



FULBRIGHT  
UNIVERSITY  
VIETNAM

FULBRIGHT SCHOOL OF  
PUBLIC POLICY AND MANAGEMENT

# Market Failure

Introduction to Public Policy

Fall 2023



# Market failure and State failure: Herbicide tolerant crops



- Development of herbicide tolerant (HT) crops (glyphosate tolerant) reduces need for mechanical weeding or selective herbicides
- By 2017 almost all soybean and maize in the US was HT, reducing farmers' costs and increasing profits of agricultural input companies
- Market failure: Externalities and imperfect competition
  - Carcinogenic effects of herbicides
  - Weeds develop resistance to glyphosate
  - Monopoly rents for Monsanto (seeds and herbicides)
- Government failure: Competing objectives
  - Government mandate to mix ethanol from maize into fuel to reduce dependence on foreign oil
  - Cheap soybeans and maize keeps down prices of meat and earns export revenues

# Conditions required to achieve competitive equilibrium



- No individual producer or consumer is large enough to affect the market price of goods and services (Is Google a monopoly?)
- Producers and consumers have complete and costless information about goods and services (asymmetric information problems—used cars)
- Markets are complete, covering goods and services, including markets for goods and services in the future and insurance markets to hedge risk (poor people cannot get bank credit)
- Individual property rights are complete and enforceable—nothing is commonly owned (who owns the forest?)

## Conditions required to achieve competitive equilibrium (2)



- All producers and consumers are perfectly rational and have only one aim—to maximize utility—and they can readily identify the actions required to achieve this aim (economic agents do not make irrational choices: e.g. loss aversion)
- People know their preferences and their preferences are consistent (if I prefer A to B, and prefer B to C, I must also prefer A to C)
- There are no externalities (unintended effects on third parties of consumption and production decisions)

# Public goods

---



- Goods that are non-excludable:
  - Difficult to stop specific individuals or groups from gaining access to the good or service
  - for example, national defense, or clean air.
- Goods that are non-rivalrous:
  - Consumption of the good or service does not reduce the supply available to other consumers
  - for example, the internet or radio programs.
- Club goods: non-rivalrous goods but excludable, for example, a park or the beach.
- The market will not provide enough public goods because people can access them without paying (they are non-excludable)
- Or the price of the good or service does not reflect the social benefit (education)



## Public goods (2)

---

- It is difficult to determine prices of public goods because:
  - the marginal cost of producing an additional unit is zero.
  - only the consumer knows the value of the good.
  - The social benefit of the good is unknown or difficult to estimate
- Solution: The government collects taxes and provides public goods and services at no cost to users.
- Or the government provides a subsidy to a private producer of the goods or services.

# Externalities

---



- The effect of an economic activity on a third party (neither the buyer nor seller)
  - Example: a garment factory releases toxic chemicals into a river
  - The pollution is a *social cost on local people* (it is not included in the price of the garments)
- Coase theorem: Externalities exist because property rights are not fully specified and transaction costs are non-zero.
  - If property rights to the river were clear and enforceable, the owner of the river would pay the company to stop polluting, or the company would compensate the river's owner for the damage done by the pollution.
  - If the river is publicly owned the “transaction costs” of negotiating a solution would be too high because there are too many “owners”

# Externalities (2)

---



- Solutions:
  - Regulation: The government establishes legal limits on the discharge of pollutants into rivers.
  - Taxes: The government taxes behavior that results in externalities (petrol taxes).
  - Subsidies: The government can encourage activities that reduce the level of externalities (electric cars)
  - Property rights: Establish a property right to pollute (carbon trading)
- Positive externalities:
  - Education delivers benefits to society that are not included in student fees
  - Organic agriculture reduces nitrogen in rivers



# Externalities from deforestation

- Deforestation accounts for 7% of global CO2 emissions
  - Clearing and burning one hectare of rainforest adds 500 tons of CO2 into the atmosphere, causing \$25,000 in harm.
  - But one hectare of cleared Amazon forest sells for just \$1,200.
  - Coasean solution would be to pay the owners of the rainforest to not cut it. But who owns it? Even if the owner is known, can he or she prevent others from cutting it down?
- Overlapping land claims, not central registry.
- Carbon offsets: Selling credits based on protected forests, but some likely to be worthless.



The Economist



# Imperfect competition

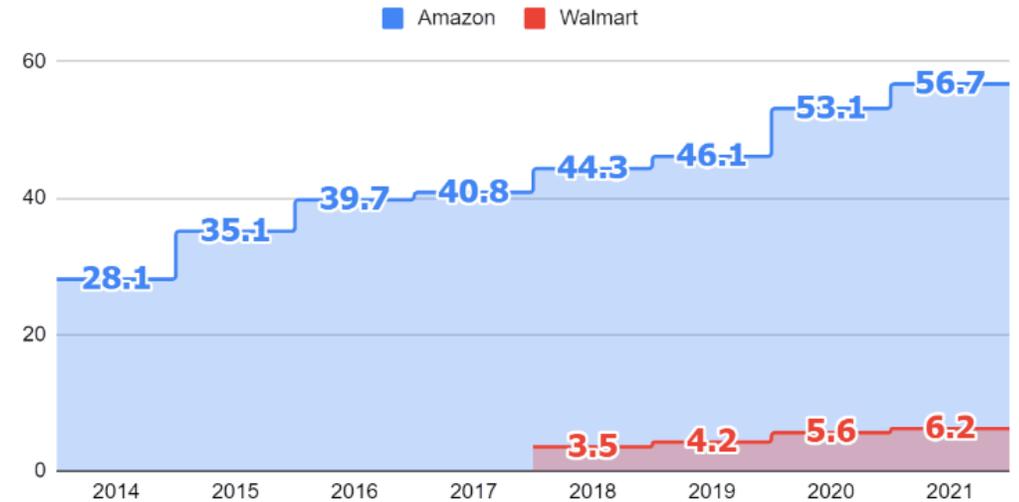
---

- Monopoly and oligopoly: Producers control enough of the market to influence prices
  - High barriers to entry: high research and regulatory costs of bringing a drug to market
  - Natural monopolies: high fixed costs, for example a railroad network, so average costs are continually falling.
  - Monopolistic competition: competition through marketing and small differences between essentially identical goods and services (Coke and Pepsi)
- Solutions:
  - Competition laws to block mergers and acquisitions that reduce competition
  - Price regulation to prevent monopolists from earning exceptionally high profits
  - Public provision (water and sewage, irrigation systems)

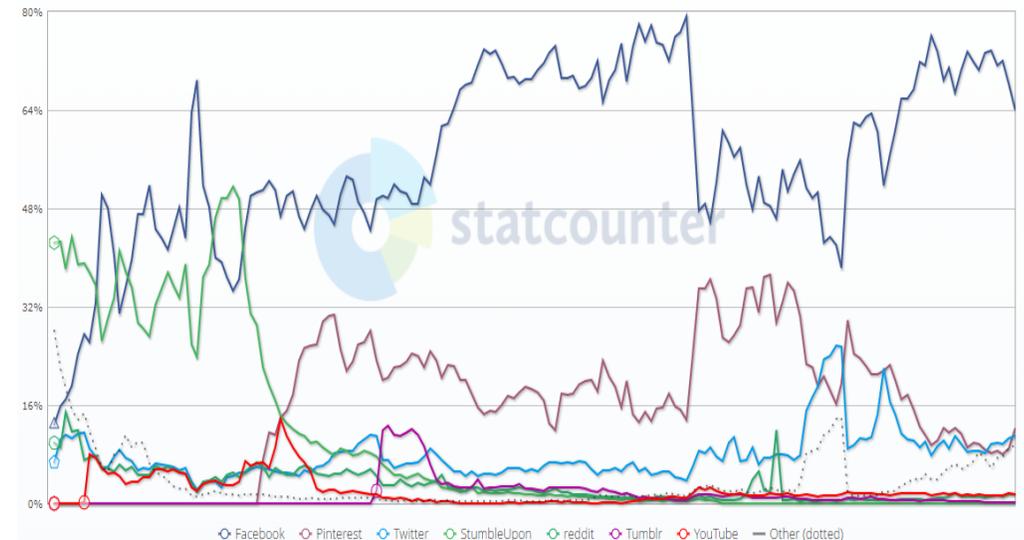
# Big Tech and Monopoly Power

- Google, Facebook, Amazon, and Apple have changed the boundaries between the “marketplace” and “market player”
- Nearly 60% of online sales in the US were completed on Amazon in 2021—doubled since 2014.
- Facebook receives 64% US social media visits September 2022
- Google controls 92% of internet search market worldwide
- Apple controls 53% of the US smartphone market (2021) and more than half of revenue from mobile applications.

Amazon.com share of online sales



Facebook share of social media visits



# Government has not used its power to break up Big Tech



- 1998 US government sued Microsoft for using its domination of the market for computer operating systems to bundle its internet browser. Microsoft won.
- Big Tech argues that no one is forced to use their platforms, and that alternatives exist but are less popular
  - Network effects as a positive externality for users
  - Free services (Google and Facebook) and cheap prices (Amazon)
  - The advertising market is competitive and diverse (TV, radio, print, etc.)
- Opponents of Big Tech argue that they cannot be allowed to use their control of the marketplace to favor their own products and services
  - Facebook cannot both claim that it is delivering a positive externality to users and then monetize the data that they acquire as a monopolist
  - Amazon can use its market power to pressure its suppliers and steer customers to goods and services that earn higher profits
  - Google effectively sells data from search, photos, maps, docs



# Incomplete or missing markets

---

- Public goods are the most common form of missing market.
- But they also appear when costs of supplying the good or service are less than prices that consumers are willing to pay.
  - There is no market for Welsh language lessons in Vietnam (limited demand)
  - Few bank branches in rural areas (they would operate at a loss)
- Missing insurance and futures markets: uncovered risk
  - Cannot hedge risk against disasters (no flood insurance)
  - Cannot hedge risk against financial loss
  - Cannot hedge currency risk.
- Solution: Government provision or subsidies for private producers (flood insurance)

# Costly information



- Adverse selection: When the buyer or seller has more information about the goods or services than their counterparty
  - The buyer of a used car does not have complete information about its service history and therefore seeks to pay the average price for the make and model → which would be too low for a well-maintained car and too high for a poorly maintained one.
  - Banks do not have complete information about the plans of borrowers, so they try to collect as much information as possible → if they use prices (lend money to the borrowers willing to pay the highest interest rates) they will make risky loans
- Moral hazard: Bad behavior of the counterparties
  - An insured driver drives recklessly knowing that he or she is insured
  - A bank loans money to risky borrowers knowing that the government will bail out the bank if it loses money
- Solution: caveat emptor



# Market failure: Summary

---

- The main advantage of market exchange over other forms of resource allocation is that transactions are voluntary and therefore enjoy the *consent* of participants.
- People in market societies (usually) accept the principle that market outcomes are fair in the sense that they must take responsibility for their own choices.
- Outcomes are considered unfair when they are involuntary (externalities), coerced (monopoly), based on incomplete information or involve bad behavior (moral hazard).
- Because externalities, monopoly, incomplete information and moral hazard are everywhere, markets work best in the context of clear and comprehensive rules with equal enforcement.
- The absence of clear and comprehensive rules and selective enforcement is the main cause of Government Failure.



# When should the government act?

- We need a rule of thumb for public action to know when government should intervene in market activity
- Kaldor-Hicks criterion: Government should act if gains are more than sufficient to “theoretically compensate” for losses
  - For example, ban on the use of glyphosate produced winners (farmer health) and losers (farmer income). Government should act if net gains are more than zero.
  - In practice it is difficult to measure gains and losses, which are spread over many people and regions and over a long period of time.
  - How to value a human life? How much income is enough to theoretically compensate for a higher rate of cancer among farmers?
  - Gains and losses may not be commensurate and depend on values and judgments: income vs equity, environmental protection vs economic growth.

# Market failure and Government failure: Which is worse?



- Neither markets nor states are always “better”: Both fail when the rules of the game are poorly specified and not enforced impartially.
- Markets and states both thrive when they are based on *consent* and maximum *freedom of choice*
- Flow of information is crucial to both states and markets
- States and markets both fail under conditions of extreme inequality
- For this reasons, markets and states tend to work well together, and fail badly together.



# Climate change: Government or market failure?

- Climate change is caused by an externality: The full cost to society of using fossil fuels is not included in the price.
- Government failure: an effective state would impose a tax on fossil fuels to reduce demand and make renewable energy more competitive
  - The world is made up of many nation state, not one government, so there is no global tax on fossil fuels
  - Oil and coal producers and countries with energy-intensive economies and will not agree to impose a global tax.
  - Collective action problem: Countries with different natural endowments and at different stages of development cannot agree on an approach
  - Regulatory capture: Oil industry uses its influence to get governments to subsidize fossil fuels (\$7 trillion in 2022 or 7.1% of global GDP).