictable, the probability of having a doctor checkup is around 100%. If the insurer offered actuarially fair full insurance for the event of having a doctor checkup, the premium would equal the price of the checkup. Yet many insurance policies pay for some of these routine checkups. It must be because it is advantageous to them in some way. Most likely that way is that routine checkups prevent larger costs later on.

Part of the increase in demand for medical care when price decreases (the elasticity of the demand for medical care curve) also depends on doctors’ choices of what care to provide. This depends on the generosity of insurance to providers, which we discuss below.

Nevertheless, some researchers think that there is overspending on medical care. They believe that the effectiveness of additional medical spending decreases first slightly, the drastically, as medical spending increases. For efficiency, people should stop consuming more medical care when the additional benefit to health becomes smaller than the medical cost (how is additional benefit to health measured - must transform well-being or years of life to dollars). In the graph of dollars of medical spending versus dollars of marginal health benefits, spending on medical care should stop at the point where 1 dollar of medical care buys 1 dollar of additional benefits. This is where it would stop if people paid for medical costs themselves.

Some studies find that 1/3 of medical procedures are ”of questionable benefit”, e.g. carotid endarterectomy.

How much moral hazard causes equilibrium quantity of health care consumed to
exceed socially optimal quantity of health care consumed depends on copayment amount and elasticity of demand for medical care. One might think that people would only consume what they need and not more. But empirical studies show that amount consumed does depend on price.

The RAND Health Insurance Experiment (HIE) took place in 1970’s in several locations in US. It was a randomized trial: Individuals were randomly assigned to plans with different coinsurance rates. Some people were put in plans with no coinsurance and others in plans with a 95% coinsurance rate, as well as the whole range in between. To make these outcomes somewhat less unethical, once families had spent $1000 on medical care they did not have to pay any more regardless of their plan. It turned out that demand for medical care is price sensitive. They found an elasticity of demand for medical care of 0.2 - low but implies a huge deadweight loss from insurance coverage - estimated to be $125 to $400 billion per year.

The study also found that those who used more health care due to lower price did not see major improvement in health. These results imply that once individuals are insured against large expenditures (in the study every expenditure above $1000 was paid for), changing coinsurance for small expenditures does not seem to change their health on average.

However for people who were chronically ill and didn’t have enough income to cover copayments health deteriorated when they were on the high coinsurance plan. Low income people with high blood pressure had increases in blood pressure due to lack of care. Thus, people with treatable, chronic illnesses can be made worse off by having to make higher copayments. Studies find that for the chronically ill, raising copayment raises total medical costs because they didn’t use prescription drugs or visit the doctor until their condition was very bad, and needed higher-cost care. This can apply to chronic conditions like diabetes, where the maintenance costs of taking insulin, checking insulin levels etc are relatively low, but the costs of care if not treated (amputation of a foot or leg) are much larger.

What would the optimal level of insurance look like?

If there is significant deadweight loss from moral hazard in the health insurance market, then an optimal health insurance policy (from society’s point of view) would have individuals paying for most of costs within an affordable range, but be fully insured when costs are unaffordable.

According to Feldstein, first-dollar coverage has moral hazard costs, encouraging individuals to overuse the medical system by getting care for which the marginal social costs exceed the marginal social benefits. First dollar coverage has little consumption smoothing benefit. With little benefit and high cost, the optimal insurance plan should not provide such coverage. It should only provide insurance for large and/or unpredictable expenses such as heart attacks, for which consumption smoothing gains are large.
Feldstein (1973) proposed a “Major Risk Insurance” plan - everyone would make 50% copayment on all medical care until they spend 10% of income on medical care. Beyond that there would be no more copayment. Problem with this would be the treatment of chronic illness - for such people, the copayments for even low amounts of spending should be waived.

Why is insurance so much more generous than this proposal? One reason could be the tax subsidy given to employer-provided health insurance. Payments to employees through health insurance and untaxed, while payments as wages are taxed. By lowering the relative price of health insurance, this has the effect of increasing health insurance consumption relative to other goods. The government “subsidizes” health insurance in this way because of the positive externalities associated with having health insurance (contagious disease prevention, children getting health insurance) and because of adverse selection, which would tend to make an inefficiently low quantity of insurance be sold in markets without government intervention.

A proposal has been made to cap the subsidy. You would be taxed on insurance spending above a certain level. This would encourage basic (like catastrophic) insurance spending, but not much in excess of that.

How generous should insurance be to medical providers?

Insurers can’t always know how much it should cost to treat an illness. How should they decide how to reimburse providers for care?

Traditionally, insurers reimbursed the amount billed. This is called retrospective reimbursement. With this kind of reimbursement, there is no incentive for providers to treat their patients in the most cost-effective way. If doctors care only about making a patient better, they will choose any medical procedure or test whose private benefit to the patient exceeds the private cost to the patient (coinsurance or copayment plus discomfort of procedure). But the social marginal cost of such a procedure may exceed the marginal benefit to the patient. There is then deadweight loss.

If doctors care about their incomes, not just about the health of the patient, they will perform any procedure that does no harm as long as they get reimbursed with a net profit.

Managed Care and prospective reimbursement

Overconsumption of medical care through both patient and provider moral hazard was thought to be a cause of rapid postwar rise in health care costs.

Real health care costs rose in the 60’s, 70’s and 80’s. In the late 80s and 90s private insurers and public insurers began using managed care, which limits how much medical care can be given by the provider. It has two forms:

Preferred Provider Organizations (PPOs)- because it is difficult for consumers to compare costs of different doctors or hospitals, PPOs do this - they make deals to lower cost of care. For instance, they could go to an employer, offer
a discount on medical care costs if willing to restrict set of hospitals used by employees. Then go to hospitals and ask for a discount in exchange for getting them the business of that firm.

Health Maintenance Organizations (HMOs)- hire their own doctors or have their own hospitals. Care providers have a salary independent of the amount of care they give.

This creates an incentive for the doctor to give less care. For example if a doctor is paid $100 a month for each patient, they get to keep less the more expensive care they give.

Most insured people in US were switched to a kind of managed care over 90s. 97% of privately insured are in managed care plans.

Private health insurance market seems not to be perfectly competitive - the total profits made by the industry were above 60 billion in 2008. Why might the health insurance market not be competitive? It most closely resembles a monopolistically competitive market, with many firms offering differentiated products. There are also barriers to entry: High fixed costs - administrative costs (costs of designing contracts aimed at low-risk customers - they don’t know the potential customers’ preferences), advertisement costs. Reputation - hard for new company to come in.

The observed profits in general may be an exaggeration of expected profits since there may be years with epidemics in which there would be losses. But it’s true that high profits have been going on for a long time.

Health insurance premiums have been going up drastically in the last 10 years. Most employees don’t see that - it is their employers who pay the higher pre-

Why is the outcome in reality so different from the possible separating equilibrium predicted by the insurance model we studied? In the insurance model, the only possible separating equilibrium has the high-risk types being offered full actuarially fair insurance and the low-risk types being offered actuarially fair, less than full insurance. But in reality, people with higher risk of getting sick (such as those with preexisting conditions) often cannot buy insurance at all. So something must be different from the model.

First, the insurance market is not competitive, so higher prices prices than actuarially fair can be charged (even with competitive markets actuarially fair prices would not be charged due to administrative costs). Second, the extremely high probability of loss causes the actuarially fair price to be very high, so that at a price higher than actuarially fair, the high-risk types would demand very little insurance. With little demand for such policies, but very high fixed costs of designing the policies and monitoring the customers to see if they can be denied coverage, it is not worth it to offer such policies in the first place.

Another reason why demand is low for such policies is that people with preexist-
ing conditions tend to have lower income, as being poor increases the likelihood of getting sick, and being sick tends to reduce people’s income (through job loss, expenses).

A third reason for the low demand for such policies is that low-income people may be able to get coverage from sources other than private insurance. For instance, they may be able to get on Medicaid, or go to emergency rooms, or get charity care from private doctors.

Obama’s health plan

Goals: Have doctors making decisions based on what is medically optimal rather than based on what reimburses them the most.

Reduce government’s costs and payments made by consumers.

Aspects of the plan

1. Insurance companies will not be able to prevent individuals from getting coverage due to prior conditions.
2. Set up an organized market for group insurance, which facilitates individuals buying insurance if they don’t get it through an employer. Such a market exists now, but it is not organized.
3. Changes in the tax incentives that encourage more employers, in particular in small companies, to offer insurance to their employees (e.g. penalties if they don’t). Debate about whether this will raise costs to small employers, raise unemployment.
4. Subsidies to low-income individuals for insurance coverage.
5. Set up a public insurance provider which anyone could use.
6. Controlling costs through reforms of reimbursement systems for Medicare and Medicaid. These are reimbursements to physicians, hospitals and drug companies. Reducing the tax break on expensive insurance contracts.

Summary of some different countries’ health care/health insurance systems

1. Switzerland (from "In Switzerland Everyone is Insured and Businesses don’t pay" by Jim Landers, Dallas Morning News, 2/7/2006)

Private system regulated by government

Government enforced price controls on health care. Health care prices set each year after negotiations between insurers and medical providers. Canton must approve the prices before they go into effect.

Price ceilings for drugs

All citizens mandated to buy health insurance

Health insurance is bought privately, not through employer

11.5% of national income spent each year on health care - more than any
country except USA (16%).
Family of four pays $680 a month on average in premiums. Low-income families get government assistance for paying premiums. 1/3 of residents are subsidized for health insurance.
Can choose any doctor in canton.
87 health insurance companies - must offer a basic policy priced without regard to risk. Consumers choose among plans. Difficult to make an informed choice.
Health spending as a percentage of GDP: 11%
A study by Nolte and McKee in Health Affairs examined avoidable mortality - based on data from 2000, France ranked no. 1, US last (no. 19).
about 77% of health care expenditures covered by government
Insurers are non-profit agencies - for basic coverage, people are automatically assigned to an insurer based on their type of work (agricultural, self employed, or the rest). Private supplementary insurance can be bought as well.
All health insurance programs are subject to the same regulations: Cannot turn down a client for preexisting conditions, cannot terminate you for changing jobs, and cannot stop paying when expenses exceed a certain amount.
doctors are private, but paid from publicly funded insurance funds.
patients have more choice of doctor and of hospital than an average American hospitals can be public, private non-profit or private for-profit
Health care costs controlled through government-negotiated price controls (negotiated with doctors, hospitals and prescription drug companies). Also, less expenditure on administrative costs than US system.
3. Great Britain
4. USA
The US health care and health insurance system (taken from Professor Pinka Chatterji’s notes)
Financing, delivery, insurance, and payment all come from both public and private sources.
The system is mainly market based. There is no guarantee of access to services.
In the private portion of the insurance market, employers buy insurance for their employees. Employees can often choose from a set of insurance policies which have agreed to cover the employer’s workers. People then receive care through the private sector.
In most states, employers are not mandated to buy insurance for their employees. Many workplaces do not require the purchase of health insurance by their employees.

In the public portion of the insurance market, government finances insurance through Medicare for elderly, Medicaid for people with income below a certain level and for disabled, SCHIP for children.