Understanding Economics

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Introduction

- The idea of *'ceteris paribus'*
- General Equilibrium

Externality and Market failure

- An **externality** stems from the production or consumption of a good or service, resulting in a cost or benefit to an unrelated third party. ... **Externalities** lead to **market failure** because a product or service's price equilibrium does not accurately reflect the true costs and benefits of that product or service.
- In economics, **market failure** is a situation in which the allocation of goods and services by a free **market** is not efficient, often leading to a net social welfare loss.

- **Market Failure Definition:** Markets are NOT always efficient. There are several circumstances under which resources will be *mis-allocated* by the free market. In other words, either *too much* of a good will be produced or *not enough* will be produced by the free market.

- Examples of market failures include:
  - Negative Externalities of Production and Consumption
  - Positive Externalities of Production and Consumption
  - Lack of Public Goods
  - Common Access Resources and the Tragedy of the Commons
  - Asymmetric Information
  - Abuse of Monopoly Power

Externalities

One way markets fail to achieve allocative efficiency arises from the existence of *externalities* in the market for a god

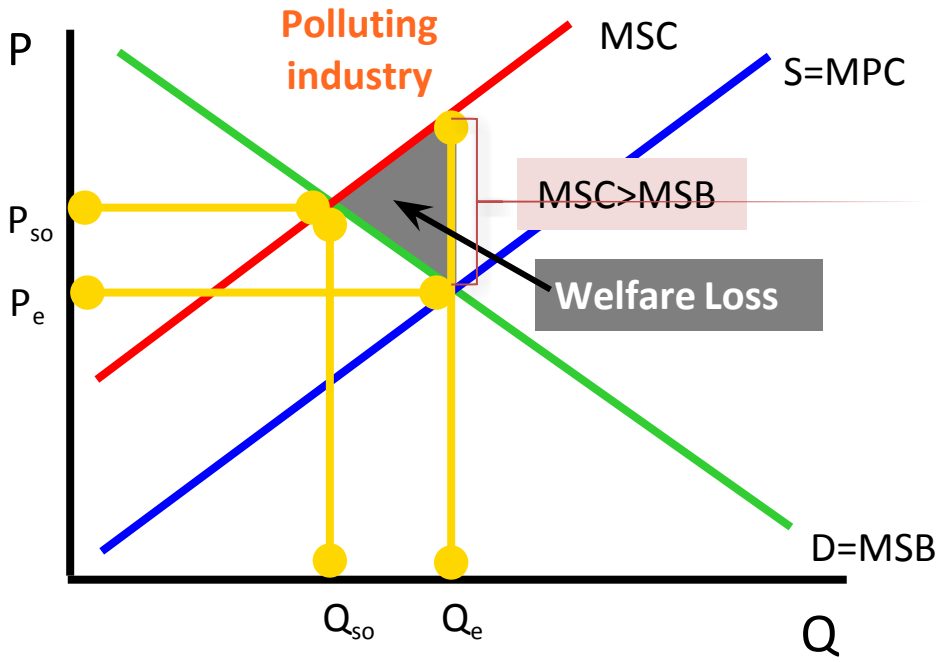
Externality Definition: *An externality exists any time the production or consumption of a good creates spillover benefits or costs on a third party not involved in the market. In such cases, resources will either be under-allocated (positive externalities) or over-allocated (negative externalities) towards the production of certain goods.*

Examples of Positive Externalities (known as merit goods)	Examples of Negative Externalities (known as demerit goods)
Receiving a college education makes the consumer more likely to contribute to the well-being of society as a whole	Driving sports-utility vehicles contributes to traffic and contributes more to global warming
Riding bicycles to work reduces congestion on the roads and makes for less traffic for everyone else	Producing electricity using coal creates greenhouse gas emissions and air pollution
Getting vaccines against communicable diseases reduces the chance you will get others sick	Smoking cigarettes contributes to lung disease among not just the smokers, but those who suffer from second-hand smoke

Negative Externalities of Production

A polluting industry creates costs for society that are not paid by the polluting firm. These *external costs of production* may include:

- Greenhouse gas emissions which contribute to global warming
- Air pollution
- Contributions to lung disease and cancer rates among the population
- Water pollution which destroys fish stocks
- Soil contamination which harms agricultural productivity.



The existence of all these externalities creates a social cost that exceeds the private cost!

- As a result, there is a loss of total welfare in the industry represented by the gray triangle.
- At the equilibrium output of Qe, the marginal social cost exceeds the marginal social benefit, meaning…

Too much of the good is being produced by the free market! This is a market failure!

Negative Externalities of Consumption

Some goods are over-*consumed* by the free market. This would be the case if the process of consuming a good created spillover costs on a third party. The classic example of a *negative consumption externality* is cigarettes.

Consider the market seen here:

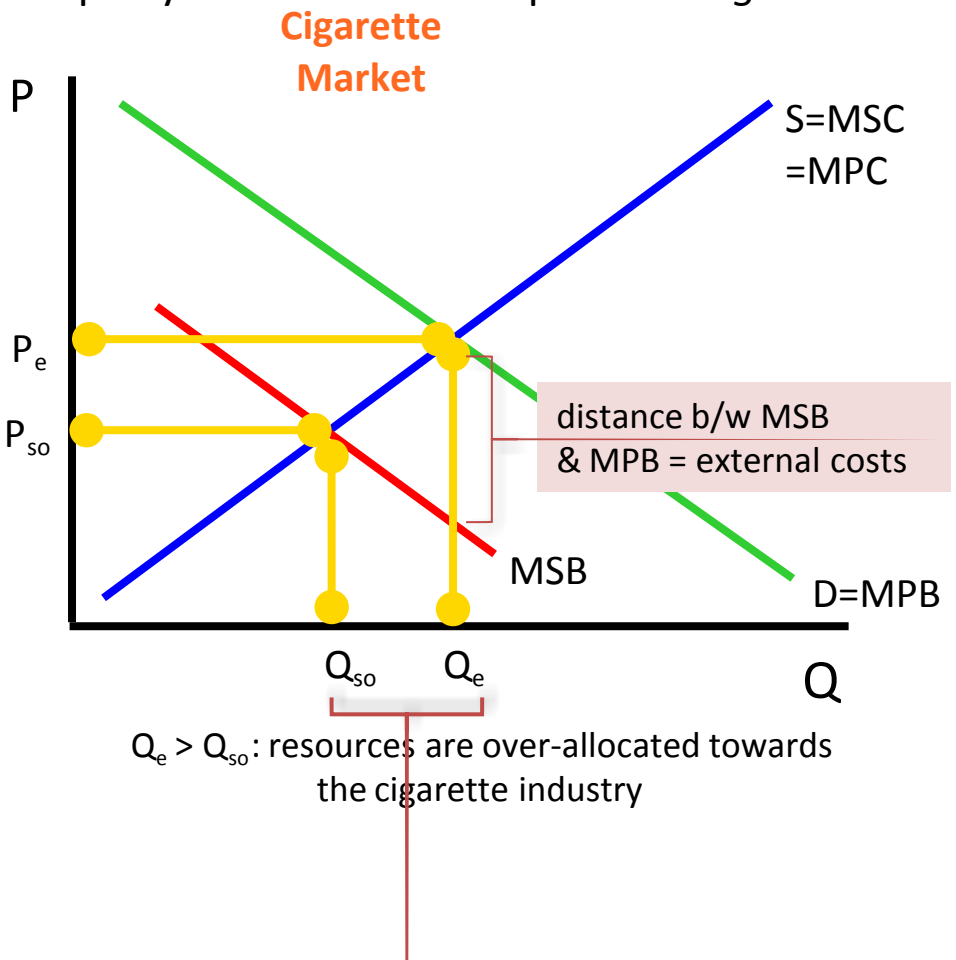
The Marginal Private Benefit (MPB) of smoking cigarettes is greater than the Marginal Social Benefit (MSB)

Smoking creates costs (negative benefits) on non-smokers, so society benefits as a whole less than the smokers themselves

There are no externalities in the production of cigarettes, so the supply curve represents the private costs and the social costs.

The equilibrium price (Pe) is greater than the price would if demand represented the social benefits of smoking (Pso)

The equilibrium quantity (Qe) is greater than the socially optimal quantity (Qso)

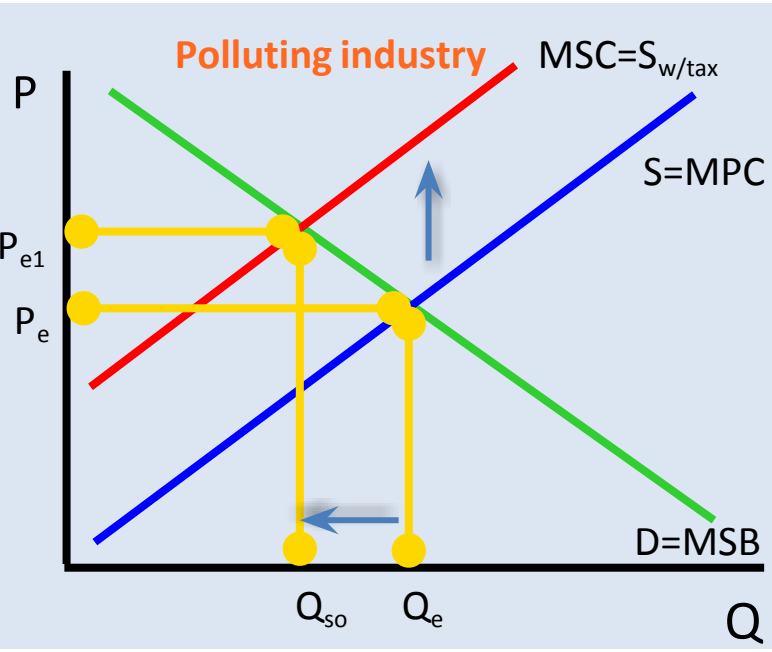


Government Responses to Negative Externalities – Corrective Taxes

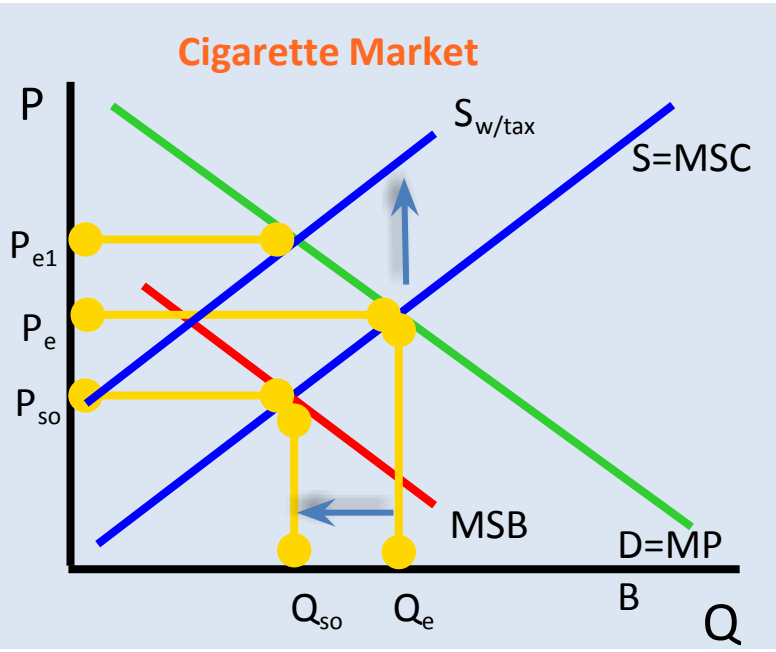
A tax meant to correct a market failure is sometimes referred to as a *Pigouvian Tax,* after the economist *Arthur Pigou*, who first proposed using taxes to reduce the output of harmful goods.

Recall that a tax is a determinant of supply, s

A tax on a good which created externalities of production or consumption will *increase the marginal private costs of production and reduce the supply to a level closer to the marginal social costs (which include all external costs).*



The tax reduces the supply of both goods, causing the equilibrium price to rise and the quantity demanded to fall. If the size of the tax reflects the size of the external costs, then the new equilibrium output (Qe) will equal the socially optimal level of output (Qso)



Positive Externalities of Production

A positive externality of production exists if the production of a good or service provides spillover benefits to a third part not involved in the market. For example, consider the market for ***ECO-TOURISM*****.**

In many parts of the world, including in the Amazon rainforest, in Costa Rica, in Malaysian Borneo, Western Canada and elsewhere, a large eco-tourism industry has developed.

This industry provides paying customers with the experience of outdoor adventures in nature

But the existence of this industry creates positive benefits for society beyond those who pay for the experience.

Positive externalities of eco-tourism include:

- Protection of eco-systems that might otherwise be exploited or developed
- Forests left standing act as a "carbon sink", absorbing CO2 emitted from the production of other consumer goods.
- Wildlife populations may remain protected and intact whereas they otherwise may dwindle due to habitat destruction and over-hunting
- Water resources (rivers, lakes) are protected, allowing downstream users to benefit from clean water for cooking, cleaning, drinking, etc…

Positive Externalities of Consumption

A positive externality of consumption exists if the consumption of a good or service provides spillover benefits to a third part not involved in the market. For example, consider the market for ***EDUCATION*****.**

Getting an education provides many benefits for the student, such as better job opportunities, higher pay, an earlier retirement and better travel opportunities

However, receiving an education also benefits society as a whole.

Positive externalities of education include:

- An educated citizen will be more productive in his or her life, contributing more to national output,
- He or she will pay more in taxes, which go towards providing benefits for everyone in society, even those without an education.
- He or she is more likely to become a business owner, offering employment opportunities to others in society which may not otherwise have been provided.

Education is a merit good, which provides spillover benefits to society as a whole.

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 provide by the free market at all (hence, represent a market failure)

To be considered public, a good must be:

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.

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. ***There will be free-riders*, or individuals who enjoy the good's benefits without ever paying for it!**

Examples of Public Goods

To find examples of public goods, all we have to do is walk out our front door and look around. Much of what government provides us using our tax money are examples of public goods. These may include:

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.

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.

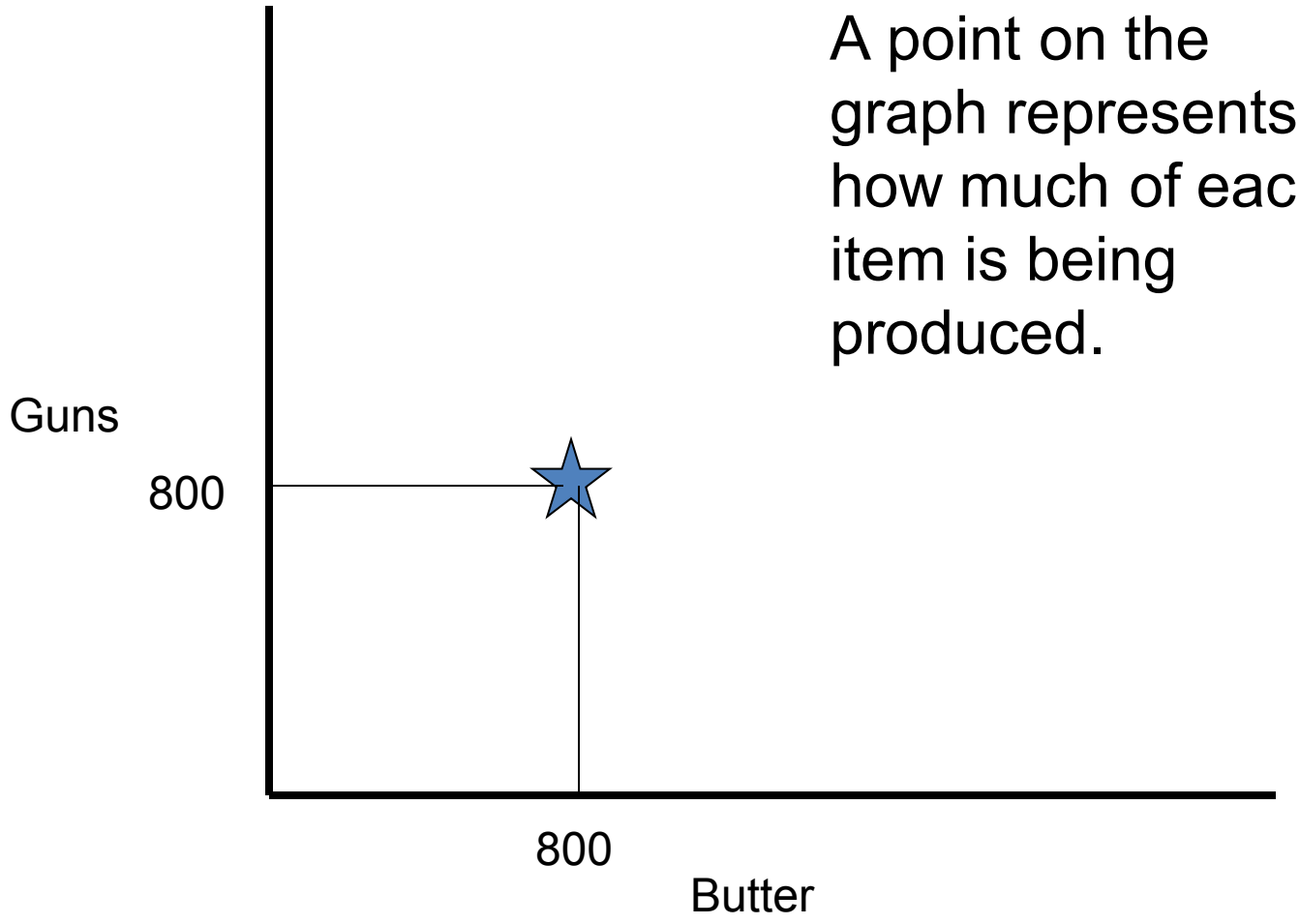
The tragedy of the commons as a food basket is averted by private property, or something formally like it. But the air and waters surrounding us cannot readily be fenced, and so the tragedy of the commons as a cesspool must be prevented by different means, by coercive laws or taxing devices that make 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 Production Possibilities Frontier

- The Production Possibilities Frontier (PPF) is a graph that shows all possible combinations of two goods when an economy is producing at full potential.
  - It does not actually show reality, since it assumes only two goods are produced.
  - It is a simplification that shows what sort of trade-offs would be made in reality.
  - It only shows what can be produced – not what would be consumed.

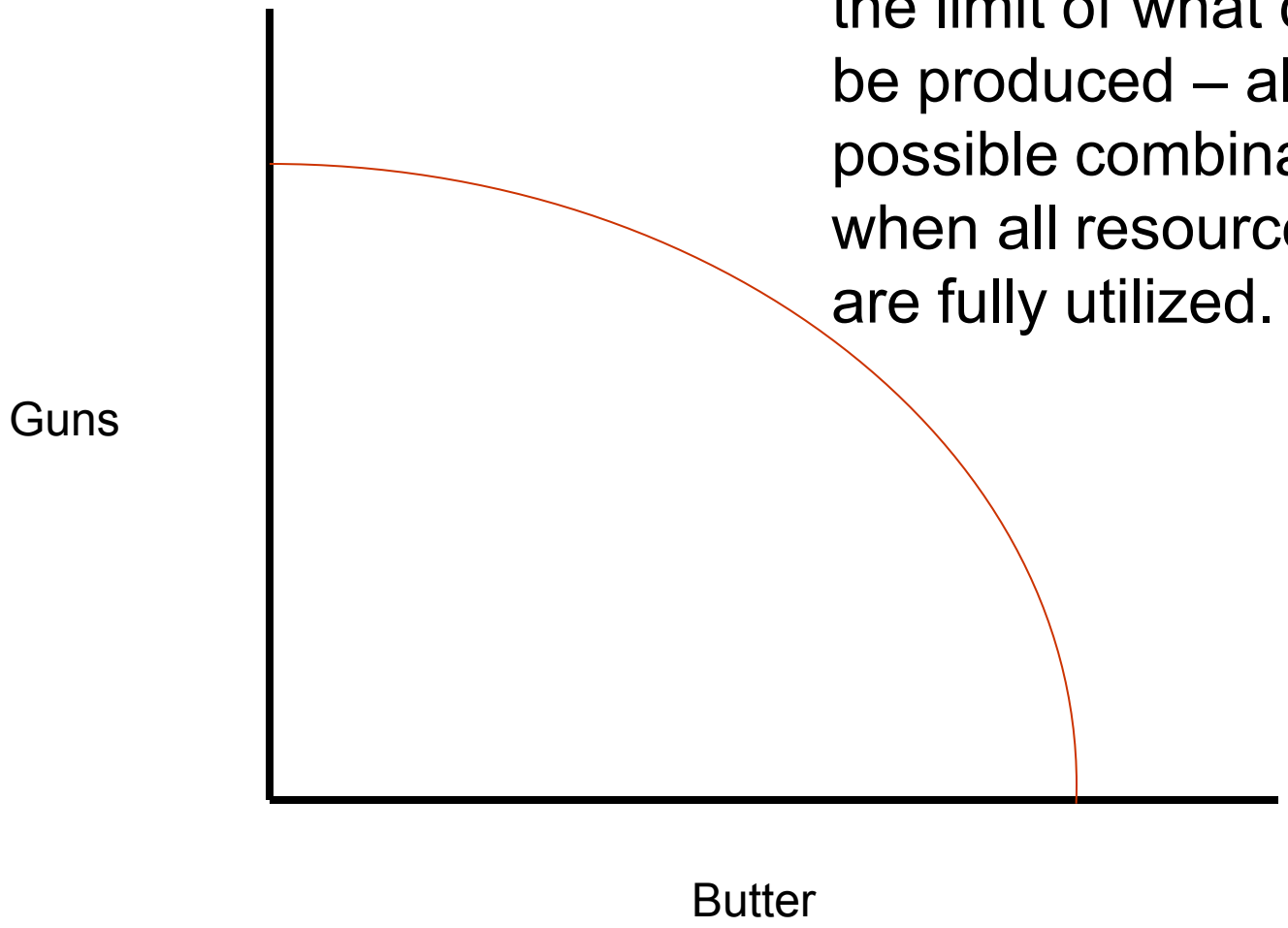
PPF for the Country ALPHA



A point on the graph represents how much of each item is being produced.

PPF for the Country ALPHA

The frontier shows the limit of what can be produced – all possible combinations when all resources are fully utilized.



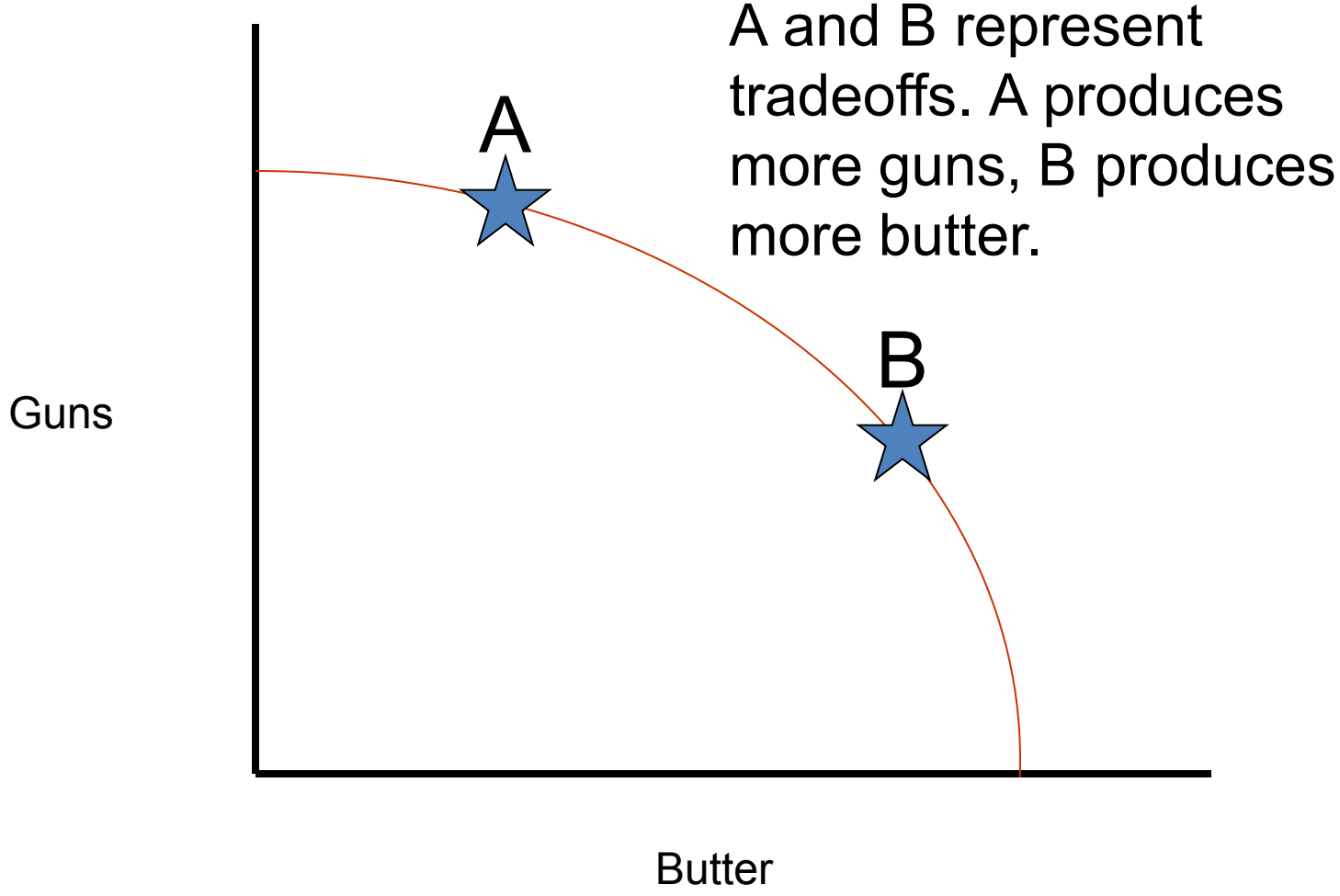
Efficient production means that all resources are being fully employed to produce the most goods and services possible.

Therefore it is impossible to produce more of one item without producing less of the other.

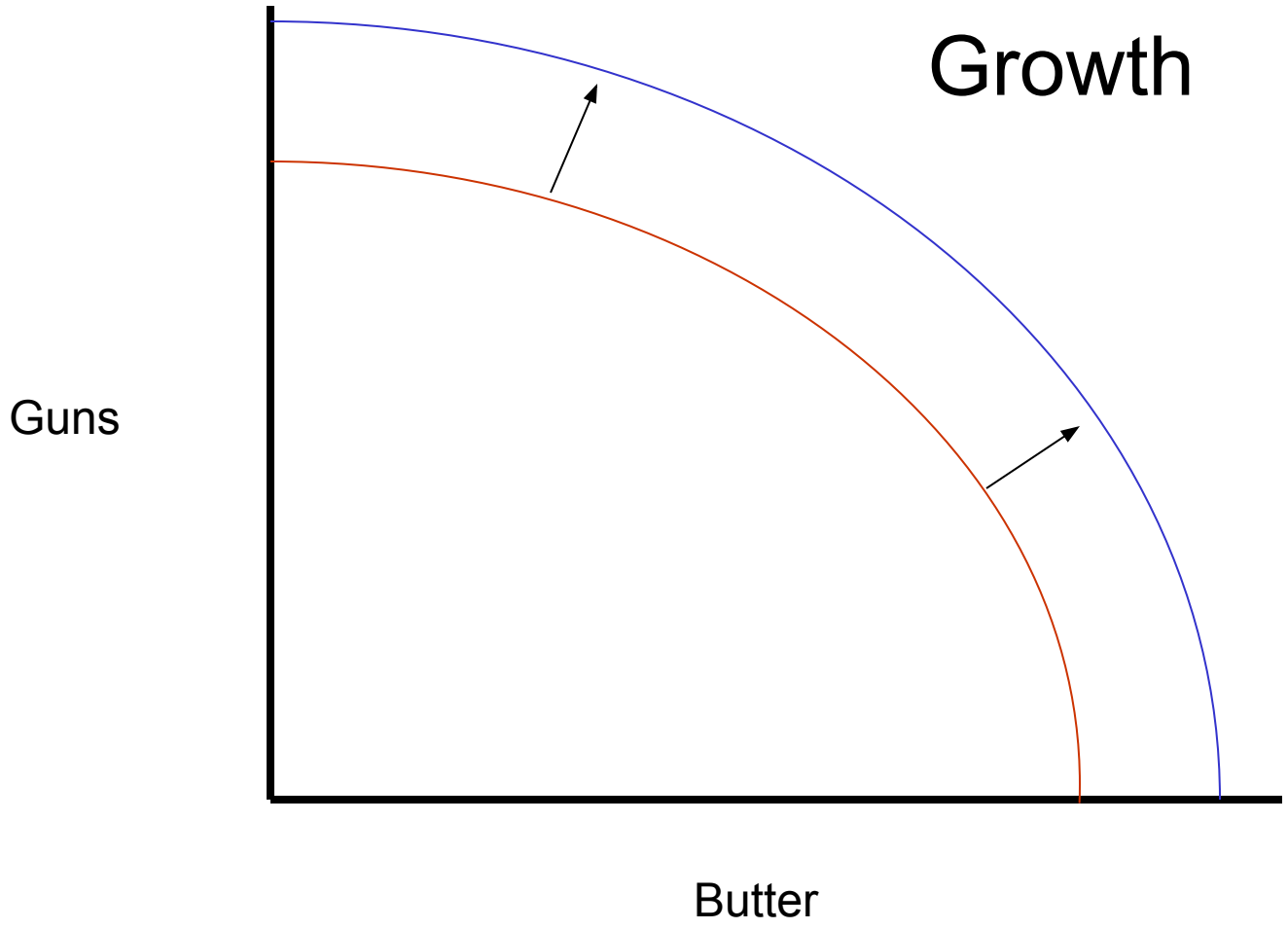
Inefficient production means not all resources are being fully employed – it is still possible to increase production of both goods.

This could occur during a recession or depression, or in a developing country.

PPF for the Country ALPHA



PPF for the Country ALPHA



Review

- Any point on the graph shows how much of both goods is being produced.
- Efficiency is shown by whether the point is on the curve (efficient) or within the curve (inefficient).
- Tradeoffs are shown by any two points on the curve.
- Opportunity cost is shown by the decrease in one good when the other is increased.
- Growth is shown by the frontier moving outward.