Asymmetric information I

**Adverse selection**
asymmetric information – beneficiaries have better information than the insurer about their health status and their expected demand for health care ⇒ underpriced premiums for high-risk patients ⇒ overinsurance for this group ⇒ income redistribution from the healthy to poorer risks

**Inability to discern quality**
Information and agency problems in connection with patients’ preferences for non-profit hospitals: Lack of information to discern quality ⇒ for patients a non-profit status might be taken as reassurance of high quality (decisions are made independent of profit motives)
Asymmetric information II

We study...

- beneficiaries know their health better than the insurer does
- information asymmetry (the patient is less well-informed than the attending physician)
- the agency relationship between the patient and provider
- the effects of imperfect consumer information on the price and quality of health care services
Information problems are prevalent

- information levels differ between physicians and patients
- patients are often poorly informed (compared to the provider) about health status, treatment available, expected outcomes, prices, ...

However, these problems exist in other markets as well

- insurance, other professional services, automobile repairs, ...
Pauly (1978) concludes that “one fourth or more of total personal health-care expenditures might be regarded as ‘reasonably informed’ ”

For several medical care issues, the provider shares the information gap with the patient. Providers are often uncertain and uninformed as well.

The informed minority may be sufficient to guarantee that markets perform well.

Information asymmetry not necessarily precludes competition. There are mechanisms to deal with information gaps (licensure, accreditation, certification, threat of suits, . . .)
The market of lemons (Akerlof 1970)

- Used cars vary in quality – the seller knows the quality better
- Cases may arise where this asymmetry causes the market for used cars to perform poorly or even to disappear.

A simple example

- 9 cars varying in quality from 0 to 2 – unity probability
- The owner knows the qualities of cars exactly
- The potential buyer only knows the distribution of quality
- Reserve value to seller: $ 1,000 \times Q
- The value to nonowners: $ 1,500 \times Q
- Sales take place when the “auctioneer” finds a price that successfully equates quantity demanded with quantity supplied.
Does a market exist?

Auctioneer calls out a price of $2,000 per car.

- All 9 cars are offered by sellers (it is worthwhile to sell the cars)
- Nonowners make a best guess of average quality: $Q = 1$
  - they would not buy any cars at a price of $2,000
  - they guess that all cars have a quality of 1
Market disappearance

Auctioneer tries a lower price of $1,500 per car

- The owners of the two best cars withdraw from the market.
- As a consequence the average quality of the remaining car will fall to $\frac{3}{4} < 1$.
- Potential buyers would now be willing to pay only $1,500 \times \frac{3}{4} = $1,125 for any car.
- The new price of $1,500 is too high for buyers.
- No equilibrium will be found that satisfies both sellers and buyers.
- Owners of top-quality cars will tend to withhold their cars from sale. The good cars are driven out of the market by the lemons.
- The bad drives out the good until no market is left.
A population of $n$ potentially insured people – expected health expenditures of this population on the horizontal axis between $0$ and $1M$.

The probability with a uniform distribution is on the vertical axis. The probability of any spending level is $\frac{1}{n}$.

The insurer must at least break even (the premium received from the insured must cover the insured population’s average expenditure).
Information asymmetry: the potential insureds know more about their expected health expenditure in the coming period than does the insurance company. We assume:

- the potential insured knows her future expenditures exactly
- the insurance company only knows the distribution of expenditures for all insured persons

**Auctioneer chooses a price of $0**

- All potential beneficiaries would certainly demand coverage.
- However, the insurance company would require a premium of at least $\frac{1}{2}M$ (equal to the expected average expenditure).
The lemons principle in health insurance III

If auctioneer tries $\frac{1}{2}M$

- Beneficiaries who expect expenditures below $\frac{1}{2}M$ will self-insure and leave the insurance market.
- Average expected expenditure of the remaining insured persons rises to $\frac{3}{4}M$.
- The higher health risks tend to drive out the lower health risk people, and a functioning market may even fail to appear.
Inefficiencies of adverse selection

In less extreme forms adverse selection will appear. Even if health insurance markets do evolve in the presence of information asymmetry, the resulting adverse selection generated economic inefficiencies.

If all pay the same premium:

1. the lower risks face an unfavorable rate and will tend to underinsure ⇒ WELFARE LOSS (they are not able to insure at rates appropriate to their risks)
2. the higher risks overinsure ⇒ INEFFICIENCY (they insure against too many risks).
3. in addition, income redistribution from lower risks to higher ones.
... is formed whenever a principal (e.g. a patient) delegates decision making authority to another party, the agent (e.g. physician)

- Principals are relatively uninformed $\Rightarrow$ asymmetric information and agency are closely related.
- Principal’s problem is to determine and ensure that the agent is acting in the principal’s best interests – interest may diverge – contracts and arrangements are difficult to introduce.
Agency relationship II

- Fee-for-service arrangement vs.
- Reimbursement on the basis of patient’s health improvements: again asymmetric information problems – patients have financial incentives to understate improvement – providers have incentive to overstate the difficulty in treatment.
- Long term doctor-patient relationships – why are these common (given the mentioned asymmetry conflicts)?
  - allow the patient to monitor the physician ⇒
  - place constraints on the provider
  - monitoring encourages the physician to make appropriate referrals
  - reduce the cost of transforming information
Prices:
- Reputation goods (Pauly, Satterthwaite 1981): prices for medical services increase with the number of physicians – reduced information gives each firm additional monopoly power. The elasticity of firm demand decreases.

Quality:
- Searching information regarding quality is costly.
- Arrangements to reduce search costs: licensure, certifications, threat of malpractice suits, codes of ethics, the internet,…
- Another assumption is that (published) information about quality will discipline providers.
- Evidence suggests that high quality producers are rewarded by greater demand and higher prices.
Social health insurance

- Market failure in health (insurance) markets
  - Externalities (with public good characteristics)
  - Patients’ inability of rational choices
  - Underestimation of future needs
  - Free-riding in health insurance
  - Asymmetric information

- Equity and health insurance – two claims
  1. Financial ability to pay should not influence access to health services.
  2. Different financial burden due to congenital difference in sensitivity to illness are unfair and should be prevented.
High risk people pay a higher premium than low risk people in private health insurance markets.

This is felt unfair if the inequality occurs without any fault on a person’s part.

As a consequence, a claim is made for financial redistribution from low to high risks.

However, this redistribution might lead to “ex ante moral hazard” ⇒ copayments (deductibles)
Balance of risks possibilities („Risikoausgleich“)

1. Individual transfers depending on susceptibility to illness
   - compensation via tax revenues
   - very high information requirements
   - not yet adopted in practice

2. A tax-based “national health service” that guarantees free access to health services
   - economic problems – absence of any cost-saving potentials

3. Prohibition of discrimination („Diskriminierungsverbot“)
   - health insurers are not allowed to impose premiums (contributions) based on illness susceptibility
   - low risk people are forced to pay (higher) premiums not corresponding with their risk
   - mandatory insurance („Zwangsversicherung“) – low risks must insure
   - obligation to contracts („Krankheitsversicherungszwang“) – high risks cannot be denied.
Prohibition of discrimination

- Divergence between expected revenues and expected expenditure
- Incentive for insurance company to concentrate on risk selection
  - make offers unattractive for high-risk people
  - make offers attractive for low-risk people
  - wellness-, fitness services, . . .
  - low compensation of services for chronic diseases, . . .
- “Cream-skimming” could be solved by allocating a person to insurance companies (Austrian system) – in conflict with free selection of insurances
- Otherwise, risk selection can be reduced by balance of risks („Risikostrukturausgleich“)
  - compensation of companies with bad risks
  - taxation of companies with good risks
- Discussion of 1-3 (trade-offs, moral hazard incentives, . . .)