Part 3: Asymmetric information, Search, Insurance

- Market failure due to asymmetric information
- Self selection mechanisms
- Signaling equilibria
- The reservation price / wage principle
- Insurance contracts
- Self selection in insurance markets
5. ASYMMETRIC INFORMATION

Markets for second-hand goods: the seller knows more about the good than the buyer. As a consequence bad quality goods drive good quality goods out of the market. There cannot be a market for good quality goods.

Labor market: the job applicant knows more about her skills and characteristics than the potential employer.

Mechanisms for inducing self selection: (1) piece-rate compensation (instead of a fixed salary), (2) probationary contracts.

SIGNALLING in the job market: education - even if it has no effect on productivity - can lead to self selection equilibrium that confirms the employer's beliefs (even if those beliefs are wrong).
6. SEARCHING FOR INFORMATION

Basic principle: the cost of past searches are sunk. All that matters at any stage is a comparison between the expected benefit from one more search and the cost of one more search.

Main result: RESERVATION PRICE PRINCIPLE.

In market for consumption goods: set a reservation price \( P \) and keep searching until you find a price less than or equal to \( P \).

In the labor market: set a reservation wage \( w \) and keep searching until you find a wage greater than or equal to \( w \).
7. INSURANCE

W initial wealth
x potential loss
p probability of loss.

No insurance corresponds to the lottery \((W \quad W-x)\)

An insurance contract is a pair \((h, D)\) where \(h\) is
the premium and \(D\) is the deductible. Such
a contract gives rise to the lottery

\[
\begin{pmatrix}
W-h & W-h-D \\
1-p & p
\end{pmatrix}
\]

Full insurance corresponds to the case \(D = 0\)
If \(D > 0\) we have partial insurance.

The insurance company’s expected profit from
contract \((h, D)\) is

\[
h - p \cdot (x-D) \quad \text{revenue - expected payment}
\]
An insurance contract is actuarially fair if
\[ h = p(x-D) \]

Actuarially fair insurance contracts imply zero expected profits for the insurance company.

A risk-averse person who can choose freely among actuarially fair contracts will choose full insurance, that is, will choose a contract \((h, D)\) with \(D = 0\) and \(h = px\) in expected loss.

If the insurance company charges a mark-up over cost equal to \(\kappa\) then the relationship between \(h\) and \(D\) will be
\[ h = (1+\kappa)p(x-D) \]

In this case expected profits are positive and equal to \(\kappa p(x-D)\). A risk-averse person offered such contracts will not choose full insurance, that is, she will choose \(D > 0\).
Contracts can be represented in a two-dimensional diagram.

The indifference curves of a risk-averse individual are convex to the origin.

\( h^* \) is the maximum premium the individual is willing to pay for full insurance.
How do profits change if we move from one contract to another? In the following figure A represents the contract \((h_A, D_A)\), B the contract \((h_B, D_B)\) and C the contract \((h_C, D_C)\) with \(h_B > h_A\) and \(D_B < D_A\) and \(h_A + D_A = h_B + D_B\), \(h_C = h_A + pd\) and \(D_C = D_A - d\).

Since contract B is vertically below A, \(\Pi(B) > \Pi(A)\).

Since contract C is on the line through point A with slope \(-\frac{p}{1-p}\), \(\Pi(C) = \Pi(A)\). Along this line, if the deductible changes by \$d\) then the premium changes by \$(-pd)\).

Moving from point A to a point in the shaded area increases the firm's profits.
Since the indifference curve that goes through A enters the shaded area, profits increase along the indifference curve going down with no loss.

Thus, the insurance company - if it is a monopoly - will want to offer full insurance (a full insurance policy very close to the indifference curve that goes through the no insurance point, with profits increasing in the direction as indicated by the curve.)
If there are two types of individuals, H and L, with the same W, x and utility function, but different probabilities of loss (p_H > p_L), then the indifference curve of the H type will be steeper.

If the insurance company cannot tell individuals apart (if it does not know, when they apply for a policy, if they are H or L) then it can induce self-selection by offering two types of contracts, as shown in the next picture.
If the insurance company (a monopolist) offers a choice of contracts such as A and B in the above figure then all H types will purchase the full insurance policy A and all L types will buy the partial-coverage insurance policy B.