

The Economic Aspects of Health Care Administration

Lecture Notes

Introduction

1. This American Life Podcast Discussion
2. What is Health Economics?

Economics looks at the world from a perspective of choices we make given our limited resources.

Scarcity-- Limited nature of society's resources

Opportunity Cost - the highest valued alternative to choosing an action

Economics - the study of how society manages its scarce resources
Or the study of how to detect unintended consequences.

Health economics studies how resources are allocated to and within the health economy.

There are special challenges to healthcare managers

1. The central roles of risk and uncertainty – both the incidence of illness and the effectiveness of care are described in terms of probabilities. These change our behavior. Even the correct therapy, provided the right way may carry some risk of failure.
2. The complexities created by insurance – because of risk and uncertainty, most consumers have medical insurance. This puts a wedge between the payer and the user and has a huge impact on incentives. It also complicates even the simplest transaction – now there are at least three parties involved in any transaction.
3. The perils of information asymmetries – not only is there incomplete information (uncertainty), there is also often asymmetric information. This can lead to a type of market failure known as adverse selection – or death spiral.
4. The problems posed by not-for-profit organizations – multiple stakeholders mean multiple goals. Thus, organizations become harder to manage and managerial performance becomes harder to assess (ACHE concentration in nonprofit executives). How do nonprofits and for profits compete in the same market?
5. The rapid and confusing course of technical and institutional change – Technology is widely credited as the main driver for increasing health care costs. But is this driven by demand or supply?

Microeconomic Tools for Health Economics

Principles of Econ

Let's start with a few basic principles of economics.

4 principles of *individual* decision making

1. People face tradeoffs
2. The cost of something is what you give up

Opportunity Cost - the highest valued alternative to choosing an action

3. Rational people think at the margin – or sunk costs are irrelevant.
Marginal changes are small incremental changes
Airline example: it costs \$100,000 to fly a 200-seat plane, thus the average cost is \$500 per seat. One might surmise that the airline should never sell a ticket for less than \$500. Does this make sense? Use marginal thinking to refute.
4. People respond to incentives
Since people make decisions by comparing costs and benefits, then behavior changes when these change.
 - seat belt laws, motor cycle helmets
 - income taxes
 - mandatory employer provided benefits
 - minimum wages
 - employer wellness plans
 - insurance exchanges and the mandate

The next 3 principles deal with how people interact with each other.

5. Trade can make everyone better off
Popular notion is that trade between US and China is a contest-- there will be winner and a loser. In fact the opposite is true -- both sides are winners from trade.
To see this consider things at the family level:
 - looking for a job,
 - shoppingAll involve competing against other families since each family wants to buy the best goods at the lowest price and get the highest paying job, etc. But you would not want to isolate yourself from other families -- clearly this competition makes us better off. Same is true for countries, states, etc.
6. Markets are usually a good Way to Organize Economic Activity
Market Economy -- an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services.

It is hard to imagine that decentralized decision making by millions of self-interested households and firms would not result in chaos. Adam Smith first talked about the Invisible Hand -- the idea that markets act as if they were guided by an invisible hand that led them to desirable outcomes.

Prices are the key to this working. Microeconomics is often called Price Theory. We will find that prices generally reflect both the value of a good to society and the cost to society of making the good. Markets in equilibrium set these two equal to each other, so that the only goods are made that have a higher value than the cost to society of making them. This is a HUGE deal.

7. Governments can sometimes improve market outcomes.

Market Failure - a situation in which a market left on its own fails to allocate resources efficiently

Externality - the impact of one person's actions on the well-being of a bystander

Public Good – A good that is both non-excludable and non-rival, eg. Police protection, care for the poor.

Market Power -- the ability of a single economic actor (or small group of actors) to have a substantial influence on market prices.

Information Asymmetries – when one side of the market has better information than the other

Supply and Demand

Demand

The Law of Demand

There is an inverse relationship between the price of a good and the amount of it consumers choose to buy

Two effects of a price change:

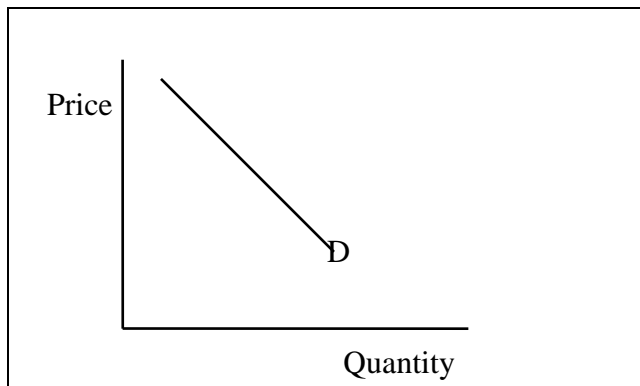
Income effect – lower price means that a consumer's real purchasing power increases, which increases the consumption of the good and likewise for a price reduction.

Substitution effect – when the price of one good falls, the consumer has an incentive to increase consumption of that good at the expense of the other, now relatively more expensive goods.

Determinants of individual Demand

1. Income
2. Prices of related goods
3. Tastes
5. Expectations

Demand Schedule and Demand Curve



Market Demand vs. Individual Demand

-- market demand is horizontal summation of individual demand curves

Shifts in the Demand Curve

- Change in prices of related goods
- Change in income (normal and inferior goods)
- Change in tastes
- Change in Expectations

Price elasticity of demand and its determinants

Defn:

Price elasticity of demand -- a measure of how much the quantity demanded of a good responds to a change in the price of that good.

Determinants:

- Necessities vs. luxuries
- Availability of close substitutes
- Definition of the market
- Time horizon

Variety of Demand Curves

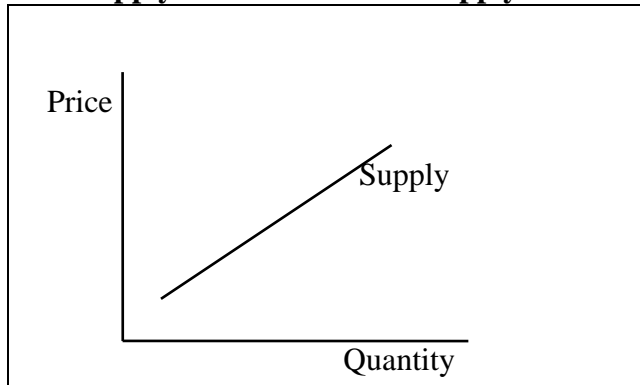
Supply

There is a direct relationship between the price of a good and the quantity supplied

Determinants of individual Supply

1. input prices
2. technology
3. expectation

The Supply Schedule and the Supply Curve



Market Supply vs. individual Supply

Shifts in the Supply Curve

- Change in the price of inputs
- Change in technology
- Change in the number of suppliers

Price Elasticity of Supply

Supply and Demand Together

Equilibrium

Changes in Equilibrium

- The market for pizza when the price of tomatoes increases
- The market for pizza when the price of beer increases

1. Health reform that succeeds in covering many of the uninsured. How would this affect the markets for health care in the short run?

Demand increases. (Independent of any cost control measures)

2. Hospitals can hire only baccalaureate RNs. How would this affect the market for hospital care?

3. Government lowers reimbursement rates paid to physicians for Medicare patients. How would this affect the market for non-Medicare patients?

In a competitive market, to the extent that physicians can move between Medicare and non-Medicare markets freely, physicians would shift more time and other inputs to non-

Medicare patient production. Shifting the supply to the right – resulting in *lower* prices for non-Medicare patients.

What about when Medicare lowers DRG rate to hospitals? How does this impact prices to non Medicare patients?

Market Failure and externalities

Externalities

Supply in More Detail: Production and Cost

Economic Costs

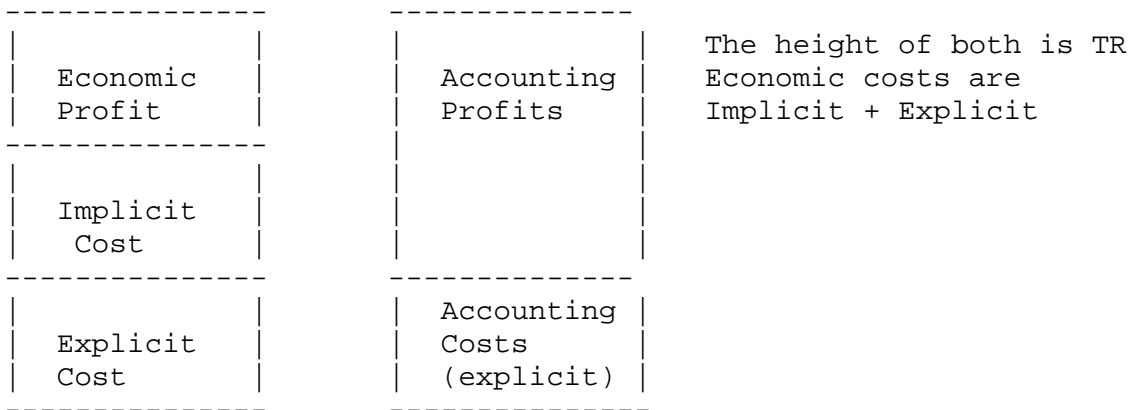
- Economic Costs of a resource is its value or worth in its best alternative use
- Include Explicit (cash expenditures to outsiders)
- Implicit (cost of self-owned resources)

Economic Profit vs. Accounting Profit

Profit - TR-TC

Economic profit Subtracts out economic costs (which include opp cost)

Accounting profit subtracts out only direct costs



Short-Run vs. Long Run

Short-Run -- Time period in which some factors of production are fixed (plant capacity)

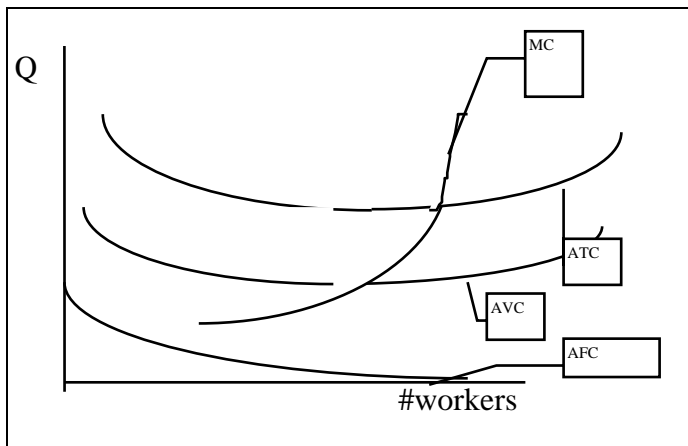
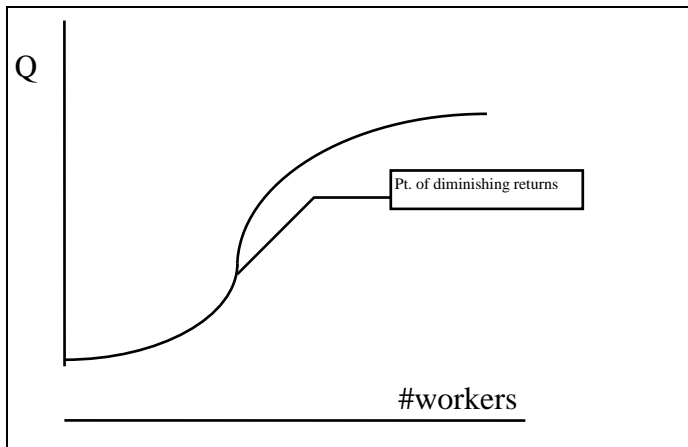
Long-Run -- Time period required for all factors to be variable

Since can be big difference - firms typically make 2 sets of decisions, SR and LR

Costs in the Short-Run

Law of Diminishing Marginal Returns - as successive units of a variable resource are added to a fixed resource, eventually, the extra (marginal) output attributable to each additional unit of the variable resource will decline.

Pin Factory -- 1. Cut the wire; 2. Sharpen, 3. Put on head



Costs in the Long-Run

Derive LRATC curve as a function of all the minima on the SRC curves Envelope

Economies of Scale

- specialization of labor
- specialization of managerial skill
- efficient use of capital

Diseconomies of Scale

Firms Under Competition

What is a Competitive Market

Characteristics

1. Many buyers and sellers in the market
2. Goods offered by the sellers are largely the same (homogeneous)
3. Firms can freely enter or exit the market

Revenue of a firm

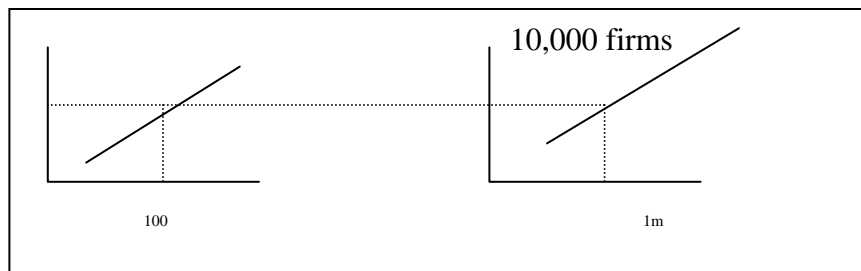
Suppose we are selling tomatoes – note that since we are small, that all we can do is take the market price as given

Profit Maximization and the Competitive Firm's Supply Curve

MR=MC MAXIMIZES PROFIT!!

Profit and Long-Run Adjustments

Do short-run market supply curve as the sum of all firms' supply curves.



Now show how things adjust in the long run so that profits are zero.

Long-run supply curve is vertical (assumes a constant cost industry)

Now do a demand shift

Externalities and market efficiency

Taxes and Markets

Monopoly

Assumptions

1. Single Seller - firm and industry are the same
2. No close substitutes - Coke and cola, DeBeers
3. Blocked Entry - High barriers to entry

Examples of Barriers to Entry

1. Economies of scale - natural monopoly
2. Legal barriers - patents, licenses
3. Ownership of resources - DeBeers, Alcoa

Marginal Revenue and Demand

Firm faces a downward sloping demand curve (the market demand) in order to sell more it must lower its price

<u>Q</u>	<u>P</u>	<u>TR</u>	<u>MR</u>
0	11	0	--
1	10	10	10
2	9	18	8
3	8	24	6
4	7	28	4
5	6	30	2
6	4	30	0
7	4	28	-2

Profit Maximization: MR=MC

Note that Monopolist cannot charge as much as it wants - it is constrained by demand

Efficiency

Deadweight Loss due to monopoly

$$P > MC$$

$$P < \text{Min (ATC)}$$

Price Discrimination

Movie theaters
coupons in paper
Prescription Drugs?

Lunch vs. Dinner prices
Blue light specials Hardback vs. Soft cover books

three conditions needed

1. Market power
2. Market segmentation
3. No resale

Movie theaters. What price to charge Senior citizens vs. adults
If had to charge one single price

More on cost shifting:

Let's come back to the idea of cost shifting

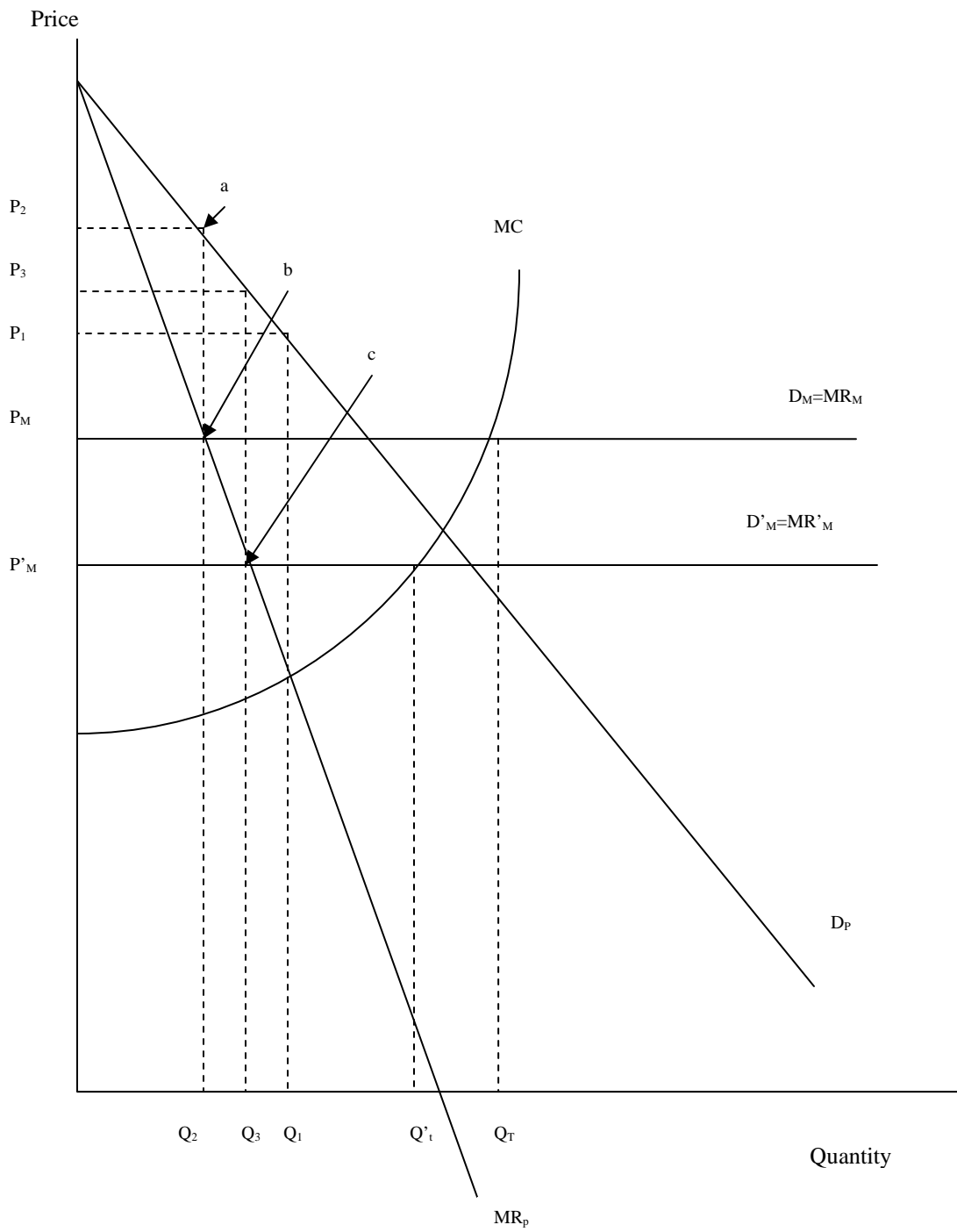
How do hospitals afford to provide free care to the uninsured, or care for Medicare/Medicaid patients at substantial discounts?

Consider the relationship between Medicare and private payers. Do Medicare patients simply receive a discount, or are private patients paying higher prices to subsidize care for the elderly?

In the diagram below consider the following demand and cost schedule facing a hospital with some degree of market power. If the hospital only served private patients, it would have a demand curve of D_P and marginal revenue curve MR_P .

Assuming profit maximization the firm would set $MR=MC$ and provide Q_1 services at a price of P_1 .

Now if the hospital decided to see Medicare patients, it is obliged to accept the approved DRG rate for the service (prospective payment). Typically, this is a price lower than the private price, say P_m , which represents demand curve D_M – it is horizontal since it get constant revenue for each patient.



Now the hospital's new total demand curve equal to D_p down to point a, dropping down to D_M thereafter. Also the new marginal revenue curve is MR_p to point b then becoming MR_M . So profit is maximized where $MR=MC$ providing Q_T services. The hospital sees Q_2 private patients and charges them a higher price ($P_2 > P_1$). The $(Q_T - Q_2)$ Medicare patients will be provided medical care at a price equal to P_M . Note that at point b the hospital stops seeing private patients since the marginal revenue of private patients is less than that for public patients.

Now suppose Medicare lowers its payment rates to hospitals. In the diagram above the Medicare price falls to P'_M and the Medicare demand and marginal revenue curves fall as well. The hospital's new marginal revenue curve is now MR_p down to point c and MR_M thereafter. Now more private patients are seen (Q_3) and the price they pay is lower (P_3) (but still greater than P_1). Likewise fewer Medicare patients are served.

Thus this analysis suggests that the government payment mechanism has a big impact on the amount private patients pay for hospital services. In general private sector prices are higher due to Medicare. However, when Medicare lowers the rates paid to hospitals for treating the elderly, there is a downward pressure on prices paid by everyone else.

- if significant excess capacity and constant marginal costs then the hospital will treat each as a separate market and the two would not affect each other.
- Note too that when Medicare lowers its reimbursement hospital profits are decreased. There is incentive for them to increase bargaining

power against private insurers. So one thing that could happen is that lower Medicare reimbursement could result in hospital mergers or consolidations. This would shift out the demand curve facing the new hospital and allow higher prices. This is what you might expect if hospitals are already operating at or near zero profits.

- Also this assumes that hospitals are acting as profit maximizers.

Challenges to the rational model of behavior

Classical economics, which we have just discussed, assumes that individuals are rational – that is, they do the best they can to achieve their objectives, given the opportunities they have. People make mistakes, but they learn from them. Individuals will use all the information available to them to make a decision.

This has come under fire recently from behavioral economics. I want to cover some of this since it often applies to health care.

Heuristics and Biases

1. The law of small numbers

Consider the following: A study of the incidence of kidney cancer in the 3,141 counties of the United States reveals a remarkable pattern. The counties in which the incidence of kidney cancer is lowest are mostly rural, sparsely populated, and located in traditionally Republican states in the Midwest, the South, and the West.

What do you make of this?

Gates Foundation made substantial investment in small schools based on a study that showed that the most successful schools, on average, are small.

It turns out we are not very good statisticians. We like stories, but not really the source of the story. This causes us to make mistakes in evaluating the randomness of truly random events. For example take the sex of 6 babies born in sequence in a hospital. Consider three possibilities:

BBBGGG

GGGGGG

BGBBGB

Are the sequences equally likely?

There is a widespread misunderstanding of randomness.

Streaks in sports

- We pay more attention to the content of messages than to information about their reliability, and as a result end up with a view of the world around us that is simpler and more coherent than the data justify
- Many facts of the world are due to chance. Causal explanations of chance events are inevitably wrong.
- Even faced with data to the contrary, we tend to stick to our stories

We see this illusion of understanding used in a lot of business books. “Let’s look at what previously successful people did and copy them”. Stories of success and failure consistently exaggerate the impact of leadership style and management practices on firm outcomes.

A study of Fortune's "Most Admired Companies" finds that over a twenty-year period, the firms with the worst ratings went on to earn much higher stock returns than the most admired firms.

Regression to the mean

2. Anchors

The anchoring effect occurs when people consider a particular value for an unknown quantity before estimating that quantity – the estimates stay close to the number that people considered.

Consider two sets of questions:

Was Gandhi more than 114 years old when he died?

How old was Gandhi when he died?

vs

Was Gandhi more than 35 years old when he died?

How old was Gandhi when he died?

People who are asked the first set of questions will give a higher answer to the second question, on average, than those who are asked the second set of questions.

Think about the listing price of a house, or a car and your willingness to pay.

How do you respond to the price of gasoline when prices are falling vs. when they are rising?

Arbitrary rationing: "Limit x per person"

In negotiations (say over the price of a home) the first move is often an advantage

Caps on damages do to personal injury or mal practice.

3. The availability heuristic

How often do people over 60 divorce? To answer this question, people typically think about any examples from their past. The easier time we have coming up with examples, the larger our estimate will be.

When we don't know the answer to a question we often substitute a question that we do know the answer to. Sometimes this works well, sometimes it can lead to bias.

Spouses were asked: "How large was your personal contribution to keeping the house clean, in percentages?" Or "what is your contribution to causing quarrels?"

The self-assessed contributions added up to more than 100%

Why do people fear flying more than they do driving?

Our emotions play a key role here. Some events stick in our heads easier due to the emotions attached to them. Thus they are more "available" even if not more likely.

4. The endowment effect

According to standard economic theory the just-acceptable selling price for a good and the just-acceptable buying price should be equal. Suppose you think it would be worth \$200 to go to the BCS championship game. Then theory would suggest that if you do not own a ticket, any offer price less than 200 would cause you to buy, and if you do own a ticket an offer price greater than 200 would cause you to sell. In many cases this is true. But not always.

Suppose you were able to get a ticket for \$100, but then find that the game is sold out and tickets are selling for \$1000. How does this affect your willingness to sell?

Because of an affect known as “loss aversion” which says the pain of giving something up is larger than the joy of getting something. There often becomes a gap between our maximum buying price and our minimum selling price. Once we own the ticket, selling it involves the pain of giving it up. If we don’t own it, we consider the pleasure of getting it.

Best example of loss aversion – putting for par vs. putting for birdie on the PGA tour.

Goods held for use vs. goods held for exchange

Experiment with tokens vs. beer mugs.

Experiment with class survey and two different prizes (pen vs. chocolate) then an offer to trade

This has had a huge effect on the housing market along with anchoring

Professional traders are able to see through this bias.

Loss aversion and the endowment effect tend to defend the status quo:

Animals tend to fight harder to prevent losses than to achieve gains – when a territory holder is challenged by a rival, the owner almost always wins.

This applies equally to reform. Just about any type of reform involves reorganizing, restructuring, simplifying that produces many winners, some losers, and an overall improvement. But the potential losers will fight harder to hold their territory.

The tax code,

Health care,

College Bowl System?

5. Frames and Reality

Consider the two statements: “The Giants won” vs. “The Cowboys lost”. Do they mean the same thing?

Would you accept a gamble that offers a 10% chance to win \$95 and a 90% chance to loser \$5?

Would you pay \$5 to participate in a lottery that offers a 10% chance to win \$100 and a 90% chance to win nothing?

When gas stations first started installing credit card purchasing – cash discount vs. credit surcharge.

Employee wellness programs can either offer \$100 discount on premiums, or send a check for \$100 in the mail. To a rational economist these are the same, but they may have very different effects on employee's compliance.

Likewise should employers offer carrots or sticks?

Sticks – penalizing employees for bad behavior (smoking) are more efficient than carrots—rewarding people for good behavior (not smoking). But psychologically reward programs are received much better.

A physician could be given two different descriptions of the short-term outcomes of a surgery:

- 1) The one-month survival rate is 90%
- 2) There is a 10% mortality in the first month.

Surgery is more popular in the first frame (84% chose it) than the second (50% chose it) even though it is exactly the same information.

Suppose we are preparing for an unusual disease which is expected to kill 600 people. There are two alternative programs we have to choose from to combat the disease:

If program A is adopted, 200 people will be saved

If program B is adopted, there is a one-third probability that 600 people will be saved, and a two-thirds probability that no people will be saved.

What would you pick?

Alternatively:

If program A' is adopted, 400 people will die

If program B' is adopted, there is a one-third probability that nobody will die and a two-thirds probability a two-thirds probability that 600 people will die.

Now what do you pick?

Note that these are all special case issues and do not imply that no one can ever make a “good” choice. Also, to the extent that behavioral economists criticize the rational consumer model, does not imply they think consumers are irrational – that is they don't just randomly make choices. It just implies that even when they have perfect information, consumers will not always make the choice that is predicted by classical economics. Thus there are reasons when markets will not work perfectly even when all the classical assumptions are met.

The Production of Health

1. How to think about health care. What is the good?

- Dentist drilling out tooth
- Physical exam
- Eating our vegetables

What gives us Utility is what we derive from the action.

We all have some reservoir of health that we want to make as big as possible, all else equal.

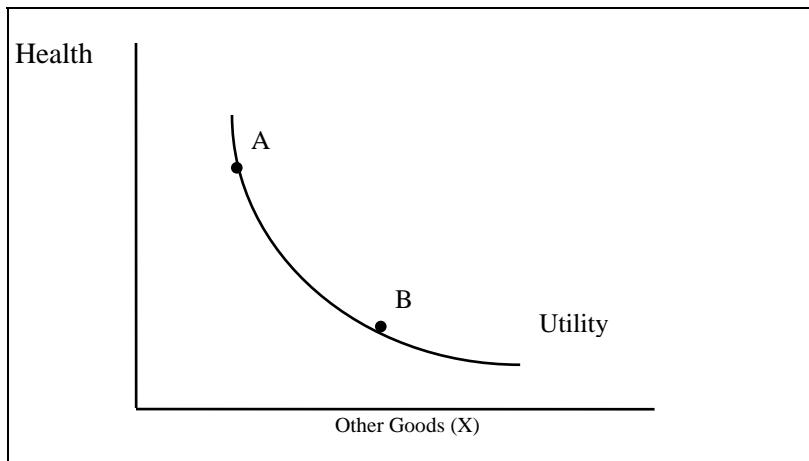
Health is a durable good (like a car, house, refrigerator, etc.) We are endowed at birth with a stock of health and the rest of our lives we make choices that affect that stock.

As consumers our ultimate goal is to maximize our utility

$$U = f(X, H) \text{ where } X \text{ is other things and } H \text{ is our stock of health}$$

Note the interdependence of X and H: if H increases MU_X increases, if X increases MU_H increases

We can think of health care as things that increase our stock of health



Note the IC goes asymptotically toward infinity: all the X in the world is not good unless you have some health and vice versa.

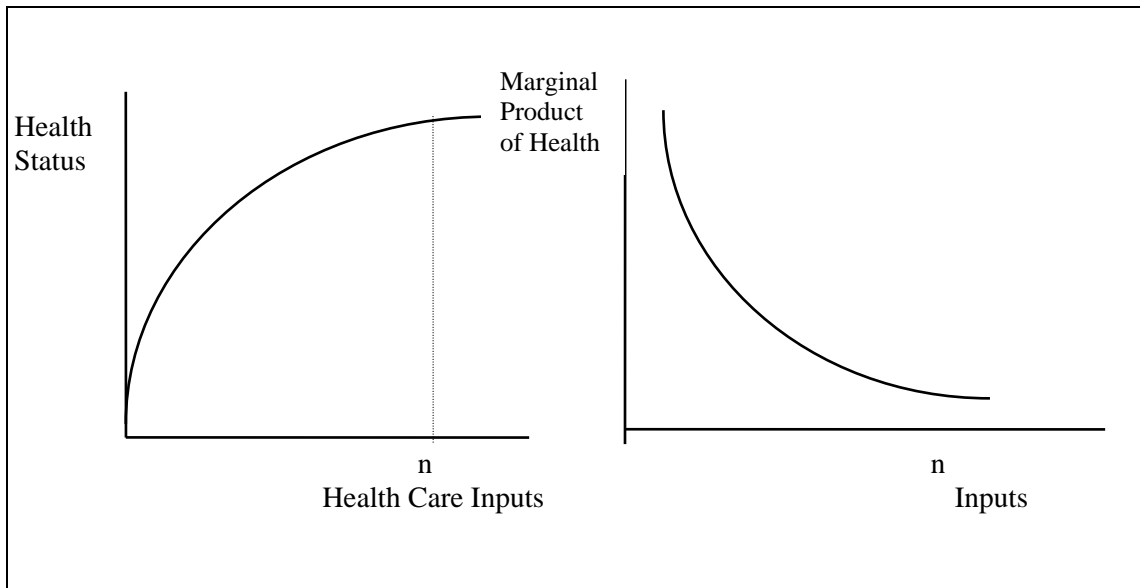
We will come back to this in deriving the demand for health care, but note that it is not bad to consume French fries or cigarettes as long as we understand the costs involved!

2. The Production of Health

How to think about the production function

Our stock of health is a function of lots of things:

$$HS = F(\text{health care, life style, environment, } X)$$



Health care is some aggregate measure, maybe total expenditures. Note we are holding constant all the other inputs to the production function. If any of them increased, the curve would shift upward.

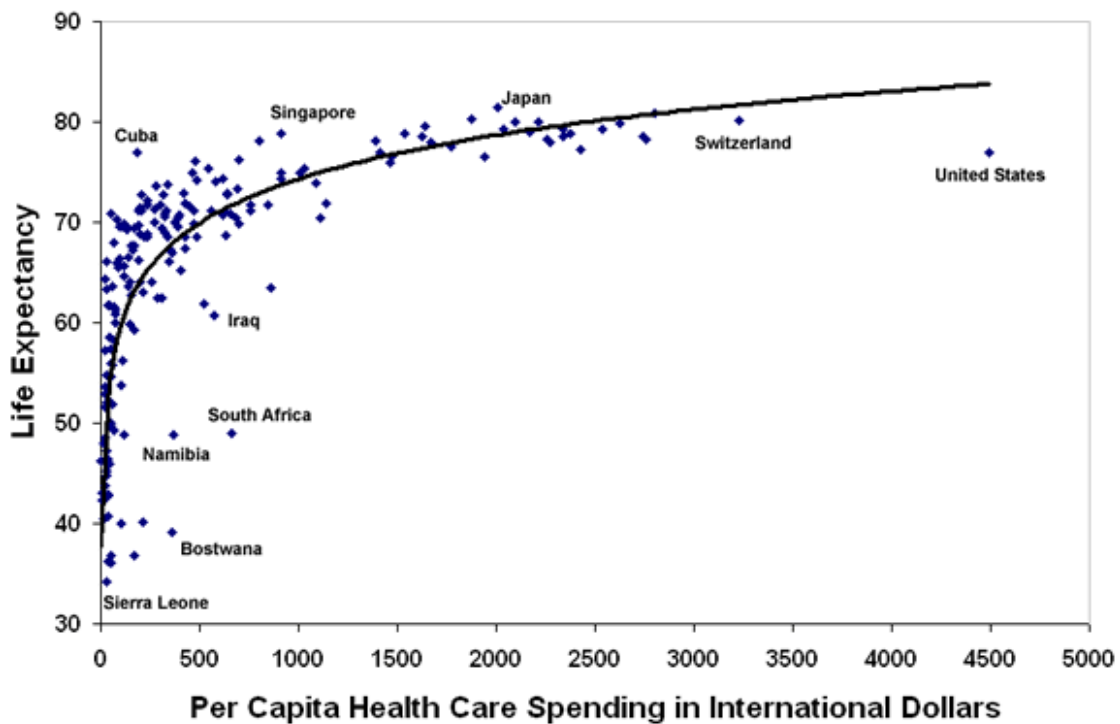
The marginal product of HC is the increment in HS from a 1 unit increase in HC.

Note the *Law of diminishing marginal product*

If we were currently at n - HC has made a large total contribution to HS - AP is high, but the marginal product will be quite low. Additional expenditures on HC will not impact health

Curve could eventually reach a point where MP negative - over use of medical care - lots of unneeded surgery etc.

Life Expectancy vs. Spending



If there is time:

http://www.youtube.com/watch?v=jbkSRLYSojo&feature=player_embedded

<http://www.youtube.com/watch?v=aUaInS6HIGo> 23 ½ hours

Measuring the Production of Health

Note that before we can measure the production, we first have to figure how to measure health.
Mortality vs morbidity

Difficulties of non-experimental data.

Conclusions from research:

- Education has a strong relationship at all age levels, but it is smaller for older adults
- Income has a strong effect for low income but tapers off as income increases. The effect becomes steeper with age

- At all ages nonhispanic blacks have higher mortality/SRHS than nonhispanic white. The gap widens with age
- Hispanics have higher mortality rates than nonshipanics at low age, but lower at older ages. SRHS shows Hispanics worse than whites at all ages (this goes away when controlling for income and education)
- Some of the income and education effects go away when control for demographic characteristics (age, sex, region, city size, marital status, family size). Even more when behavioral variables are added (smoker, obesity, exercise, seat belt use)
- Reverse causation with both Education and Wealth?

1. Grossman

better educated people understand the technology or know-how needed to stay healthy. If this were true then a transfer of funds out of medical care into education would greatly improve health. That is expenditures on health would yield the MP from production fcn studies.

2. Fuchs

Self selection problem. People who choose higher education also more healthy people with low discount rates tend to have higher education since they are patient. Similar thing is happening with their stock of health. May be willing to give up unhealthy activities today in return for an increased life span. Likewise those who do not obtain a lot of education are impatient - they want it now. Thus, they are less likely to choose a healthy lifestyle - more likely to drink, smoke, eat onion rings, etc. The implication is that increased expenditure into education will not improve health much.

Income effect could go both ways as well.
Evidence of short run vs. long run differences.

Short run shocks to wealth – recessions tend to increase health, expansions tend to decrease health. Longer run effect tends to be slight positive.

For children income has a strong causal effect – even controlling for insurance, education and everything else you can think of.

THE DEMAND FOR MEDICAL CARE

The Demand for Health Care Conceptual Framework

Grossman adapted human capital theory to explain the demand for health and health care. His theory demonstrates how health demand is different from other goods:

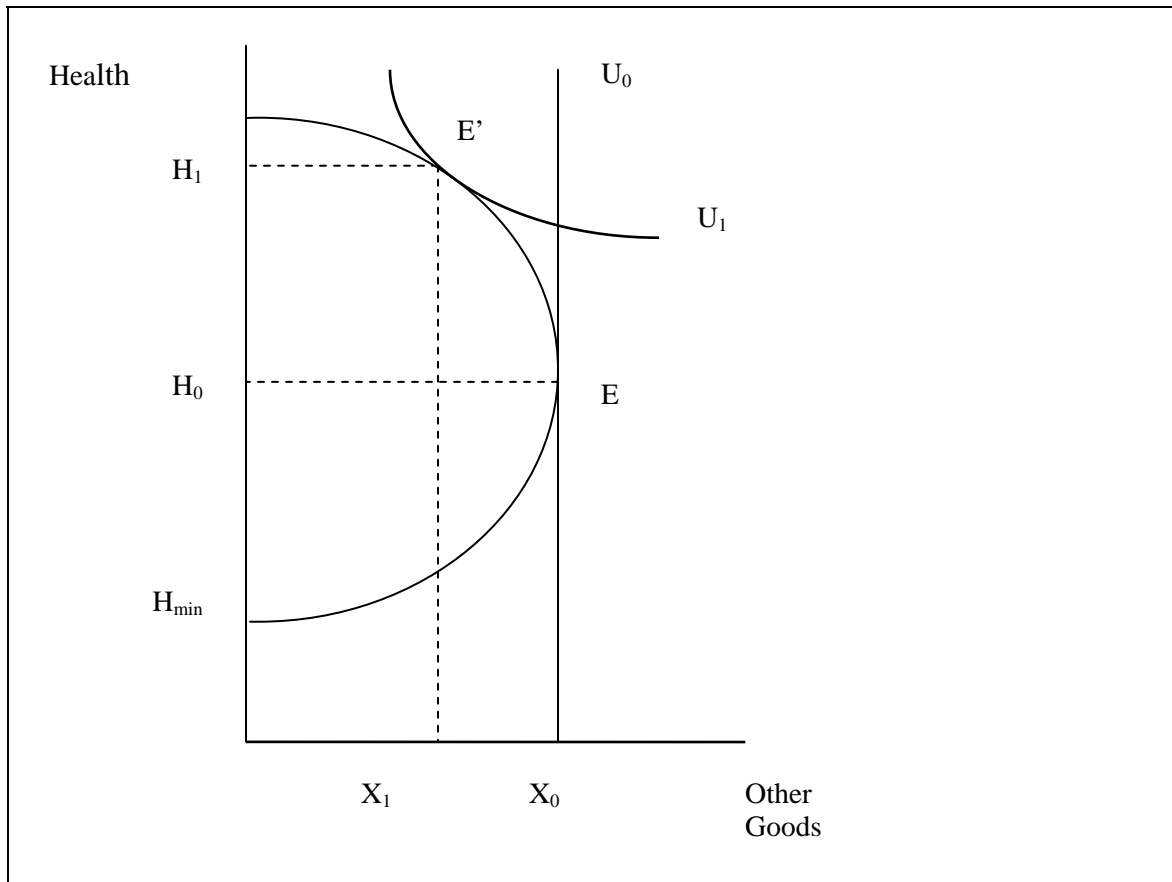
1. Not medical care per se that consumers want but health
2. The consumer does not passively purchase health but produces it - medical care demand is a derived demand for an input to produce health itself. People want health and they demand medical care to produce it (along with lots of other things)
3. Health last for more than one period. It is a durable good. Thus it is a time allocation problem.
4. The demand for health has two aspects:
 1. Pure consumption aspect - health is desired because it makes people feel better
 2. Pure investment aspect - health is desired because it increases the number of health days available to work and thus increases income.
5. The Demand for health is uncertain. The idea is that unlike other goods, we really do not know what our demand will be like in the future. This adds to the mix, because we need to allow this uncertainty or risk to affect preferences. This gives rise to the market for health insurance, and also leads to many of the problems in health care markets.

First we will deal with demand with certainty to see how the consumer choice model plays in here, and then we will add the complication of uncertainty later.

The production of health

Now lets talk more about how health is produced. Consider the following production possibility frontier for an individual consumer

THE PRODUCTION POSSIBILITY FRONTIER



Note that it is shaped a little differently than from what you've seen earlier.

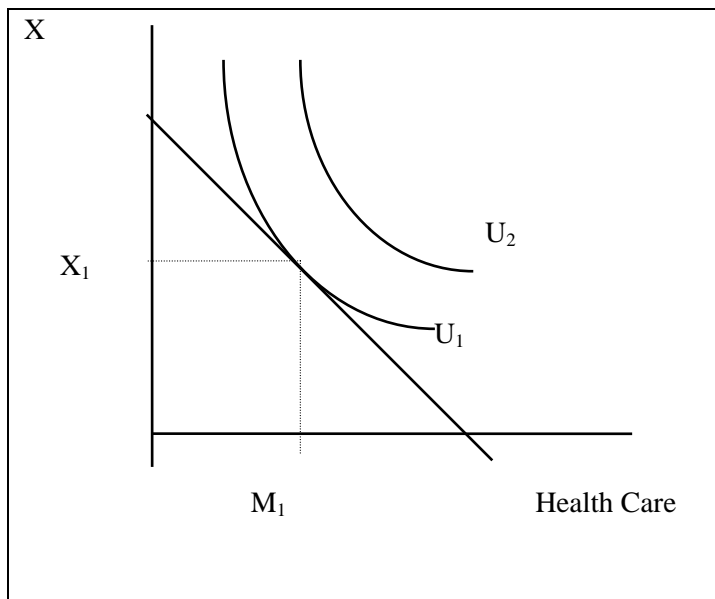
1. H_{\min} – need at least this much to live
2. Upward sloping between H_{\min} and E Initially improvements in health also increase consumption of the other good. This reflects the investment effect. Once past point E though, additional increases to health come at the cost of reduced consumption of the other good.

If the consumer only puts value on health to the extent it allows him/her to consume other goods (health in and of itself does not provide utility) then the indifference curve will be shaped as in U_0 and the equilibrium will be at point E, with X_0 of the other good and H_0 in health. But if the consumer placed some consumption value directly on health (it feels good to feel good!), then the indifference curves might be shaped something like U_1 . Then we'd get some additional investment in health beyond H_0 to H_1 .

THE DEMAND FOR HEALTHCARE.

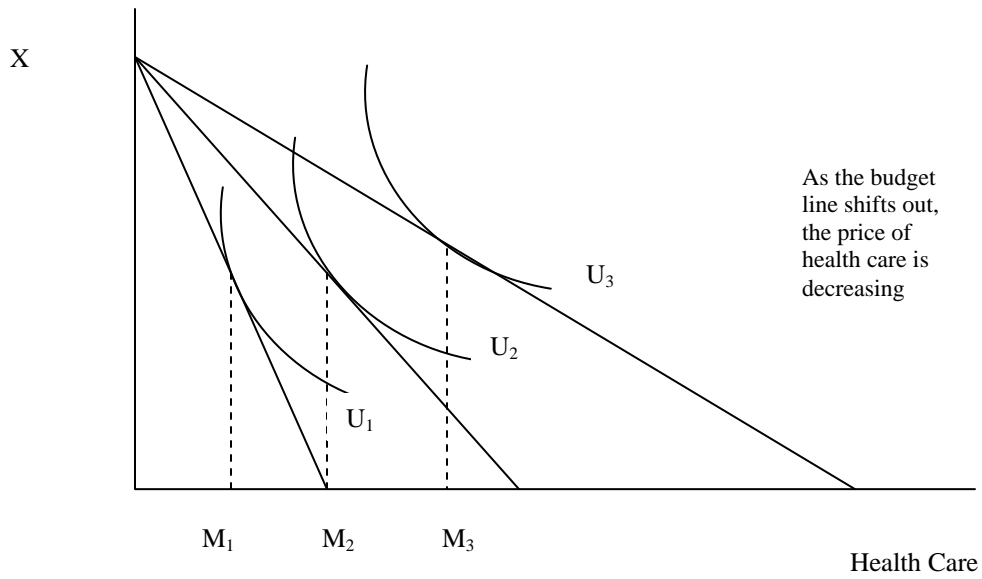
Now we want to go from the production of health decision to the demand for health care. We will then use that to describe how the demand for insurance affects that demand and how markets have attempted to alleviate that problem.

The PPF shows feasible sets of X and health that we can attain (as individuals) given our production process and our budget and the utility derived from various combinations of X and H. Underlying this is some production process one of the inputs into this is health care. Thus we can derive a similar graph for X and health care that looks more familiar to us.

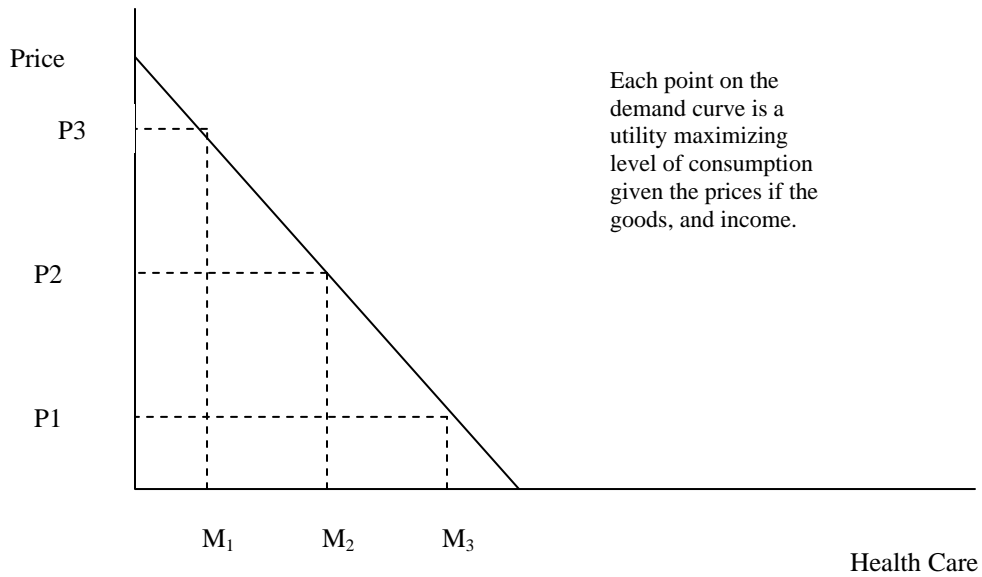


Here the budget line shows the affordable possibilities for the consumer to spend his/her income between X and health care (say visits to the doctor). The shape of the indifference curve here is determined by the patient's willingness to trade off X for visits to the doctor (which is determined by her/his ability to produce health with these visits). The equilibrium level of health, H_1 , corresponds to the equilibrium level of health care, M_1 , in this graph.

The demand for health care is from this utility maximization problem. How does the optimal level of health care demanded change as the price of health care changes?.



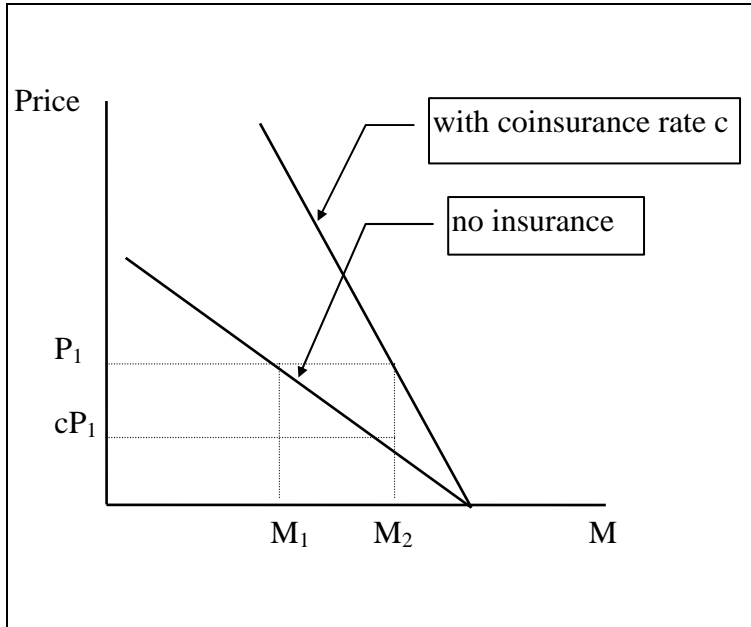
The demand for Health Care”



Coinsurance

Often consumers are covered by health insurance. Typically coinsurance refers to the percentage paid by the patient while co-payment refers to the amount paid by the patient.

Individual effect

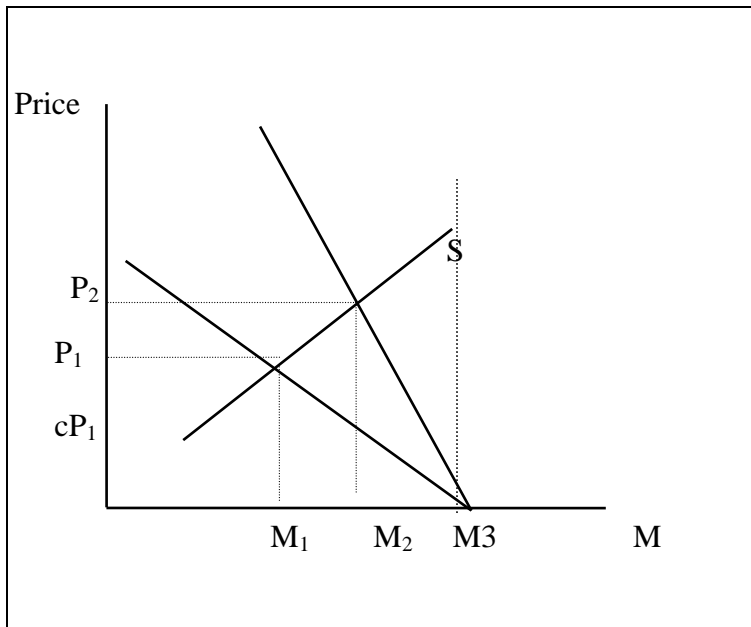


With insurance the demand becomes more elastic

Without insurance, if the price was P_1 then consumers would demand M_1 . But with insurance they consume M_2 . It is as if the price fell to cP_1 .

The more generous coverage (or the lower the coinsurance rate) the steeper the demand curve become until it becomes vertical at $c=0$. Critical feature here is that coinsurance makes the demand less elastic.

Note the effect on the market



The effect of insurance on the market is to rotate out the demand. Assuming an upward sloping then that increases Medicare care from m_1 to m_2 and increases price to p_2 . Thus expenditures in health care increase from $p_1 \cdot m_1$ to $P_2 \cdot m_2$. This is a major factor in the increase in medical expenditures over the last 40 years. At least according to some.

This response to the economic incentives is termed ***Moral Hazard*** – the increased usage of services when the pooling of risks leads to decreased marginal costs for the services. It is also used to refer to the change in behavior that may occur when risk is reduced – driving more dangerously because of insurance and seat belts, FDIC.

Note that the more inelastic the demand for health is the less this loss will be. Also the use of coinsurance rates reduces this. Note that in the absence of c the consumption would be M^3 .

4. Empirical measurements of demand elasticities

A. Price Elasticities most estimates are inelastic when they look at market elasticity. These tend to be estimated in the $-.05$ to $-.2$ range for hospital services
 $-.15$ to $-.3$ for physician visits.

Pretty inelastic.

However when *Firm Elasticity* is considered we get a different story:

Physician Services using physician price or visits: -3.0 to -5.7

Hospital services patient days or admissions: $-.74$ to $-.80$

Note the contrast = suggests that market for physicians is quite competitive while there is considerable market power in the market for hospital services.

B. Income Elasticities : Generally quite small, but positive. More income causes a slight increase in health care.