

Econ 101: Principles of Microeconomics

Chapter 18 - Public Goods and Common Property Resources

Fall 2010

Outline

- 1 Introduction
- 2 Public Goods
- 3 Common Property Resources

Public Goods and Common Property Resources

- This chapter focuses on two broad sources of market failure that stem from the inability to exclude individuals from consuming a good or service.
 - ① Public Goods
 - ② Common Property Resources
- The easiest way of defining these two types of goods is to consider two key characteristics of goods:
 - ① **Excludable**: A good is *excludable* if the supplier of that good can prevent people who do not pay from consuming it.
 - There are many goods that are non-excludable, including clean air and many fisheries.
 - ② **Rival in Consumption**: A good is *rival in consumption* if the same good cannot be consumed by more than one person at the same time.
 - There are many goods that are non-rival in consumption, including national defense and public television.

Four Types of Goods

- The two characteristics above subdivide the space of goods and services into four types of goods:
 - ① **Private Goods**: Goods that are excludable and rival in consumption
 - Apples
 - Jackets
 - ② **Artificially Scarce Goods**: Goods that are excludable, but nonrival in consumption
 - Computer Software
 - Pay-per view movies
 - ③ **Common Property Resources**: Goods that are non-excludable and rival in consumption
 - Fish
 - Biodiversity
 - Clean Air and Water
 - ④ **Public Goods**: Goods that are non-excludable and nonrival in consumption
 - National Defense
 - Public Television

Why Markets Can Supply Only Private Goods Efficiently?

- Previously, we have implicitly focused our attention on *private* goods
- The reason for this is that markets work best in allocating these types of goods and they make up a large portion of the goods in an economy.
- We're not going to focus on *artificially scarce* goods.
- Instead, for this chapter we will focus on goods that are *non-excludable*.
- The fundamental problem with *non-excludable* goods is that someone has to pay for the good's production, but no-one can be excluded from consuming the good once it is produced.
- The incentive for the individual is to let others produce the good and then use it once it is available for free.
- This is known as the **free-rider problem**: individuals have little incentive to pay for their own consumption and instead will take a "free-ride" on anyone who does pay.
- As a result, non-excludable goods tend to be underproduced.

Public Goods

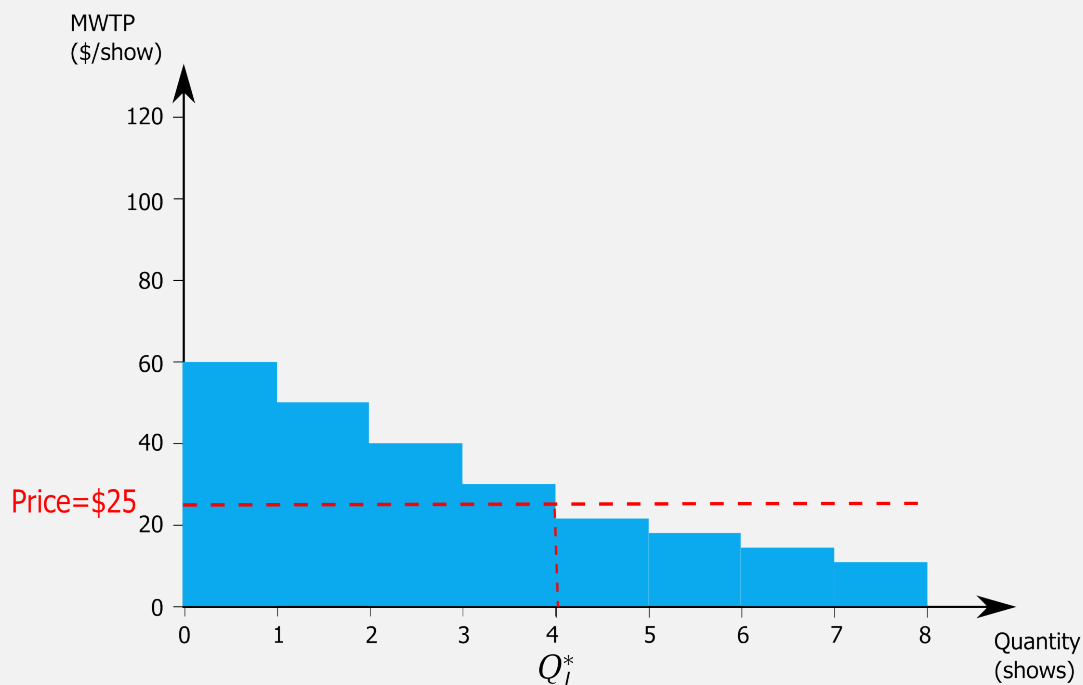
Public Goods

- A **Public Good**, again, are goods that are both non-excludable and non-rival.
- There are many examples of these types of goods, including
 - National defense
 - Law enforcement
 - Lighthouses
 - Disease prevention
 - Public sanitation
 - Scientific research
 - Broadcast television
 - Wikipedia
- These types of goods are often provided via government, but not necessarily.
- In the case of broadcast television, we have both:
 - Commercial television
 - Public television

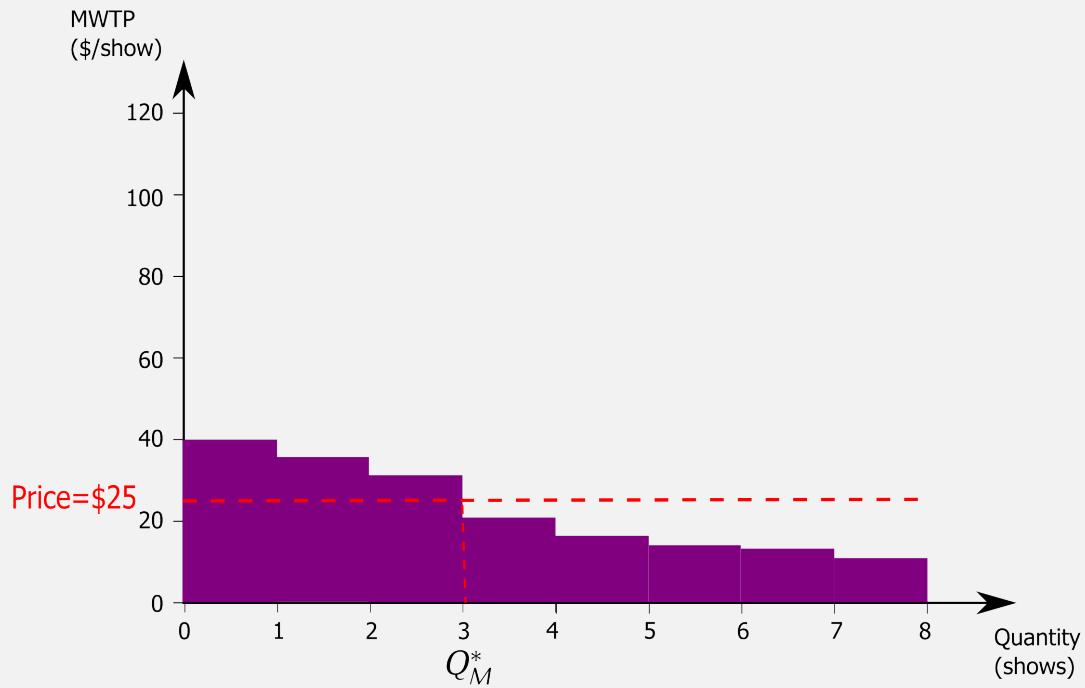
The Efficient Level of Production

- Consider the simple example of public television.
- It satisfies both the characteristics of a public good
 - It is non-excludable in consumption - once the signal is broadcast, anyone can pick up the television signal.
 - It is non-rival in consumption - my watching a PBS show does not prevent another from doing so as well.
- To illustrate the problem, suppose there were only two individuals in a community, each with a demand for (marginal benefit from) watching television.

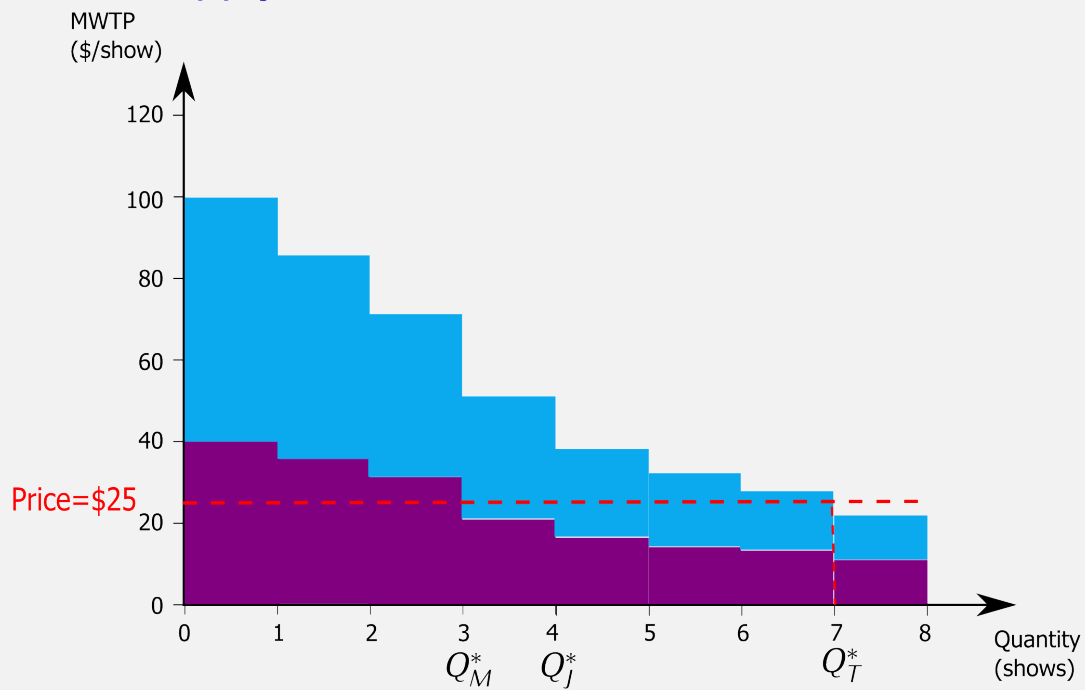
Joe's Demand for Public Television



Mary's Demand for Public Television



Optimal Supply of Public Television



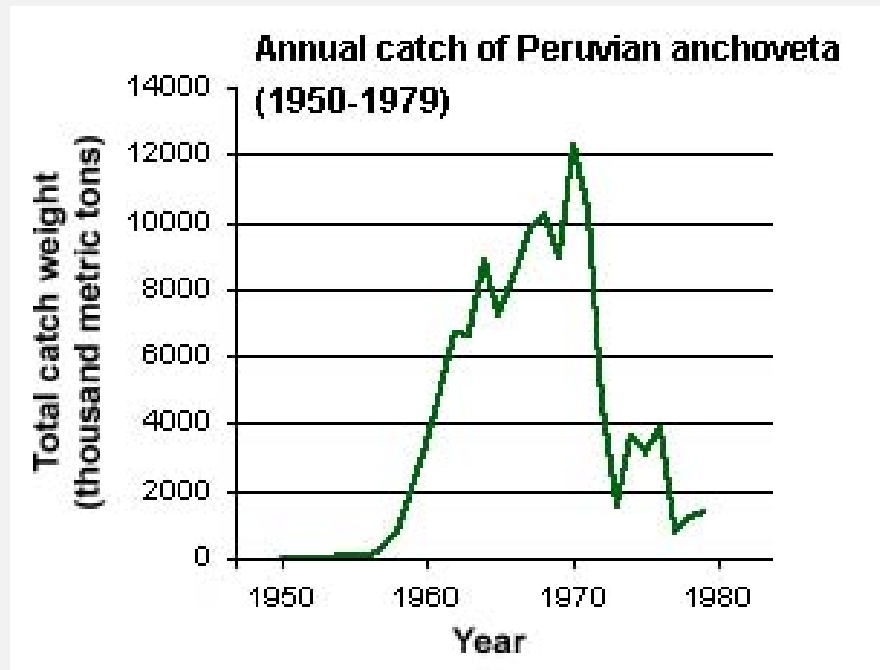
Common Property Resources

- A **Common Property Resource** is one that is nonexcludable, but is rival in consumption.
- The classic example is the fishery industry, but others include
 - water (especially groundwater)
 - forests
 - clean air
- The fundamental problem is an individual's use of these resources are often faced with a "use-it-or-lose-it" proposition, leading to overuse.
- Moreover, when individuals use the resource, they often impose costs on the resource not born solely by the current user.

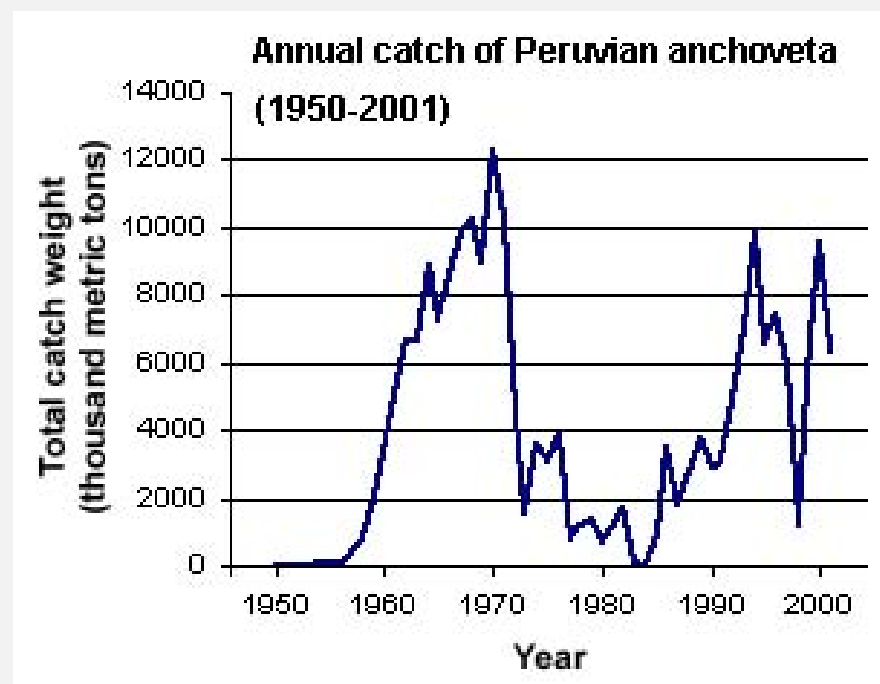
Peruvian Anchovy Fishery

- This was the largest fishery in the world in the 1960's, providing an important supply source for fish meal.
- The fishery accounted for about 15% of the global marine catch by weight, including crustaceans.
- The industry was also growing rapidly.
- Biologists warned that every few years, the incursion of warm tropical waters ("El Nino") would severely reduce the anchovy population.
- The government ignored these warnings.

Collapse of the Anchovy Industry



Collapse of the Anchovy Industry



Regulating Common Property Resources

- Managing Common Property Resources have taken several forms historically
 - ① Local community management of the commons.
 - ② Regulation of the commons through restrictions on total “use” (e.g., total annual catch)
 - ③ Privatization of the commons through tradeable quotas on use