Principles of Economics
An introduction

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Information and behavioural economics

Why is information limited (1)?

- **Obsolescence**: information can rapidly become obsolete or non reliable (fake news)
- **Search costs:** collecting information has a cost: it is only valuable for a consumer to search for additional information if the expected benefits from search are greater than these costs
- **Bounded rationality**: consumers cannot memorize large quantities of information (bounded rationality) and their ability to treat information varies, particularly when products are complex (Ex: radar graphs)
- **Routine**: It is often simpler to treat information with simplified procedures: (ex: checking a restaurant's bill is often done by counting the number of dishes)

Why is information limited (2)?

- **Threshold effects:** agents only perceive a signal beyond a certain level: Ex: inflation often only taken into account beyond a two digit level
- **Local effects**: depending on agents, information may circulate at different speeds
- **Time effects** : some information may only be relevant if available in due time; learning is a slow process
- **Environment effects** : environment changes

Limited versus asymmetric information

- **Limited information and market equilibrium**

Limited information does not prevent markets to clear: as long as information is limited for for both parties (consumers and producers, an equilibrium will exist

$\Rightarrow$ The selling price will be the average of the price associated to the two quality levels (high and low)

$\Rightarrow$ It will not reflect the true value of the good but its' expected value

- **Asymmetric information and market equilibrium**

When there is information asymmetry between the two parties in the transaction, the market may fail to put resources to their best uses

Search as a solution to information asymmetry

Search (Stigler, 1962) refers to an action taken to obtain additional information, up to an 'optimal' level (where the benefits and costs expected from search are equal)

Benefits could be a higher price/quality

Costs comprise both direct and indirect costs (opportunity cost of time)

Arbitrage refers to the fact that parties can vote with their feet and exert their freedom to search more

The search length will depend on the initial level of expectations

Examples

- Job search (both for employers and employees)
- Product search

Information asymmetry: a theoretical account

More generally, information asymmetry has been analyzed by economists under '*contract theory*' or *incentives theory*

An *agent* is a person who is performing an act for another person and he is the '*informed party*'

The *principal* is a person for whom another person, called the agent, is performing a delegated action: he is the '*uninformed party*'

Incentives theory (1)

Origins :

Information theory (60s –70s)

Theory of the Firm (Williamson)

Theory of teams (Marschak & Radner, 1972)

Arrow (1963)

Focus

Risk sharing between cooperating parties when they have different goals and there exists a division of labour (*delegation*)

Incentives theory (2)

Purpose:

Introducing institutional and informational constraints in the analysis of the interactions between agents

The Problem at hand:

The Agent has informational advantage over the Principal on his own characteristics and performance

Format:

Bilateral model involving delegation by a principal (P) of a task to an agent (A)

Extensions include multiple agents and multiple principals

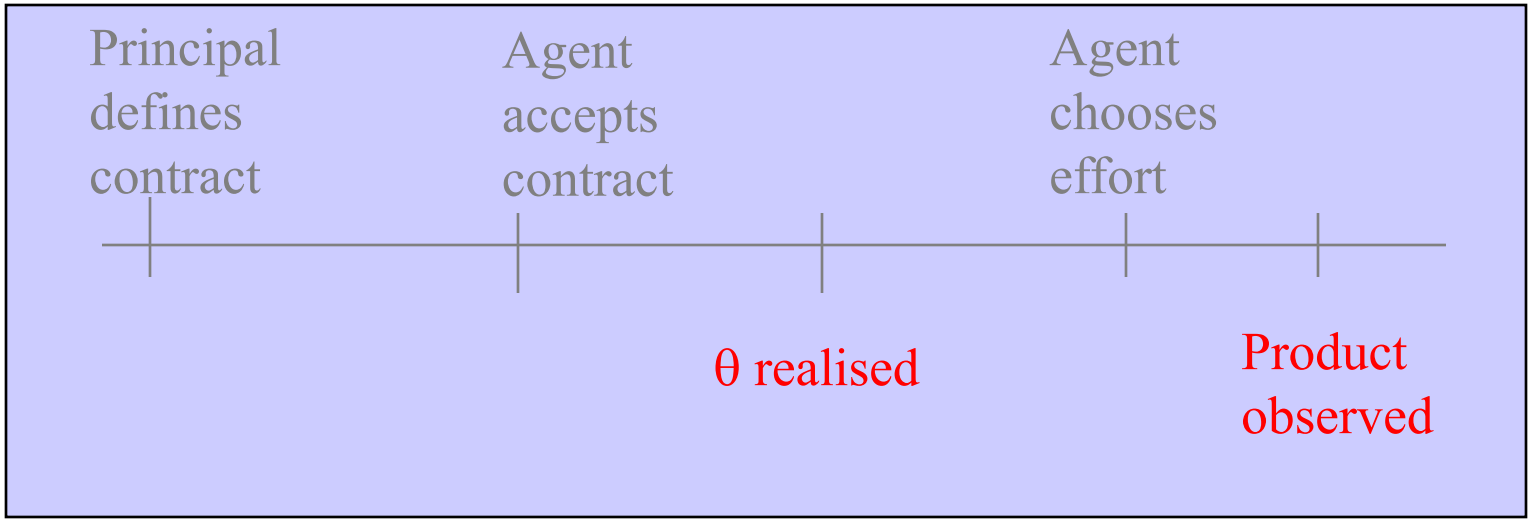
Incentives theory (3)

Contract design under information asymmetry :

The principal maximises his utility and defines the compensation for the agent such that:

- It ensures his participation (*Individual Rationality constraint* -IR) i.e. the agent gets at least his *reservation utility* (risk sharing)
- It provides an incentive to ensure that the agent' choices are in accordance with the principal 's preferences (*Incentive Compatibility constraint-* IC)

Incentives theory (4)



Incentives theory (5)

The Optimal Contract:

Trade-off between:

- Sharing risk => effort compensation invariant with performance (otherwise Agent may not participate -IR-);
- Giving incentives for performance (otherwise *shirking*)

=> *Second best solution* (some of the profit must be transferred to the agent) with an *informational rent* for the agent. The IC constraint is *binding*

Incentives theory (6)

Two families of models according to prevailing information asymmetry

- **Precontractual**: *Adverse selection models*
  - Applications: insurance
  - Solutions: signalling, screening (Spence), menus with separating equilibria …
- **Post contractual**: *Moral hazard models*

In reality, both types of information asymmetry are combined

Precontractual asymmetry

Adverse selection refers to the tendency for the mix of unobserved attributes to become undesirable from the standpoint of an uninformed party.

Examples:

Many time potential buyers may not even consider used cars because they surmise that the sellers know something bad about the cars. This is also known as the lemons problem (Akerlof, 1970).

- Insurance—People with hidden health problems are more likely to want to buy health insurance than those with good health
- In some labor markets, if a firm reduces the wage it pays, high productivity workers tend to quit.

Solutions to pre-contractual asymmetry

Signaling (Spence, 1974) refers to an action taken by an informed party (the Agent) to reveal private information to an uninformed party (The Principal) =>The informed party bears the cost of signaling

Examples

- it is worth advertising a good product because it will generate repeat business. Advertising a poor product may generate one-off purchases but will not be as cost effective.
- Univ. degrees: the students (informed party) will invest time and money in degrees to signal themselves

Solutions to pre-contractual asymmetry

Screening (Rothschild and Stiglitz, 1976) occurs when an action taken by an uniformed party (the Principal) induces an informed party (the Agent) to reveal information => The uninformed party bears the cost of signaling

- An example is the use of deductibles by insurers to induce motorists to reveal their own judgments about their riskiness => notion of self-selection into a menu of insurance contracts, with various combinations of deductibles and premiums to reveal info / different risks (leading to separating equilibria)

Solutions to pre-contractual asymmetry

1 – Insurance and warranties

2 – Legal obligations

3 – Reputation

4 – Expertise

5 – Norms, licenses and labels

Post-contractual asymmetry

Moral hazard refers to the tendency of a person who is imperfectly monitored to engage in dishonest or otherwise undesirable behavior (shirking)

Examples

1 - Insurance

2 - Leisure on the job

Solutions to post-contractual asymmetry

Employers can respond to the moral-hazard problem in various ways:

- **Controls**: monitoring (directly, through time checks or activity reporting)
- **Incentives**: positive incentives or sanctions (conditional/delayed payment)

A role for governments?

Although asymmetric information may call for government action, three facts complicate the issue:

- Private markets can sometimes deal with information asymmetries on their own
- The government rarely has more information than the private parties.
- The government itself is an imperfect institution

Political economy

- Political economy (public choice) is the application of economic methods to the study of how government works.
- Some politicians are motivated by self-interest.
- Some politicians sacrifice the national interest to solidify their base of voters.
- *Regulatory capture*: Jean-Jacques Laffont (1980s) Decision-makers can be captured by those they are meant to regulate (natural monopolies lobbies)

Behavioural economics

- Recently, a field called behavioural economics has emerged in which economists make use of basic psychological insights to examine economic problems.
- Bounded rationality (Herbert Simon) and the notion of satisficing (as opposed to maximising)

Behavioural economics

- Mental accounting: people attach a subjective value to each ‘account’ which is not a logical and rational allocation of their funds.
- Herd mentality: ‘if so many people are making these decisions they can’t all be wrong’
- Prospect theory: when presented with different prospects (outcomes) from a transaction, people will value the losses and gains differently even if the value of each is the same.
- Endowment effect: the owner of of a good tends to place a higher value on it than anyone else

Behavioural economics

- People are not always rational:
  - People are overconfident
  - People give too much weight to a small number of vivid observations
  - People are reluctant to change their minds.
- People are inconsistent over time.

=> An implication of this inconsistency over time is that people should try to find ways to commit their future selves to following through on their plans (*commitment/ tying your hands)*

Behavioural economics

People care about *fairness* as demonstrated by the *ultimatum game*

- Player A's job is to propose a division of the €100 prize (in euros) between himself and the other player
- After player A makes his proposal, player B decides whether to accept or reject it
- If he accepts it, both players are paid according to the proposal
- If player B rejects the proposal, both players walk away with nothing. In either case, the game ends

Behavioural economics

- What one would expect: A offers 99 and B accepts 1
- Experiments have shown that answers vary from 70/30 to 50/50
- If the amount to split were higher (1 million), B might accept => existence of *framing effects*: behaviour and decision making will be dependent on the way decision problems or choices are framed.

Conclusion

Incentives theory or *contract theory* relaxed one of the important hypotheses of perfect competition and analyses information asymmetry

It has developed from the 90s in all areas of applications and all sectors

Example : New public management which relies on contracting

Behavioural economics is analyzing departures from 'rational' behavior which constitutes one of the pillars of the standard economic model (SEM), according to Lakatos, and is developing fast.