

*Summary*

# Introduction to Economics and Business



## Lecture 1

Economics: the study of the allocation of scarce resources

Economics is about all (economic) interaction between individuals, quantity there is economic growth.

Why is there economic growth? → Because of productivity growth

A conflict between efficiency (size of the pie) and (in)equality (division of the pie)

The economy is the sum of all individual choices of people and organizations. People make a trade-off between their individual costs and benefits → think they are better off after their choices than before/without.

How do we make these choices?

- In traditional economics “rational” and “maximizing/optimizing” behaviour is assumed.
- Nowadays lot of attention for “bounded rationality” and “cognitive biases”
- Governments use laws, rules and incentives to influence our choices.

Our “wants” are unlimited.... our resources are not → scarcity

- For us (simple consumers) mostly time & money
- Scarcity → Choices
- Choices → Competition
- Competition → Optimal allocation of resources
- Optimal allocation of resources → Efficiency (& inequality)

Because time is scarce, everybody has an opportunity cost

**Opportunity costs:** The “net value” of that second choice is your opportunity cost.

Net value = “value” of alternative – cost of alternative

- Value of choice
- Explicit cost → what does it cost
- Implicit cost → What do I give up?

**Economic cost:** Explicit and implicit costs

**Economic rent:** difference between “value” and “economic cost”

What is the real price of buying a product or producing a certain good?

The alternative product you cannot buy

Relative prices!

*Example: If a burger is \$4 and a beer is \$2:*

*Price burger = 2 beer*

*Price beer = 1/2 burger*

**Sunk cost:** costs that cannot be recovered

You should not take sunk cost in your current consideration

If sunk cost can be partially recovered, that cost should be included by the explicit cost

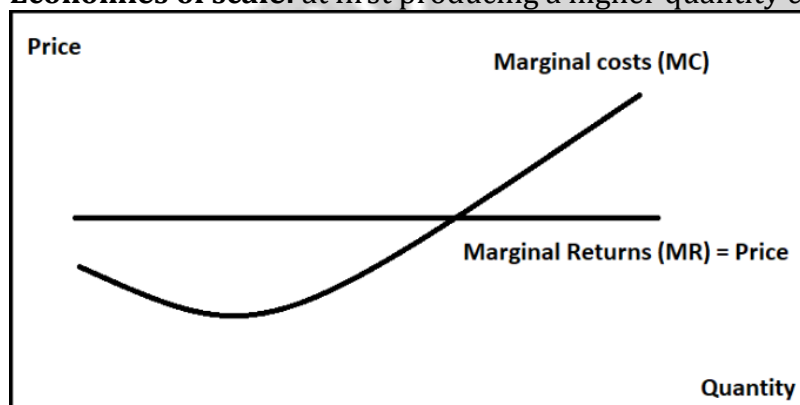
To find out which product/activity yields the highest outcome (utility, happiness, profit, quantity, efficiency), we need **marginal analyses**

**Marginal return/benefit (MR/MB):** What is the return/benefit of one extra unit?

**Marginal costs (MC):** What are the costs of one extra unit?

Marginal costs and return normally come with diminishing/increasing returns. For marginal analyses we need to take opportunity costs into account. The optimal amount to buy/produce something is where **MR=MC** or the point closest to where **MR>MC**!

**Economies of scale:** at first producing a higher quantity comes with a lower MC  
Most profit at MR=MC



The government might incentivise certain activities with policies, these incentives can lead to unintended consequences.

Policies → incentives → unintended consequences



## Lecture 2

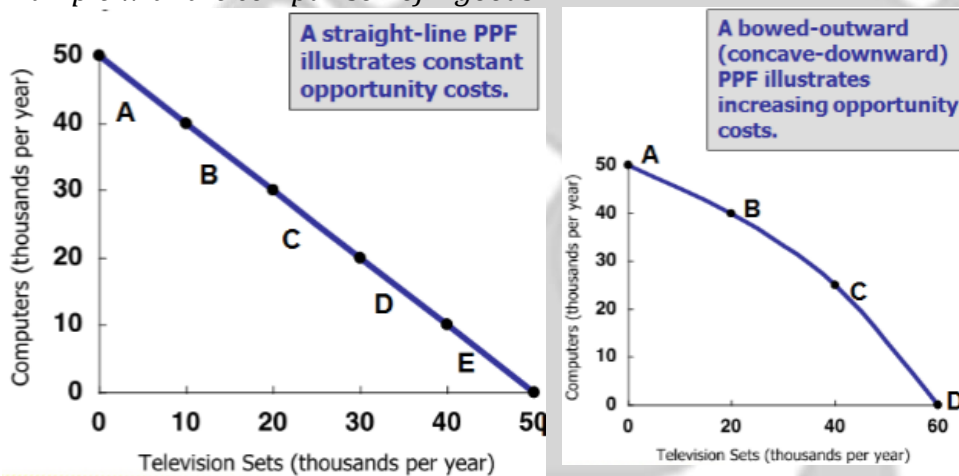
**Gross domestic product:** The sum of all income/all value added in an economy in a certain period. GDP only accounts for cash flow, not for value that is added to the economy without money.

Economic growth → Growth of GDP per capita

Production possibilities frontier (PPF)

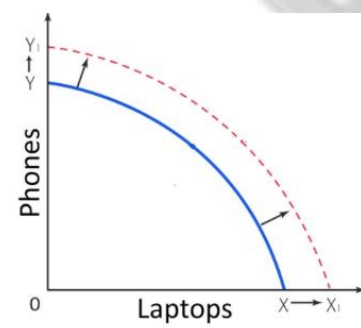
- How much can a country/firm/city/person produce

Example with the comparison of 2 goods:



Productivity growth can come from different aspects

- Learning by doing
- Using skill and differences
- Using price differences
- Economies of scale



specializing is possible as long it is possible to sell the surplus

**Absolute advantages:**  
what if

Production per hour		
	Germany	France
Bicycles	2	6
Cars	8	2

Germany has an absolute advantage in the production of cars, and France in bikes. There can be trade between the two nations

trade price should be between the

opportunity costs of both countries.

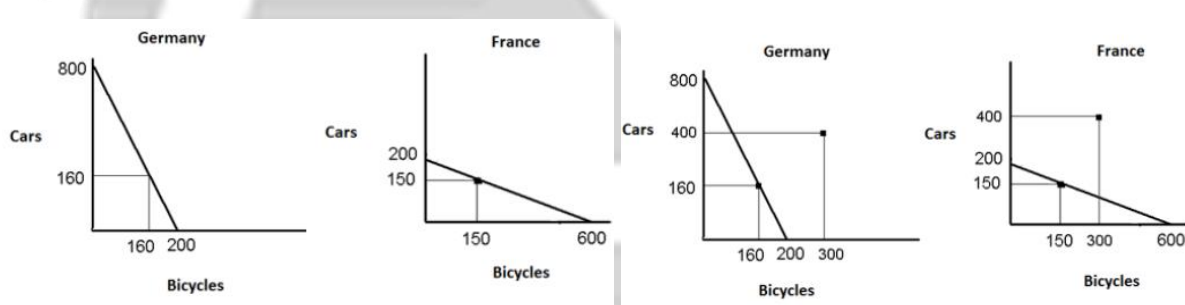
Germany: 1 car =  $\frac{1}{4}$  bicycle    France: 1 car = 3 bicycles

Potential price: 1 car =  $\frac{3}{4}$  bicycle (this price can be anywhere between the 2 opportunity costs) total welfare increases

Visualization:

*Before trade*

*after trade*



Free trade makes winners and losers. People who are already in the specialized area gain welfare, people in an outsourced area lose welfare.

*Side note: The opportunity costs of each of the nations, are for example the cars France can't produce because of the bikes they produce*

## Lecture 3

**Specialization** → Everybody produces one product more than they need

Everybody produces everything else less than they need

This leads to supply and demand which need to come together and therefore we need markets.

**Neoclassical economics:** Perfectly competitive markets

Assumptions:

- Homogeneous goods
- No market power
- No information asymmetry
- Large number buyers and sellers
- Free entry and exit
- Rational and optimizing behavior
- Market function in isolation
- Outcome: Price and quantity that maximize welfare
- 

Firms are viewed as holistic entities

- So, firms are considered to be a single unified entity.

Firms are supposed to have a single objective, and that should be the only thing that should matter.

Maximizing behaviour

- This assumption typifies the homo economicus, who knows everything and makes decisions solely on the basis of calculating the solution to some maximizing problem (= rational)

Markets function in isolation

- While this is useful as an analytical approach, the functioning of many markets in the real world cannot be fully understood without including the environmental factors.

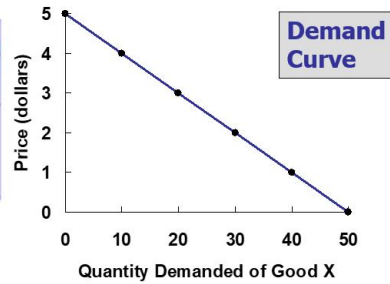
**The Paradox of Profits:** All firms try to optimize their goals, which are profits. In perfectly competitive markets, there is free entry and exit. If firms make profits, other firms will enter. If other firms enter, supply will increase, so the price will go down to the point at which no firms have any profits. Thus, according to the neoclassical view, firms cannot have profits.

**Ceteris paribus:** Change in one variable, results in the change of another variable, all the other variables stay the same.

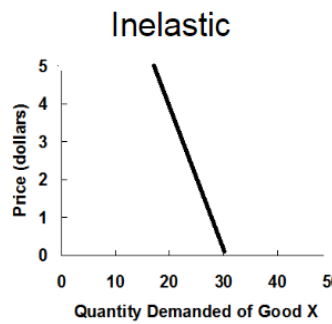
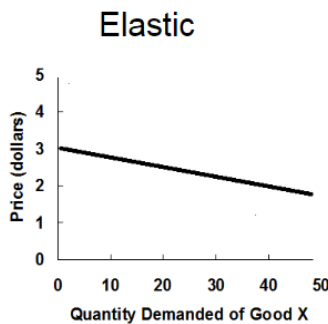
**Demand:** sum of "Willingness to pay" of buyers.



Demand Schedule for Good X		
Price (dollars)	Quantity Demanded	Point in Part (b)
4	10	A
3	20	B
2	30	C
1	40	D



**Law of demand:** Ceteris paribus, price has an inverse relationship with demand. Price goes down, more people would want to buy it.

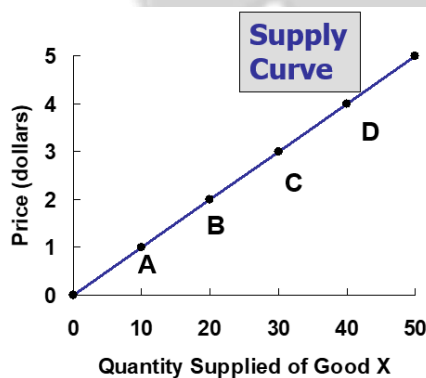


**Elastic:** Small price changes make big demand changes.  
**Inelastic:** Big price changes make small demand changes.

If demand changes without a change in prices, the whole demand curve shifts. *(The demand curve as a whole shift toward/away from the origin.)*

- Price related goods → Substitution or complementary goods
- Income → normal or inferior goods
- Preferences → Taste, hype, fashion, marketing, technology
- Size of the market
- Expectations about the future

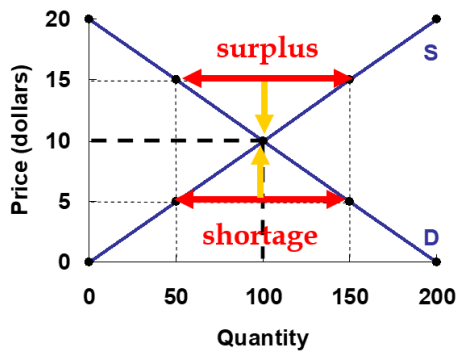
Look at the end of this lecture for the definitions of the terms talked about above



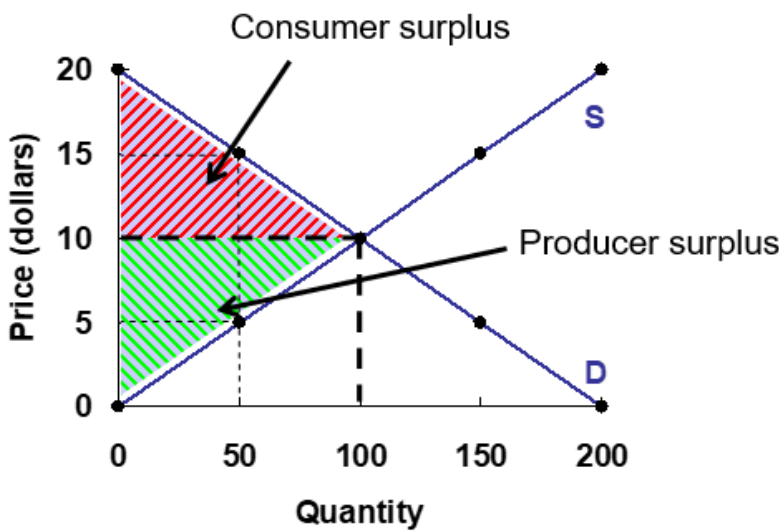
**Supply:** sum of “Willingness to accept” of individual sellers

If supply changes without a change in price, the whole supply curve shifts.

- Profitability alternative products (opportunity costs)
- Technology/productivity
- Amount of suppliers
- Taxes & subsidies
- The costs of resources
- Expectations about the future



Theoretically supply and demand reach equilibrium. If the price would be 15\$, not every product would be bought. In this case a surplus happens, driving the price down to equilibrium. If the price would be 5\$, every product would be sold, and there would be demand for even more products. In this case a shortage happens, driving the price up to equilibrium.



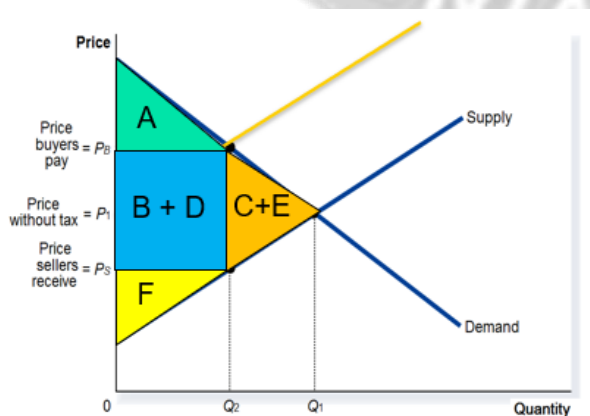
*Welfare*

- **Consumer surplus:** the difference between the price people are willing to pay, and the price they have to pay (“willingness to pay” – price)
- **Producer surplus:** the difference between the minimum price firms want to receive, and the price they receive (price – “willingness to accept”)

- **Government surplus:** the tax income for the government
- **Total surplus:** producer surplus = consumer surplus

The government might tax a product, resulting in a rise of the price. Both consumers and producers pay a part of the tax. The tax creates a new equilibrium and deadweight loss.

**Deadweight loss:** Welfare lost because of the government tax.



- A = consumer surplus
- F = producer surplus
- B + D = government surplus
- C + E = Deadweight loss



**Price ceiling:** government-mandated maximum price above which legal trades cannot be made. There is a shortage, which means less will be produced. Then, the non-price rationing device counts: who comes first, gets first. It often leads to buying and selling at a prohibited price, and to tie-in sales: a sale whereby one good can be purchased only if another good is also purchased

**Price floor:** government-mandated minimum price below which legal trades cannot be made. Thus, there is a surplus, which leads to fewer exchanges: there is too much produced, the demand is not that high

#### *Market failure and the government:*

*Some goods can't be solved through demand and supply. Everybody wants to be a free rider and let someone else pay the costs. This is where governments must intervene.*

- Public goods → Dykes, street lighting, army, fundamental research
- Common Goods, too much consumption → Environment, water, fishing, wild animals, road
- Externalities, mismatch between private & social cost and revenue: too much/ little consumption → Pollution, Schiphol, Groningen gas, research, vaccinations.
- Merit goods, long term information problem: too much/ little consumption → Pension, health, education

## Lecture 5 Markets and Information

### *Perfect Market is Perfect Competition: point of departure*

The individual economic entity is the price-taker, and can, thus, not influence the price. Besides that, the price is a sufficient statistic. There are numerous buyers and sellers and there are homogenous goods. Besides that, there is information symmetry and complete contracts: complete information about future development and about transactions. Last, it is dealing with uncertainty, up to a certain extent, via a contingent claims contract (= specific terms of the contract are made contingent on the problems involved. This is only possible if it is possible to determine the quality which is acceptable for both parties).

### *However, there are (in reality) Information Problems*

There is uncertainty: incomplete contracting. Besides that, the price is no sufficient statistic and information asymmetries exist.

This is called opportunistic behaviour (seeking self-interest with guile). Thus, you make use of the situation in your own advantage.

### *Fundamental Paradox of Information*

The fundamental paradox of information states that value of information can only be realized by revealing it to another party, but such disclosure destroys its value

(party will not buy the information anymore).

**Complete contract:** Every future scenario is in a contract

**Information symmetry:** Everybody has the same information

**Information asymmetry:** Not everybody has the same information

**With information problems, we cannot make the optimal choices**

**Adverse selection:** Leveraging a contract with hidden information

**Moral hazard:** After a contract is written, which will lead to hidden action (Changing your behaviour because of the contract, example break your phone, so you get a new one)

#### *Information Problems: Hidden Information*

This means that one party in a potential transaction is better informed about a relevant variable than the other party (private information). It is an ex-ante problem: it exists before the contract is written. The problem is also called adverse selection: you end up with the high risk population, because only they have been offered an attractive incentive. This will lead to transactions which are relatively unfavourable for the unknowing relative.

#### **Solutions against adverse selection:**

- Increase observability: Screening independent inspections
- Signalling: Brands, education, online reviews
- Risk pooling: collective insurances
- Risk distribution (guarantees)
- Risk segmentation (Health care, zip code, age)

#### *Information Problems: Hidden Action*

This means that actions are unobservable for the other party and if they may harm the other party's interest, they may prevent the successful completion of the transaction. It is an ex-post problem: it refers to actions that parties may take after their agreement. It is also called moral hazard, the incentive effect: people operate with less caution because they will not be taken up for it themselves. The consequence is that the actor with relatively less info will be disadvantaged by the actor with profits.

#### **Solutions against moral hazard:**

- Information about behaviour: collective information sharing (blacklists), monitoring
- Incentives for good behaviour: Bonuses, own risk premia, discount for not using insurance

## Lecture 6 Game theory

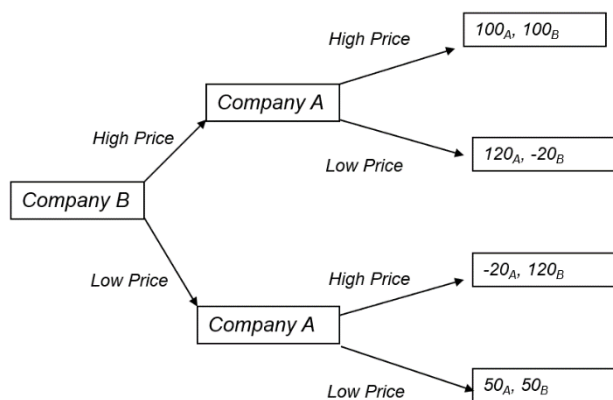
Neoclassical economics: Acting in own interest serves the common good (*Think of market equilibrium through supply and demand, and how this equilibrium maximizes welfare for everyone.*)

John Nash: Acting in own interest doesn't always serve the common good, coordination of choices can have positive effect.

**Game theory:** Analysing strategic behaviour of individuals, firms, governments etc

**Nash equilibrium:** A situation where none of the players has the incentive to change their choice.

**Prisoners' dilemma:** Every situation when going for your own best interest, is not the optimal interest.



If company B chooses for high prices, company A has 2 choices: Also choosing high prices and gaining 100 or choosing low prices and making 120. Company A will choose low prices in this scenario because  $120 > 100$ . Company B can also choose low prices. In this case Company can choose between making 50 or losing 20. It will choose 50.

Company B can in this case predict exactly what company A will do. If B chooses high prices A will choose low prices and they (B) make -20. If B chooses low, A will also choose low and

company B will make 50. Company B has the choice between making a loss (-20) or making 50. They will choose to make 50, resulting in the answer of this game being that both companies will choose low prices.

This technique is called backward induction. You start at the end and argue what the previous step should have been.

This game tree can also be visualized in a table.

		Company A's Actions	
		High Price	Low Price
Company B's Actions	High Price	100 <sub>A</sub> , 100 <sub>B</sub>	120 <sub>A</sub> , -20 <sub>B</sub>
	Low Price	-20 <sub>A</sub> , 120 <sub>B</sub>	50 <sub>A</sub> , 50 <sub>B</sub>

Company B chooses high prices: Company A chooses low price ( $120 > 100$ ).

If company B chooses low prices: Company A chooses low prices ( $50 > -20$ )

**Dominant strategy:** option in which you are always better off, whatever the other chooses

*Example*

	a	b
a	9,1	4,4
<del>b</del>	<del>5,3</del>	<del>0,0</del>

Player 1 will always go for option a, because  $9 > 5$ , and  $4 > 0$ .

### Game theory only work when the opponent is rational!

#### Auctions

- Open auction
  - Bids of all parties are observable
  - Never the highest pay-off for the seller, because the one with the highest estimated value, does not bid this. He bids just above the second highest bid
- Sealed bid auction
  - Bids are not observable, the trick is to estimate the opponent's valuation. There is still a loss for the seller: if P estimates the valuation of others, and his valuation is

higher, he will bid just above the highest estimation of valuation of others. The solution for this is the second-price auction.

- Dutch auction
  - Price starts high and falls until someone says 'stop'
  - It is 2-phase: the first round is open / sealed, and the second round is Dutch.
  - In this way, the winner of the 1<sup>st</sup> round will get a financial advantage. If nobody in the 2<sup>nd</sup> round cries out 'stop', the winner of the first round gets the product for the bid of the 1<sup>st</sup> round. This solves the problem: other participants know now each other's bids, so they are able to bid (probably) higher. So, in this way, the seller gets the higher pay-off.
  - Danger of winner curse for the buyer: valuation way too high
  - Danger of collusion for the seller
- Second-price auction
  - Winner pays the second highest bid, so all people will bid their real valuation.

### **Lecture 7 Transaction cost economics**

Neoclassical perspective firms: A production formula with input and output.

The firms are managed by one actor with unbounded rationality, profit maximization, and has perfect information.

The market can be described as perfectly competitive

Firms has to decide to integrate the service or buy it on the market.

Using the market, might hurt you in the long game.

Two extreme "governance structures"

Market, Hierarchy

On markets:

- transactions are coordinated by the price-mechanism. All information is in the price of the product.

Within firms or organizations:

- transactions are eliminated
- there is a manager/entrepreneur who dictates
- production

Central question:

Given the fact that the price mechanism and the market are optimally efficient in the coordination of production

why do entrepreneurs choose to do things themselves (and not use the market/another firm)?

why do (large) firms or organizations exist?

Answer:

- There appear to be costs involved in using the price-mechanism (the market)  
Transaction costs
- Which costs are linked to the use of the price-mechanism? → (Three Cs)



- **Contact:** There are costs in finding the relative and relevant prices/suppliers/consumers.
- **Contract:** There are costs in drawing up and negotiating the (terms of) the contract.
- **Control:** There are costs concerned with enforcement.
  - Monitoring behaviorist
  - Solve conflicts
  - Costs coming from conflicts (opportunistic behaviour)
- These transaction costs influence the optimal governance structure
- Higher transaction costs → **Vertical integration** (Internalization becomes more attractive versus the market.)
- Critical dimensions of transactions: Frequency, complexity, uncertainty

Why isn't there one huge firm, → Coase: "Diminishing returns on management"

How big should firms be → Marginal analyses, when has something the same cost to let someone else do it, or do it themselves

- Firms exist because of transactions costs
- The size of the firm is the number of transactions that are internalized
- Firms have a maximum size because of internal management costs

#### *Asset specificity*

- Asset specificity is the degree to which transactions need to be supported by transaction specific assets (=it cannot be redeployed to an alternative use without a significant reduction in the value of the asset)
- The higher the transaction specific assets, the higher the transaction costs
- When a transaction does not take place because of transaction costs, we speak of a hold-up situation

When there is a Hold-up situation, the companies should merge, or exchange shares to make sure they commit to each other

**Quasi rent:** The market price above variable cost.

When there exists a positive quasi-rent there is always the danger of opportunistic behavior or even hold-up.

**Lock-in:** every situation in which "choice" is not based on efficiency now, but on "switching costs" and "sunk costs" because of the past.



## Lecture 8 Agency theory & corporate governance

### Agency theory

#### Principle:

- Transfers responsibilities to an agent
- Is affected by the behaviour of the agent

#### Agent: The other way around

Two main conditions: The agent has (can have) opposite interest than the principal, now there is an information asymmetry between the principal and the agent

Because of these conditions, there is great risk of opportunistic behaviour from the agent.

Agency theory: A firm is a “nexus of contracts”, inside and outside the firm.

#### Example

Every shareholder is a principle, and all the employees are the agents. Shareholders want the most profit, while employees want to do as little as possible and still get paid.

#### Solution for the principal agency theory:

- Market: The market for managers, Market for products, stock market, Market for “corporate control”
- Bureaucracy: Implement market incentives: Monitor behaviour and results, bonuses

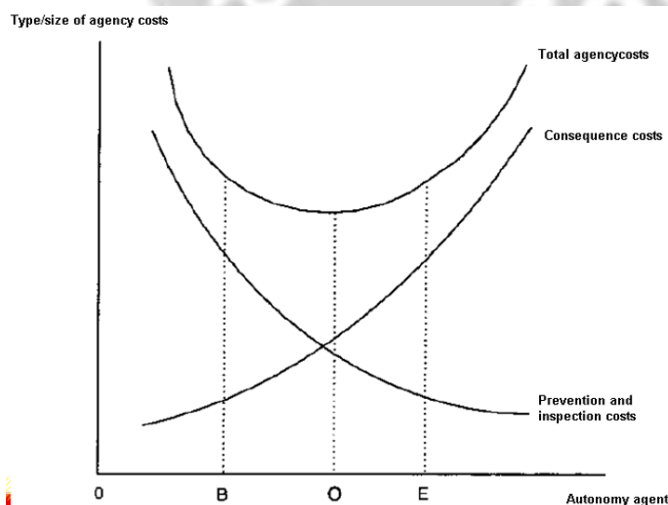
Every incentive has unintended consequences.

#### Example

Result based bonuses bankers got in 2008 led them to take incredible risks and crashing the economy.

Monitoring can be a solution, but it has to be measurable.

**Performativity:** The implemented rule leads to the actual idea being



**Bonding costs:** costs of setting boundaries on the possible actions of the agents

**Monitoring costs:** Costs which come from controlling and inspection

**Consequence costs:** Loss in welfare as a consequence of difference between decisions agents and potential maximum outcome for principles