



Common Pool Resources

Notes

WHAT ARE COMMON POOL RESOURCES?

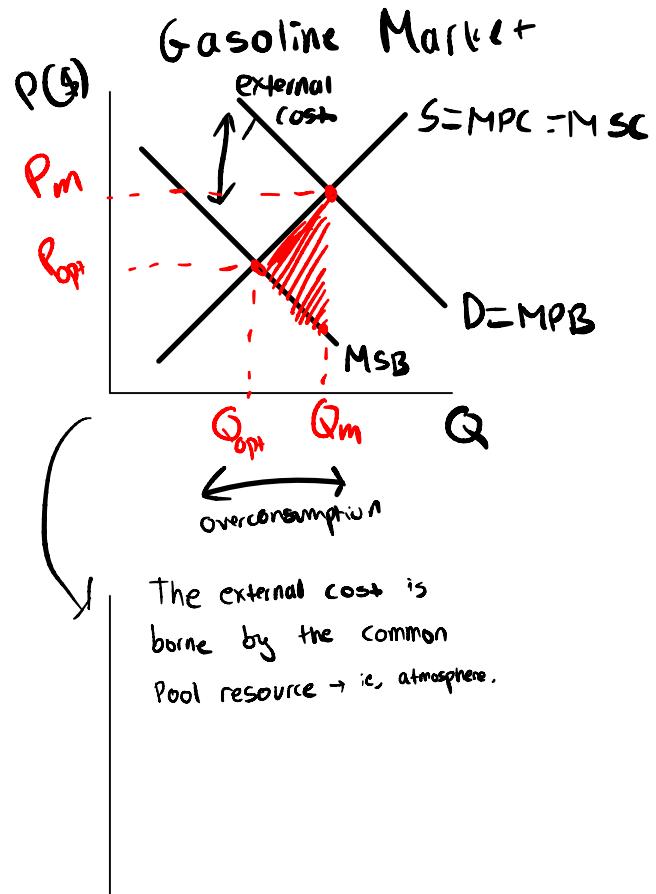
- Natural resources are non-excludable and rival.
- Non-excludable: You can't reasonably or cost-effectively prevent someone from using the resource.
- Rival: One person's use diminishes the ability of another person to use the resource.
- Because common pool resources are non-excludable and rivalrous, the main consequence in the absence of government intervention is resource degradation.

WHAT ARE SOME EXAMPLES OF COMMON POOL RESOURCES?

- Fish in ocean.
- Forests.
- Pastures.
- The atmosphere.

COMMON POOL RESOURCES ARE SUSCEPTIBLE TO NEGATIVE EXTERNALITIES

- Because common-pool resources are non-excludable, they are susceptible to problems related to negative externality. (Both production and consumption)



THE TRAGEDY OF COMMONS

- 1968: biologist Garrett Hardin wrote a paper entitled *The Tragedy of the Commons*.
- Referred to the consequences of non-excludability of common resources.
- Challenged the idea that consumers and producers are "rational" self-interested actors and will make decisions that benefit society as a whole.
- Example:

- o Picture a fertile pasture that can be used by everyone
- o Cattle herders will use this pasture.
- o Acting rationally and wanting to maximize their self-interest, they will each use increasing amounts of land.
- o More cows = more money.
- o Since all herders act in the same way, overgrazing will result in soil degradation.
- o The land will become infertile and be of no use to anyone.
- o This is the "tragedy of the commons."

THE FREE RIDER PROBLEM

- Some producers in the previous example may voluntarily reduce their use of the pasture.
- However, others, acting in their own self-interest will simply use the land given up by those who reduce their use of the pasture.
- They are "free riders."
- A free rider: is a person who benefits from something without expending effort to protect the resource nor paying for it.
- If too many people start to free ride, a system or service will eventually not have enough resources to operate.
- There will be a "market failure."
- Examples of the free rider problem:
 - Overfishing
 - Destroying forests by logging
 - Climate change from fossil fuels.

SOLUTIONS TO THE TRAGEDY OF COMMONS

- All solutions to the tragedy of the commons are looking for sustainability.
- Sustainability:

Sustainability: maintaining the ability of the environment and the economy to continue to produce and satisfy the needs and wants of future generations.

- International agreements
 - o Nations agree to common limits in using common pool resource.
 - o Example: UN Framework convention on Climate Change.
- Tradeable permits
 - o Market based approach to limit the common pool resource but also provide incentives to use it more efficiently.
- Carbon taxes
 - o A tax imposed on goods that release carbon when they are produced or consumed.
 - o Another market-based approach trying to use the price mechanism to send signals about the scarcity of the resources and give incentives to use the resource more efficiently.
- Legislation and Regulations
 - o National governments can set up limits to command and control markets to limit the use of common access resource.
 - o For instance, they can ban an activity or severely restrict it.
 - o For example: Canada has banned the use of single-use plastic straws.
- Subsidies
 - o Governments can subsidize substitute goods that are less harmful or not harmful to the common access resources.
 - o Consumers will purchase the substitutes at a lower price.
 - o Example: there are subsidies for electric cars.

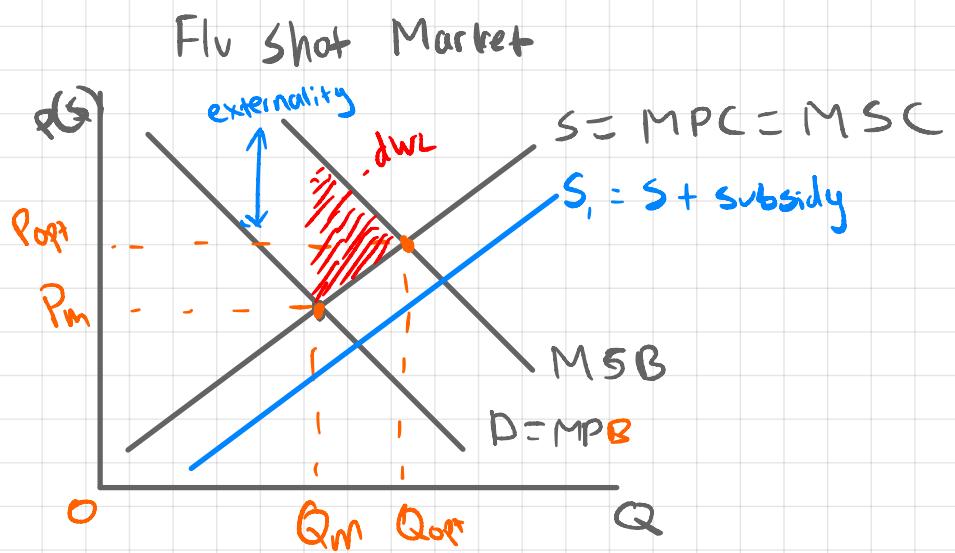
- Collective self-governance
 - Elinor Ostrom (Nobel Prize in Economics winner) noted that community management of resources is an alternative to government intervention in a market that uses common pool resources.
 - Users of the resource take control and use it in a sustainable way.
 - User make rules about how each user should behave and contribute to the management of the resource, and create rules of enforce and sanctions against those who violate the rules.

Solutions to Problem with Common Pool Resources

Solution	Description	Pros	Cons
International Agreements	Countries agree to all stop something	- Effective - Developing countries also benefit - Global effort	- Hard to enforce - Some countries do not participate - Difficult to implement
Tradeable Permits	Illegal to do something without the permit. add cost to pollution	- Market Solution - Creates incentives - Reduces costs to be more efficient	- Hard to enforce - Market being manipulated - Hard to decide who gets how much
Carbon Taxes		- Effective market solution - Encourage alternatives	- May shift production overseas - Discourage economic growth
Legislation/Regulation	Stop via regulations passed by law.	- Immediately effective - Removes DUB effectively	- Hard to enforce - Might restrict growth and innovation
Subsidies	incentivize alternatives by subsidies	- Encourages innovation and solutions - May decrease inflation - Future proof solution	- Might not be used effectively - Opportunity cost!
Collective Self Governance	Affect change through peer pressure.	- Management without government intervention - Proven to work	- No enforcement thus some might continue to exploit resources. - Not suitable for large economies

Practicing Solutions to Market Failure

2.



Practicing Solutions to Market Failure

Instructions: You will be completing an activity called *rally coach*. In this activity, you will partner with another class member. One of you will start off as the student, while the other will be a 'coach'. The student will try their best to complete each question while the coach will watch, provide advice if someone is stuck and check answers (as they have the answer sheet). For each market described in the first column, model the event in the middle on the diagram in the last column. You can draw your answer in the final column, or use a separate sheet of paper to draw your graphs.

Market	Event	Effect
1. Steel	<p>The Ontario government imposes a tax on steel.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.) Negative production externality.</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
2. Flu Shots	<p>The Ontario government decides to subsidize flu shots.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
3. High School Education	<p>The Ontario government decides to directly provide high school education.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	

4. Beer	<p>The Ontario government changes the minimum drinking age from 19 to 21.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
5. Guns	<p>The Canadian government mandates extensive testing and profiling before gun licenses are granted.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
<p>6. Coal Energy</p> <ul style="list-style-type: none"> ~ no common pool resource market ~ affects CPR of air/atmosphere 	<p>The Ontario government begins to give extensive subsidies to producers of wind energy.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
7. Steel	<p>The Ontario government imposes carbon taxes on all producers whose production creates carbon dioxide emissions.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	

Practicing Solutions to Market Failure

Instructions: You will be completing an activity called **rally coach**. In this activity, you will partner with another class member. One of you will start off as the student, while the other will be a 'coach'. The student will try their best to complete each question while the coach will watch, provide advice if someone is stuck and check answers (as they have the answer sheet). For each market described in the first column, model the event in the middle on the diagram in the last column. You can draw your answer in the final column, or use a separate sheet of paper to draw your graphs.

Market	Event	Effect
1. Soda	<p>The Ontario government imposes a tax on sugary food.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	
2. Lighthouses (no graph required)	<p>The PEI government decides to build lighthouses along its shores in response to all of the shipwrecks that have been occurring.</p> <p>Define public good.</p> <p>Explain why, in a free market, no public goods would be produced?</p>	<p>Identify and explain a government solution to the free rider problem and the under-provision of public goods in a free market.</p>
3. Sapling trees	<p>The municipal government in Toronto runs an advertising campaign to promote planting tree saplings on front lawns.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	

4. Tim Horton's coffee	<p>The Ontario government decides to grant subsidies to firms, like Tim Horton's, that take on workers with no previous work experience.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	<p>A blank coordinate system with 'Price (\$)' on the vertical axis and 'Quantity (thousands)' on the horizontal axis.</p>
5. High School Education	<p>The Ontario government legislates that high school is mandatory for all citizens from age 13 to 18.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	<p>A blank coordinate system with 'Price (\$)' on the vertical axis and 'Quantity (thousands)' on the horizontal axis.</p>
6. Concrete	<p>The Ontario government imposes a Cap and Trade program on carbon emissions. Concrete production is a major contributor to carbon emissions.</p> <p>Define common access resources, and explain why this is a case of common access resources.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	<p>A blank coordinate system with 'Price (\$)' on the vertical axis and 'Quantity (thousands)' on the horizontal axis.</p>
7. Paper	<p>The mayor and city councilors of Timmins (Ontario) mandate that the local pulp and paper company (whose effluent is polluting the river) must buy the downstream riverside properties in order to 'internalize the externality'.</p> <p>What type of externality exists in this market? (Be sure to graph it using MSC/MPC/MSB/MPB curves.)</p> <p>What impact will this government intervention have on the market? (Be sure to graph it, showing the free market/private equilibrium and the social equilibrium.)</p>	<p>A blank coordinate system with 'Price (\$)' on the vertical axis and 'Quantity (thousands)' on the horizontal axis.</p>