

Market Failure

Continued...

- Lack of public goods
 - Using the concepts of rivalry and excludability, and providing examples, distinguish between public goods (non-rivalrous and non-excludable) and private goods (rivalrous and excludable).
 - Explain, with reference to the free rider problem, how the lack of public goods indicates market failure.
 - Discuss the implications of the direct provision of public goods by government.

Continued...

- Common access resources and the threat to sustainability
 - Describe, using examples, common access resources.
 - Describe sustainability.
 - Explain that the lack of a pricing mechanism for common access resources means that these goods may be overused/depleted/ degraded as a result of activities of producers and consumers who do not pay for the resources that they use, and that this poses a threat to sustainability.
 - Explain, using negative externalities diagrams, that economic activity requiring the use of fossil fuels to satisfy demand poses a threat to sustainability.
 - Explain that the existence of poverty in economically less developed countries creates negative externalities through over-exploitation of land for agriculture, and that this poses a threat to sustainability.
 - Evaluate, using diagrams, possible government responses to threats to sustainability, including legislation, carbon taxes, cap and trade schemes, and funding for clean technologies.
 - Explain, using examples, that government responses to threats to sustainability are limited by the global nature of the problems and the lack of ownership of common access resources, and that effective responses require international cooperation.

HL ONLY

- Asymmetric information
 - Explain, using examples, that market failure may occur when one party in an economic transaction (either the buyer or the seller) possesses more information than the other party.
 - Evaluate possible government responses, including legislation, regulation and provision of information.
- Abuse of monopoly power
 - Explain how monopoly power can create a welfare loss and is therefore a type of market failure.
 - Discuss possible government responses, including legislation, regulation, nationalization and trade liberalization.

Links to ToK

- To what extent is the obligation to seek sustainable modes of consumption a moral one?
- What knowledge issues are involved in assessing the role of technology in meeting future patterns of consumption and decreasing the negative externalities of consumption associated with fossil fuels?
- What are the knowledge issues involved in determining what is a rational cost to pay for halting climate change?
- How could we know if economically more developed countries are morally justified in interfering in the development of economically less developed countries on the grounds of climate change?
- How can we know when climate change is sufficiently serious to warrant government interfering in the freedom of its citizens to consume?
- How can we calculate the external costs of producing and running items such as light bulbs or motor vehicles? For example, low energy light bulbs consume less energy but they require more energy to produce, and some brands contain materials that are harmful to the environment such as mercury. Hybrid cars consume less energy to run but consume more energy to produce.
- What are the problems in knowing whether climate change is produced by human activity?

Public Goods

Public Goods

- So far we have heard about markets failing when they:
- **Produce too much of a good (negative externalities)**
- **Produce too little of a good (positive externalities)**
- *But what if a market produced NONE of a good. A good which is not provided by the free market AT ALL is known as a PUBLIC GOOD.*

Public Good:

- A good which provides benefits to society which are non-rivalrous, and the benefits of which are non-excludable by the provider of the good.
- Because of these characteristics, public goods will not be provided by the free market at all (hence, represent a market failure)
- *To be considered public, a good must be:*
 - **Non-rivalrous in consumption:**
 - **Non-excludable by the provider:**

Non-rivalrous in consumption:

- This means that one consumer's enjoyment of the benefits of a good does not diminish any other consumer's enjoyment of its benefits.(Light house, National parks, roads)

Non-excludable by the provider:

- This means that once a good has been provided, it is not possible to exclude any individuals from enjoying its benefits.
- In other words, you can't make individuals pay for the good once it is made available.(free TV)
- *There will be free-riders, or individuals who enjoy the good's benefits without ever paying for it!*

Excludable

Non-excludable

Rivalrous

Private goods

food, clothing, cars, personal
electronics

**Common goods (Common-pool
resources)**

fish stocks, timber, coal

Non-rivalrous

Club goods

cinemas, private parks, satellite
television

Public goods

free-to-air television, air, national
defense

A CLASSIFICATION OF GOODS

| | <u>EXCLUDABLE</u> | <u>NON-EXCLUDABLE</u> |
|----------------------------|---|--|
| <u>RIVAL</u> (MC>0) | <p style="text-align: center;">PRIVATE GOOD</p> <ul style="list-style-type: none"> • Efficient Market Supply • Examples: food, clothes, TVs or other electronics | <p style="text-align: center;">COMMON POOL RESOURCE</p> <ul style="list-style-type: none"> • Problems: overproduction, underinvestment, overconsumption, or poorly defined property rights • Example: Natural Resources • Solution: clearly define property rights/ownership of resources, encourage pareto-optimal use through subsidies and taxation policies |
| <u>NON-RIVAL</u> (MC=0) | <p style="text-align: center;">"TOLL" GOOD</p> <ul style="list-style-type: none"> • Problems: underconsumption or crowding • Examples: movie theater, road or bridge, public park • Solutions: prevent crowding with a positive price, institute cheaper price or allow free use during off-peak times | <p style="text-align: center;">PUBLIC GOOD</p> <ul style="list-style-type: none"> • Problems: overproduction, underinvestment, overconsumption, and Free-riding • Examples: National Defense, Local Mosquito Control Operations • Solution: public delivery with mandatory contribution towards provision through taxation |

Examples of Public Goods

- **Infrastructure:**

- Roads, sidewalks, street lights, power lines, sewage systems, train tracks... many of these goods are non-excludable and non-rivalrous, therefore are unlikely to be provided by the free market.
- Government must provide such goods so that society can enjoy their benefits.

- **Parks:**

- Think of the last time you walked through a *public park*. Did you have to pay to get in? (If not, then it was non-excludable).
- Did your enjoyment of the park prevent others from enjoying it? (If not, then it was non-rivalrous). Public parks are an example of public goods.

- **Fire and Police Protection:**

- If your house catches on fire, do you have to call a private fire fighting firm to come put it out?
- The reason you don't is because the *benefits of having fire protection are non-rivalrous*. Putting the fire in your house out will benefit your neighbors, whose houses are less likely to burn down.
- Police protection is the same way. Without government-provided police force, society as a whole would be unsafe because very few people would choose to hire private security. The benefits of police protection are *non-rivalrous and non-excludable*.

- **National Defense:**

- An army, navy and air force provide citizens with protection which, once provided, individuals within the nation cannot be excluded from benefiting from.
- One person's safety does not diminish others', so defense is non-excludable and non-rivalrous: a purely public good.

Test your understanding

Organise the following from purely public to pure private

Purely Public.....
(non-rivalrous and non-excludable).....

Quasi-Public... ..

Purely Private
.....(rivalrous and excludable)

- Groceries
- Air travel
- Professional sports stadiums
- Cable TV
- Garbage collection
- Recreational facilities
- Sewage Treatment
- City bus service
- College education
- Police protection
- Electric power
- Health care
- Interstate highway facilities
- Light houses
- Toll roads
- Radio
- Postal service
- National Defense
- Park benches
- Drinking Water
- National rail line
- Elementary schooling

Other examples

- Read the following blog on history of public goods
- <http://welkerswikinomics.com/blog/2012/01/29/a-history-of-public-goods/>

Test your knowledge

- Read pages -----and answer the provided questions:
- **Post on Blogger**
 - Using the concepts of rivalry and excludability, and providing examples, distinguish between public goods (non-rivalrous and non-excludable) and private goods (rivalrous and excludable).
 - Discuss the implications of the direct provision of public goods by government.

Common Access Resources

Common Access Resources:

- In addition to *merit goods*, *demerit goods* and *public goods*, a third type of market failure arises from the existence of common access resources:
- **Definition:** Those “gifts of nature” over which there is no private ownership, and therefore no effective means of regulating the use of the resource.
- Examples of common access resources include:
 - **Fish in the sea**
 - **Trees in a forest**
 - **Common pastureland**
 - **Fresh water in aquifers or in rivers**
- http://youtu.be/_Tc6ywqoL6o

The Tragedy of the Commons

- In each of these cases, the lack of ownership over the resources creates an incentive for potential users to exploit them to the fullest extent possible,
- so as to extract as much benefit as possible before other users extract and exploit the resource.

The Tragedy of the Commons

an essay by Garrett Hardin, 1968

Read the following excerpt from the famous essay by ecologist Garrett Hardin

"The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.

As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, "What is the utility to me of adding one more animal to my herd?" This utility has one negative and one positive component.

1) The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly +1.

2) The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of -1.

Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another.... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit--in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

Continued...

The Tragedy of the Commons – an essay by Garrett Hardin, 1968

Read the following excerpt from the famous essay by ecologist Garrett Hardin

Even at this late date, cattlemen leasing national land on the western ranges demonstrate no more than an ambivalent understanding, in constantly pressuring federal authorities to increase the head count to the point where overgrazing produces erosion and weed-dominance. Likewise, the oceans of the world continue to suffer from the survival of the philosophy of the commons. Maritime nations still respond automatically to the shibboleth of the "freedom of the seas." Professing to believe in "the inexhaustible resources of the oceans," they bring species after species of fish and whales closer to extinction (9).

The National Parks present another instance of the working out of the tragedy of the commons. At present, they are open to all, without limit. The parks themselves are limited in extent--there is only one Yosemite Valley--whereas population seems to grow without limit. The values that visitors seek the parks are steadily eroded. Plainly, we must soon cease to treat the parks as commons or they will be of no value anyone.

What shall we do? We have two options.

- 1. We might sell them off as private property.*
- 2. We might keep them as public property, but allocate the right enter them. The allocation might be on the basis of wealth, by the use of an auction system. It might be on the basis merit, as defined by some agreed-upon standards. It might be by lottery. Or it might be on a first-come, first-served basis, administered to long queues.*

These, I think, are all the reasonable possibilities. They are all objectionable. But we must choose--or acquiesce in the destruction of the commons that we call our National Parks.

Continued...

The Tragedy of the Commons – an essay by Garrett Hardin, 1968

Read the following excerpt from the famous essay by ecologist Garrett Hardin

In a reverse way, the tragedy of the commons reappears in problems of pollution. Here it is not a question of taking something out of the commons, but of putting something in--sewage, or chemical, radioactive, and heat wastes into water; noxious and dangerous fumes into the air, and distracting and unpleasant advertising signs into the line of sight. The calculations of utility are much the same as before. The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them. Since this is true for everyone, we are locked into a system of "fouling our own nest," so long as we behave only as independent, rational, free-enterprises.

The tragedy of the commons as a food basket is averted by private property, or something formally like it. But the air and waters surrounding us cannot readily be fenced, and so the tragedy of the commons as a cesspool must be prevented by different means, by coercive laws or taxing devices that make it cheaper for the polluter to treat his pollutants than to discharge them untreated. We have not progressed as far with the solution of this problem as we have with the first. Indeed, our particular concept of private property, which deters us from exhausting the positive resources of the earth, favors pollution. The owner of a factory on the bank of a stream--whose property extends to the middle of the stream, often has difficulty seeing why it is not his natural right to muddy the waters flowing past his door. The law, always behind the times, requires elaborate stitching and fitting to adapt it to this newly perceived aspect of the commons.

The pollution problem is a consequence of population. It did not much matter how a lonely American frontiersman disposed of his waste. "Flowing water purifies itself every 10 miles," my grandfather used to say, and the myth was near enough to the truth when he was a boy, for there were not too many people. But as population became denser, the natural chemical and biological recycling processes became overloaded, calling for a redefinition of property rights.

The Tragedy of the Commons – an essay by Garrett Hardin, 1968

After reading the excerpt from Hardin's essay, answer the following questions

1. What is Garret Hardin most concerned about?
2. How can "the commons" best be defined?
3. Are individuals who overuse "the commons" acting irrationally? Explain.
4. Besides the "common pasture", what other resources does Hardin identify as "commons"?
5. What are some of the possible solutions he suggests for the problems faced by America's National Parks?
6. How are air and water different from pastures, the oceans, and national parks in the "tragedy" presented by the common resources?
7. What are some of the possible solutions Hardin suggests for the "cesspool" tragedy represented by the pollution of our air and water?
8. What do you think a hard-core, free-market economist would say is the solution to "the tragedy of the commons"?

[Blog Post: The Tragedy of the Commons as a Market Failure](#)

[Blog Post: Common access resource case study – Indonesia's Reef Fish](#)

possible solutions

- In his essay, Hardin explained that when there exist a common resource, for which there is no private owner, the incentive among rational users of that resources is to exploit it to the fullest potential in order to maximize their own self gain before the resource is depleted.
- The tragedy of the commons, therefore, is that common resources will inevitably be depleted due to humans' self-interested behavior, leaving us with shortages in key resources essential to human survival.
- This represents a market failure because, without allocation of property rights over or effective management of common access resources, they will be exploited *unsustainably*



Important

- *Sustainability: The ability of an activity or a resources to endure for the use and enjoyment of future generations*

Possible Solutions

Possible Solutions to the Tragedy of the Commons:

Privatization:

Assigning private ownership over a resource creates an incentive among the private owners to protect and manage its use in a sustainable manner, so as to benefit from its existence into the future.

Government management:

Strict government control over the access to and use of common resources may limit access to them to a sustainable level.

Tradeable permits:

Issuing permits to private users to allow a certain amount of extraction in a period of time may limit the exploitation of the resource to sustainable level.

Test your knowledge

- Watch the following video and answer the provided questions:
- <http://www.econclassroom.com/?p=2945>
- **Post on Blogger**
 - Describe, using examples, common access resources.
 - Describe sustainability.
 - Explain, using examples, that government responses to threats to sustainability are limited by the global nature of the problems and the lack of ownership of common access resources, and that effective responses require international cooperation.
 - Evaluate, using diagrams, possible government responses to threats to sustainability, including legislation, carbon taxes, cap and trade schemes, and funding for clean technologies.
 -

Asymmetric Information as a Market Failure

HL ONLY

Asymmetric Information

Asymmetric Information:

- When the seller of a product knows something about it that is not revealed to the buyer.
- Without perfect knowledge, buyers may not buy the optimal quantity of a product, thus resources may be misallocated towards its production and consumption.
- Without all the information about a product, Demand (marginal private benefit) may be greater than what is socially optimal (marginal social benefit),
- resulting external costs for society caused by consumers demanding too much of certain goods.

Market Failures arising from Information Asymmetry

Adverse Selection:

- Typical market failure in the market for insurance; if the buyer of insurance does not share with the insurer complete information about the level of risk he or she presents, insurance will be provided at too low a cost to too many risky individuals. The cost of covering the dishonest are thereby shared by the more honest customers, for whom the cost of insurance is, as a result, higher than it would be otherwise.

Moral Hazard:

- Also a type of information asymmetry, if the consequences of one's actions are born by society as a whole or by a third party, rather than by the individual himself, he is more likely to take risky actions that he would not take if the consequences were fully born by himself. For example, if you have a rental car with full insurance, you are more likely to drive recklessly than in your own car, on which you have a high co-pay.

Example

- The Financial Crisis as a Market Failure
- What follows is a short interpretation of how the global financial crisis of 2007-2008 was the result of information asymmetry and therefore a market failure

Test your understanding

- *Read the following and discuss with your partner:*
 - *How the recent US recession is an example of asymmetric knowledge?*
- *In the US and other countries, households were offered “sub-prime” loans, which allowed those who would not have typically qualified for a home loan to borrow money and buy a house.*
- *Borrowers were told that the debt they were taking on would not be a problem due to the fact that “home prices always rise”, information that was thought to be factual by most who bought homes at the time.*
- *Banks “bundled” these loans into securities that they sold to investors all over the world, who assumed that the lending banks were correct in their assumption that house prices would continue to rise.*
- *Developers built houses in record numbers based on the assumption that they'd be able to sell them at higher and higher prices.*

Continued...

- *Supply of houses grew faster than demand, and eventually house prices began to fall.*
- *Borrowers found they could not make their monthly payments because their loans were "adjustable rate" meaning they required higher payments over time, causing foreclosures to increase and the supply of houses for sale to grow even more, forcing prices down even more.*
- *Now investors and banks all over the world hold securities made up of bad loans to Americans that were made based on the incorrect assumption that house prices would always rise. With bad assets on their "balance sheets" banks are unable to make new loans to consumers and firms, so spending in the economy has slowed, meaning recession and high unemployment*
- *The asymmetric information at the root of the financial crisis was the belief that "home prices always rise". When this turned out to be false, there were too many homes on the market and trillions of dollars in households investments were lost, throwing the global economy into a recession.*

Test Your Knowledge

- Watch the video and answer the following questions
- Post on Blogger
- <http://www.youtube.com/watch?v=NZAwGoIAFgM>
 - Explain, using examples, that market failure may occur when one party in an economic transaction (either the buyer or the seller) possesses more information than the other party.
 - Evaluate possible government responses, including legislation, regulation and provision of information.

The Abuse of Monopoly Power as a Market Failure

HL ONLY

The Abuse of Monopoly Power

- *Monopoly Power:*
 - *When a single firm controls a large share of the total market for a particular good, that firm is able to charge a HIGHER PRICE and produce a LOWER QUANTITY than what is socially optimal.*

The source of monopoly power arises from a large firm's price-making abilities.

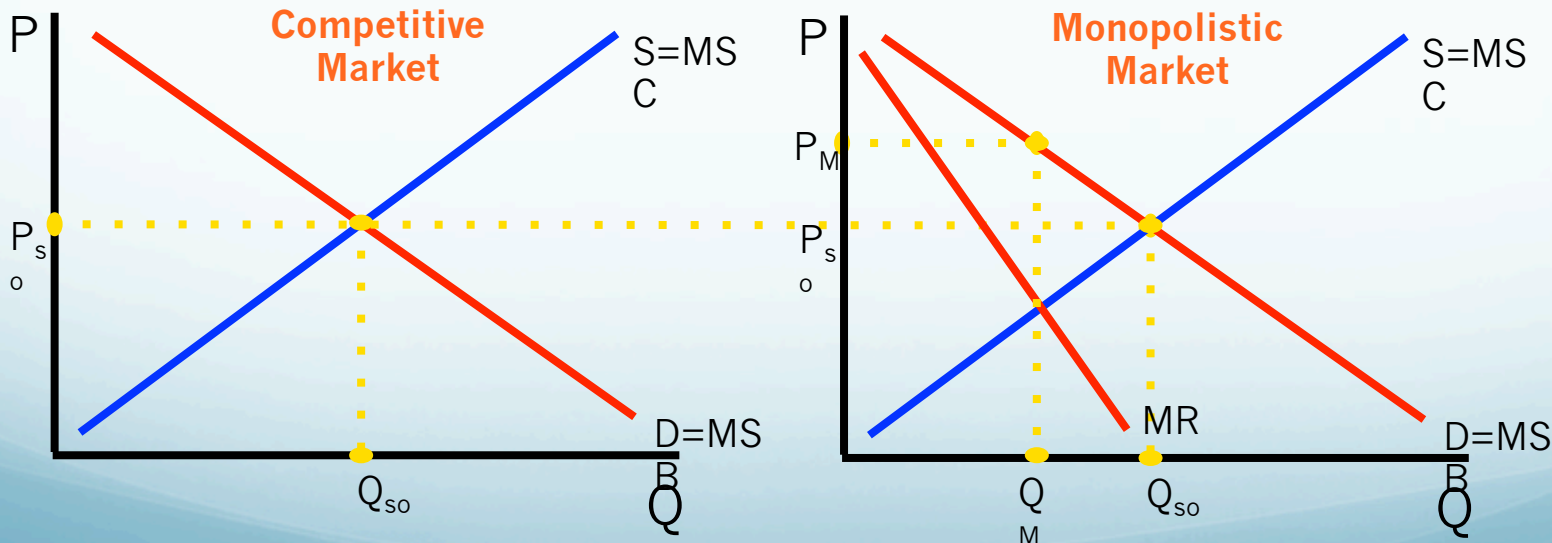
- In more competitive markets, hundreds of small firms compete with one another for the business of consumers.
- Competition forces firms to produce their goods efficiently (at a low cost) and sell their goods for a low price
- Without competition, monopolists are not forced to produce at the lowest cost, nor do they have to sell for the lowest price.

Important

- *Monopolists (or firms with significant market power), are both productively and allocatively inefficient, since without competition, such firms are able to charge higher prices and produce smaller quantities!*

The Graph

- A monopolist's price-making power allows it to produce a lower quantity and charge a higher price than what is achieved in a more competitive market.



Analysis

- In the competitive market, the price and quantity are always determined by the intersection of demand and supply,
- which represent MSC and MSB, and therefore is allocatively efficient.
- A monopolist, on the other hand, will produce at a level based on its marginal revenue and marginal cost, rather than on consumers' demand.
- Therefore, the monopolist will charge a higher price and produce a lower quantity than is achieved in a competitive market.

Important

- *Resources are under-allocated towards a monopolist's output, therefore monopoly power is a market failure.*

Test Your Knowledge

- Post on Blogger
- Answer the following questions
 - Explain how monopoly power can create a welfare loss and is therefore a type of market failure.
 - Discuss possible government responses, including legislation, regulation, nationalization and trade liberalization.