BSM Economics Y10

Knowledge Review

Based on textbook by Rob Jones, lectures by Mr. Pinchin
Microeconomics book by Acemoglu, Liabson and List
and Macroeconomics course by Davidson College

Part 0 Preface: An Invitation to Economics

Chapter 0.1: Introduction

Economics is about getting the most from the world around us: how we maximize things we want - happiness, money - and minimizing things we don't like - punishments, fines.

We are all limited by physical constraints: that is, we don't live forever; we can't be at two places at once; and we can't do everything we want. So what we choose to do with our lives is, in essence, economics decisions.

Decisions-making is the essence of economics.

Beyond individuals, firms (companies, e.g. Apple) also make important decisions. They need to know whether to produce more iPhones or more iPads (clearly they can't produce infinite amounts of both). They need to know how to produce (factories in America or China). They also need to know who it is produced for (who will buy them).

There will always be things you want, but just can't get. (Who wouldn't want a new iPhone?) This is known as **scarcity**.

Put formally,

Economics is the study of how scarce resources are allocated.

The Three Big Questions of Economics are:

1. What is produced?
2. How is it produced?
3. For whom is it produced?

Economics will help you evaluate your choices and help you get the most of your life. Would studying economics be better for you, or studying art? Why do people make poor decisions like smoking? Do all goods have a cost, and is Facebook really free?

These are all questions that are studied by economists - people who are interested in the choices people make. As a soon-to-be economist, can you think of any questions?

Chapter 0.2: Key Concepts You Need to Know

Ceteris paribus = with other things the same (holding all else equal)

This is the phrase economists always use to simplify concepts.

For instance, *"More ice creams will be bought if it is sunny"* is INCORRECT.

Why? Because it did not consider corner cases (exceptions): What if on a sunny day there was a discount for coca cola? What if just before that sunny day people watched a health campaign exposing the health risks of ice creams? What if that people suddenly preferred water melons over ice creams?

Although these are not likely, they can certainly ruin an otherwise flawless theory. This is why we economists assume that *others things are equal* when we are discussing economics.

So *"Other things being equal, a rise in temperature will lead to more ice creams being bought"*

Optimization: Doing the best you can

As mentioned earlier, economics is about choices.

Optimization is the assumption that every decision-making individual or organization is trying to maximize his/her own gains (expected return). If you can get a $10 coupon for free, or a $5 coupon for free, *ceteris paribus*, every rational person would choose the $10 coupon.

Similarly, if companies (firms) can choose to earn $10 billion by selling Apple computers, or earn $1 billion by selling the fruit apple, *ceteris paribus*, economics theory suggests that they will choose to sell Apple computers.

Maximum Efficiency

Optimization implies that we, as economists, want as much work done for as little cost as possible. That is, in other words, being "lazy". If we can get away with writing "*GDP*", we won't write "*Gross Domestic Product*"; if we can use "↑" to represent "*an increase in*", that is exactly what we'll do; if writing "△" is faster than writing "a change in", we want to use "△" as often as possible.

Here is a list of shorthands used in this document:

Symbol	Meaning	Symbol	Meaning
↑	An increase in	T	Taxation
↓	A decrease in	There are other shorthands declared in brackets, for instance: *Price Elasticity of Demand (PED) - The responsiveness of demand to a change in price*	
=	equal to; is ; or *leads to*		
△	a change in		

Part 1 Demand and Supply

Chapter 1: The Market System

Market - Arrangements allowing buyers and sellers to communicate and exchange products

Examples of markets:

- Local farmers market
- Second-hand car market
- Online stores

Market System (**Price Mechanism**) - The automatic determination of prices and the allocation of resources in a market

Supply	Demand
Sellers	Buyers
"The amount of a good that will be sold"	"The amount of a good that will be bought"
Together, the two factors determine the price of a good in the market	

Limitations of the Market System

- Lack of Competition
- Difficulty of Charging Price (e.g. Fire Safety)

Chapter 2: The Demand Curve

Demand - The amount of a product that *will* be bought

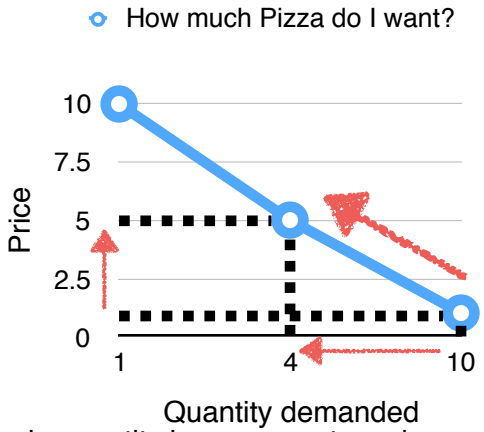
- **Effective Demand** - Able and willing consumers' demand

Demand curve - Inverse Relationship (less quantity as a result of an increase in price)

Law of Demand: ↑P = ↓Q_D (ceteris paribus)

Demand Schedule

How many pizza do I want at each price?	Quantity
$1	10
$5	4
$10	1



Movement along the demand curve = a change in quantity in response to a change in price

If price rises from $1 to $5, we say that:

"There is a movement along/up the demand curve, resulting in a new equilibrium. This corresponds to a fall in quantity demanded, a decrease from 10 to 6 pizza."

Chapter 3: Factors That Affect Demand

Shift of Demand Curve - A change in the pattern of demand
Consumers want the best good at the lowest price and lowest cost

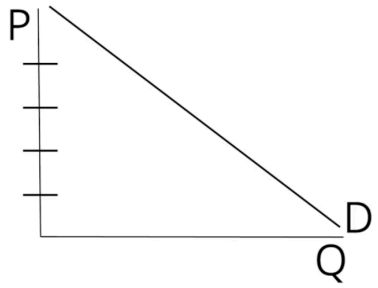
What would cause a change in demand? (*not* ceteris paribus)

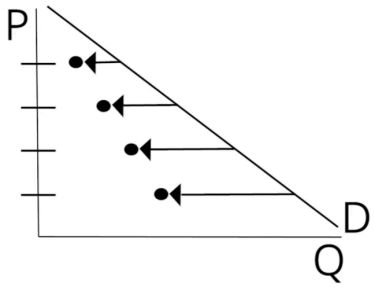
- Consumers: △ income, Population size and structure, Tastes & Preferences, Expectations
- Taxation & Subsidies
- Cost: price of complements (go along with products), price of substitutes (replacements)

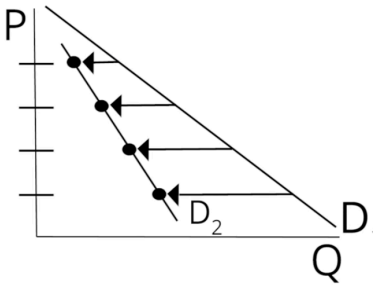
Exception - **inferior goods** (people with higher incomes prefer **normal goods**)

How demand curves shifts

- A change causes the quantity demanded to change at every price level
- The dot plotted for every quantity changes
- All the shifted dots connected represents the shifted (new) demand curve







Chapter 4: The Supply Curve

Supply - The amount of a product that *will* be produced

Fixed Supply - The quantity supplied remains the same regardless of the demand
e.g. Amount of rooms in a hotel on a given day

Law of Supply: ↑P = ↑Q_S (_____) <— What goes here?

How would a movement along the supply curve occur?

Chapter 5: Factors That Affect Supply

Shift of Supply Curve - A change in the pattern of supply
Producers want to maximize their profit, both in the short term and in the long term

What would cause a change in demand? (*not* ceteris paribus)

- Costs of Production
- Taxation
- Subsidies
- Natural Factors (e.g. Poor harvests as a result of chronic drought)
- Changes in Technology (e.g. Automation reduces labor costs)
- △ number of sellers: ease of entry to market

Profit = Price - Costs of Production - Taxation + Subsidies

How would a shift in the supply curve occur?

Chapter 6: Market Equilibrium

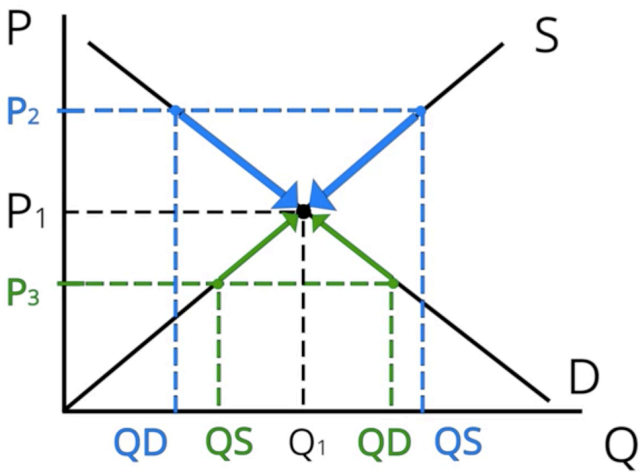
Equilibrium Price (**Market Clearing Price**) - The price at which supply matches demand
All goods and services will be sold, at the equilibrium price

Total Revenue = Unit Price × Units Sold **or** TR = P × Q

There is a natural tendency for price to meet the equilibrium

↑ P = Excess supply = Incentive to ↓ P
An increase in price above the equilibrium price causes there to be more supply than demand, resulting in too much inventory. Businesses (firms) will lower prices in order to sell more of their goods, therefore the prices shifts back to the equilibrium.

↓ P = Excess supply = Incentive to ↑ P
Now you try! Explain what happens.



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Chapter 7: Price Elasticity Of Demand

Price Elasticity of Demand (PED) - The responsiveness of demand to a change in price

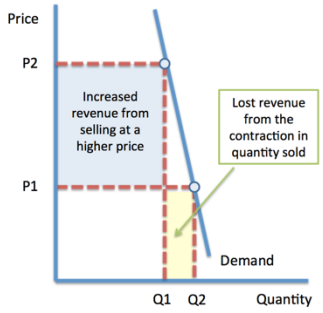
$$Price\ Elasticity\ of\ Demand = \frac{\%\ \Delta\ quantity\ demanded}{\%\ \Delta\ price}$$

Perfectly inelastic - PED = 0
Price inelastic - PED < 1
Unitary elastic - PED = 1

Inelastic Demand (Ped < 1)

If the co-efficient of price elasticity of demand <1, then demand is said to be price inelastic i.e. unresponsive to a change in price

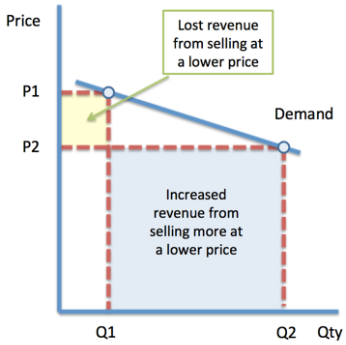
- Following a change in price, the total revenue earned by the producing firm will depend on the PED for its product
- If the coefficient of PED is <1, a rise in market price (e.g. from P1 to P2) will lead to an increase in total revenue



Elastic Demand (Ped > 1)

If the co-efficient of price elasticity of demand >1, then demand is said to be price elastic i.e. highly responsive to a change in price

- If demand for a product is price elastic, a supplier stands to gain extra revenue if they reduce their prices.
- The change in quantity demanded will be proportionately higher than the reduction in price. This is shown in the diagram opposite.



Perfectly Inelastic Demand (Ped = 0)

If the co-efficient of price elasticity of demand = zero, demand is perfectly inelastic i.e. demand does not vary with a change in price

- A perfectly inelastic demand curve is an extreme case for it implies that consumers are willing and able to pay any price for the product. If supply falls, equilibrium market price can rise without any contraction in the quantity demanded

Perfectly Elastic Demand (Ped = infinity)

If the co-efficient of PED = infinity, then demand is perfectly elastic – there is one price at which consumers are prepared to pay

- If demand for a product is **perfectly elastic**, a change in market supply (shown on the right as an outward shift of supply) will not lead to any change in the equilibrium price. This demand curve applies to highly **competitive markets** where no supplier has any "pricing power"

Unitary Elastic Demand (Ped = 1)

A demand curve with unitary price elasticity has a coefficient of PED equal to 1 (unity) throughout

- With a demand curve of unitary price elasticity, a change in price is met with a proportionate change in demand
- This means that total spending by consumers on the product will remain the same at each price level

Factors Affecting PED:
- Availability of Substitutes
- Degree of Necessity
- Percentage of Income
- Time

PED is how much *more* of a good would be demanded, if the price decreases. (or vice versa) So for instance, even if the price of tap water decreased by half, you won't buy twice as much. Water is almost **perfectly inelastic**. This is because water has a **high degree of necessity**: you have to buy a certain amount of it, but past that amount more water won't make you any healthier. But for a cup of coffee, the price is near **perfectly elastic**: there are **many substitutes** available. If one coffee shop increases its price, you could almost certainly buy it at a different shop at the original price, or you could even make it yourself.

If something takes a lot of your **income**, say a house. Then a small percentage of change would lead to a big actual difference. For instance, 10% rise in house may mean $10 thousand more for you. Obviously you wouldn't accept that as easily as a 10% rise in your metro ticket, which may be only $1. Therefore, products that requires a large percentage of income are sensitive to change in prices, or **demand elastic**.

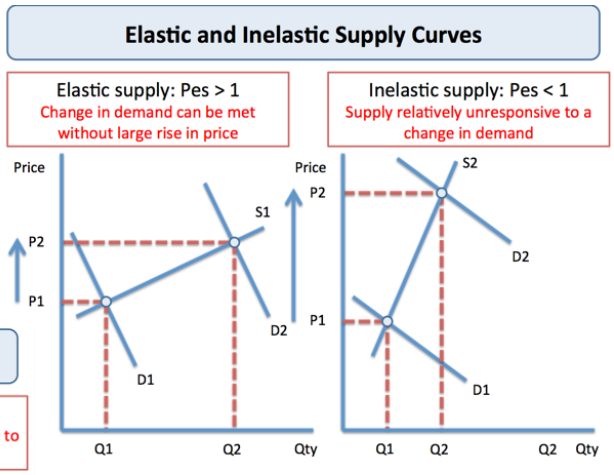
Time is almost always a discussion for every economics theory. If you are under time pressure, for instance when you are buying a bus ticket to go to school - you tend to be less sensitive to prices, or **demand inelastic**. But if you had more time, for instance to consider holiday package, you may be more sensitive to price changes.

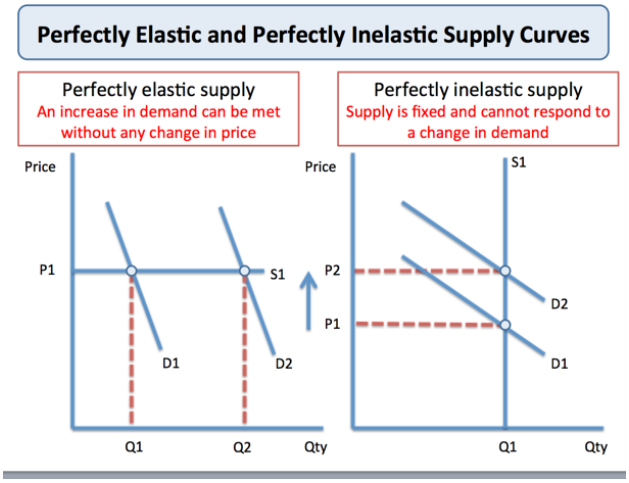
Chapter 8: Price Elasticity Of Supply

Price Elasticity of Supply (PES) - The responsiveness of supply to a change in price

$$Price\ Elasticity\ of\ Supply = \frac{\%\ \Delta\ quantity\ supplied}{\%\ \Delta\ price}$$

Perfectly inelastic - PES = 0
Price inelastic - PES < 1
Unitary elastic - PES = 1
Price elastic - PES > 1
Perfectly elastic - PES unavailable





Factors Affecting PES:
- Spare Capacity
- Stock Levels / Inventory
- Profit of Other Products
- Ease of Entry into Market
- Flexibility of Production
- Time

Chapter 9: Income Elasticity

Income Elasticity of Demand - The responsiveness of demand to a change in income
represented by YED (why not *IED*? because *I* is already assigned to mean *Investment*)

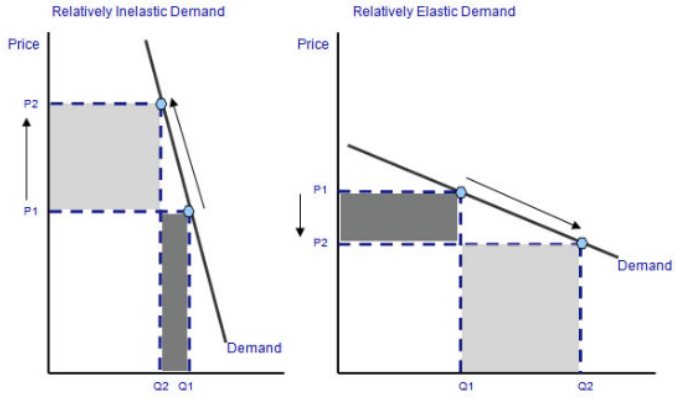
$$Income\ Elasticity\ of\ Demand = \frac{\%\ \Delta\ quantity\ demanded}{\%\ \Delta\ income}$$

Interpreting YED:
|YED| < 1 - YED inelastic (a less than proportionate change in q_d than change in income)
YED > 1 - YED elastic (q_d increase significantly as people's income rises)
YED < -1 - YED elastic (q_d increase significantly as people's income falls)

Factors affecting YED:
Necessities are income inelastic. Consumers don't spend more if they have more income and won't spend much less even if they experience a fall in income.
e.g. water, electricity, food
Luxuries are income elastic.
Inferior goods have a negative YED value.

Chapter 10: Applications Of Elasticity

Price Determination - Increase or decrease price
PED inelastic goods: price increase —> Increased total revenue
PED elastic goods: price decease —> Increased total revenue
PED unitary elasticity: price change —> Total revenue remains unchanged



Your turn! As a firm wishing to maximize your revenue, where would you place your price?

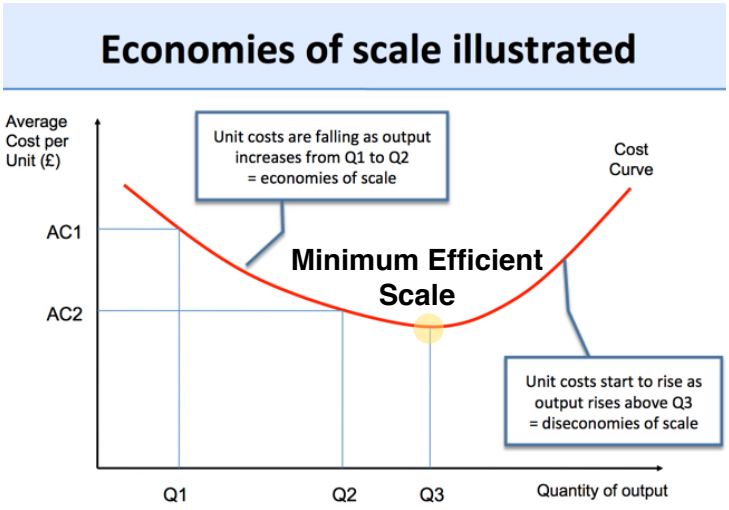
Product Switching - Which product to produce
Firms with the ability to produce various goods decide which goods to produce
e.g. Recession approaching, inferior goods start building inventory

Imposing Tax
Government typically tax PED inelastic good, otherwise consumers will avoid the item being taxed because they are PED elastic goods

Part 4 Production

Chapter 19: Economies And Diseconomies Of Scale

Economies of Scale - Decreasing average costs of production due to more units produced



Internal Economies of Scale	External Economies of Scale
Purchasing Economies Better deals from supplier (supplies also have economies of scale)	**Ancillary & Commercial services** Supplies nearby
Marketing Economies Fixed costs don't change	**Infrastructure**
Technical Economies Return of Investments	**Skilled labor**
Financial Economies Credibility = better loans	
Managerial Economies Efficiency	**Cooperation** Firms share costs
Risk-bearing Economies Reduce risks	

Diseconomies of Scale: Decreasing efficiency once firms get too big

- **Bureaucracy** - inefficiency
- **Labor Relations** - devotedness of staff
- **Coordination & Cooperation** - management costs

Other Important Concepts:

Division of Labor

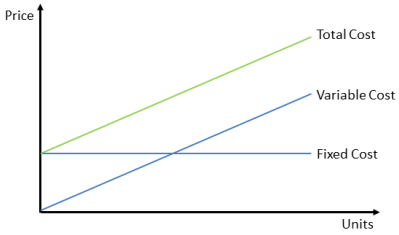
Pros	Cons
Increased efficiency	Worker boredom
More training & expertise	Harder to find another job
Reduce time wasted switching tasks	Repetition may cause physical damage

Minimum Wage

Pros	Cons
Happier workers produce more	Higher production costs, so higher price
Reduces poverty	Inflation
Increases income, increases demand in turn	Excess supply of labor (**Unemployment**)

Calculations

TC = AC × q Total Cost = Average Cost × Quantity
TC = FC + VC Total Cost = Fixed Cost + Variable Cost
VC = UC × q Variable Cost = Unit Cost × Quantity
Profit = TR - TC

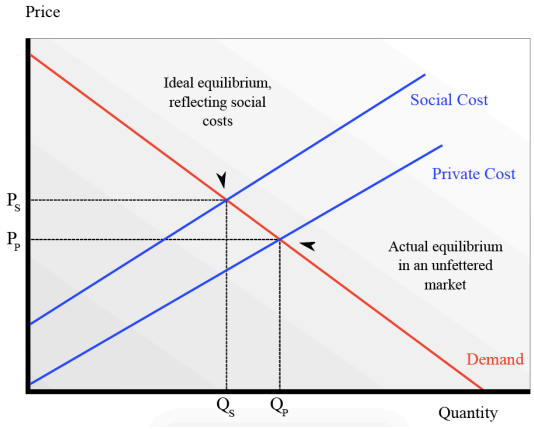


Trade Unions

An organization of workers who pushes for higher wages and better working conditions
- Negotiate for ↑ Wage

Public Sector

Producing goods that can't / won't be supplied by individuals and firms
Why? Positive externality
e.g. street lamps: how do you charge everyone using this service?
Aims: Improving quality of service
Minimize costs



Externalities

Private costs & benefits: The impacts on the individual
Social costs & benefits: The impacts on the society
The two are often in conflict
e.g. Pollution: What can we do about it?
- Market mechanisms: Charge a fee for each unit of emission
- Regulations: Allow certain quota of emission; otherwise fine
- Technology: Using more efficient machines with less pollution

MACROECONOMICS

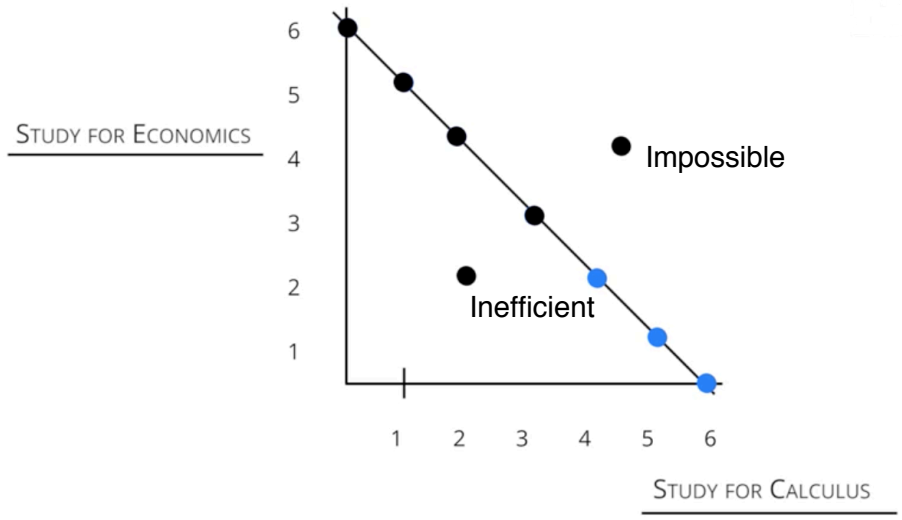
Macroeconomic Goals: (**Dual Mandate**)
Full employment
Stable prices

Scarcity = the persistent economics problem

Limited resource:
Natural resources
Capital resources
Human resources
Entrepreneurial resources

Opportunity cost: What you gave up with you choice
e.g. When you choose to go to beach, you can't study economics.
Therefore, we say that "*the opportunity cost of going to the beach is the time that could be spent in studying economics*"

Economic Model = a simplification of reality —> Predicts human behavior/occurrences



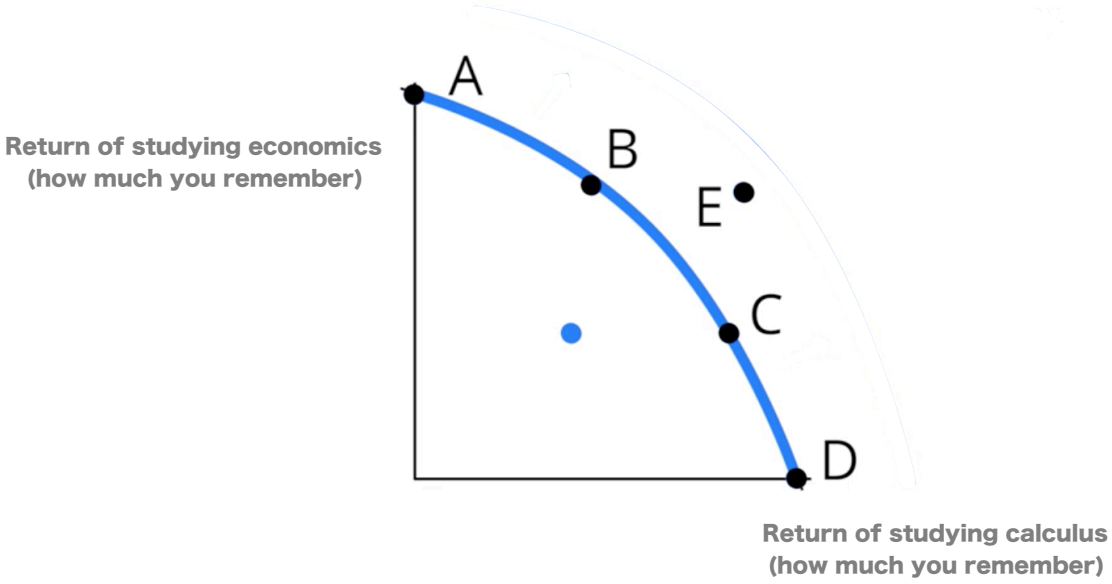
Production Possibility Frontier (PPF):
- What can we choose, when all the resources are being used
- Each choice has a foregone possibility (opportunity cost)

For each hour you spend studying economics, you have 1 hour less to spend on studying calculus
So we say: "*the opportunity cost of studying economics is the* _____"

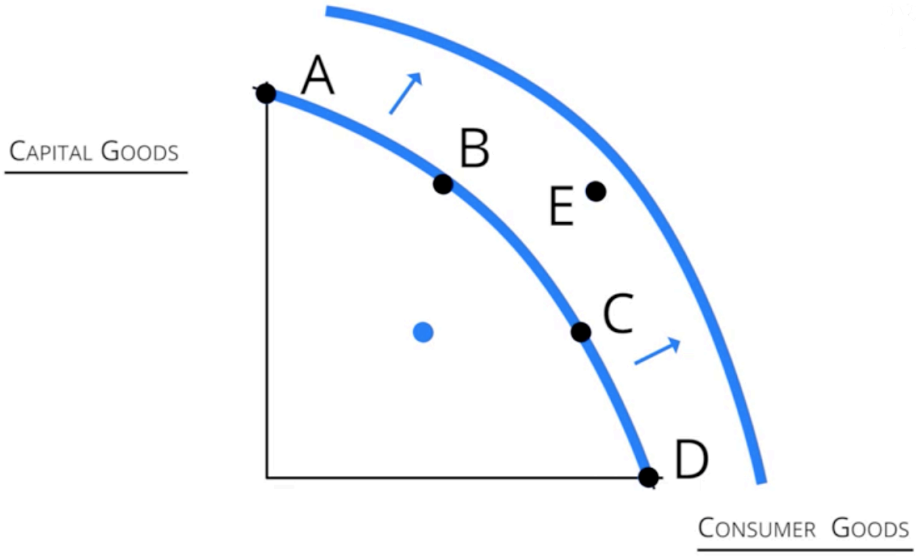
When you have a total of 6 hours to study but only use 2 hours to study each (4 hours in total), we say that it is **inefficient**, because you're not using all your resources (your time).

On the other hand, if you try to study 4 hours to study each (8 hours in total), we say that it is **impossible**, because you're simply not going to be able to study for 8 hours when you only have 6

Law of Diminishing Marginal Return: It is usually most efficient to have a point in the middle of the PPF, so as values get more extreme either way, the total amount of product is decreasing



For every additional hour you spend studying economics, your mind get bored and therefore the return of your time spend reviewing (how much knowledge you gain) decrease.



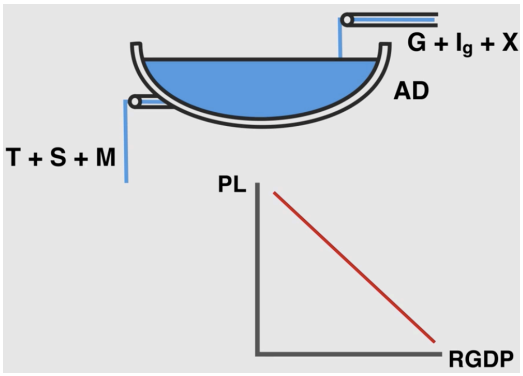
Similarly, it is most efficient to produce goods somewhere in the middle. This is because some resources are more efficient when used for capital goods, while others are more efficient when used for consumer goods.

Therefore: Curve is a Concave Shape

When resources ↑ or efficiency ↑; total production possibility ↑, so PPF shift outwards

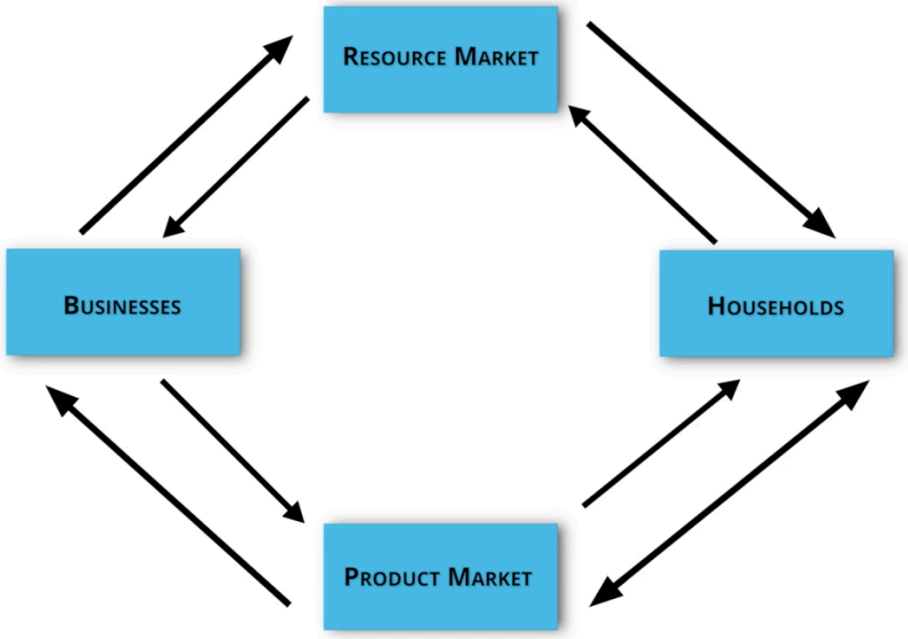
Market Types:

Perfectly Competitive
Monopoly
Monopolistic Competition
Oligopolistic Competition

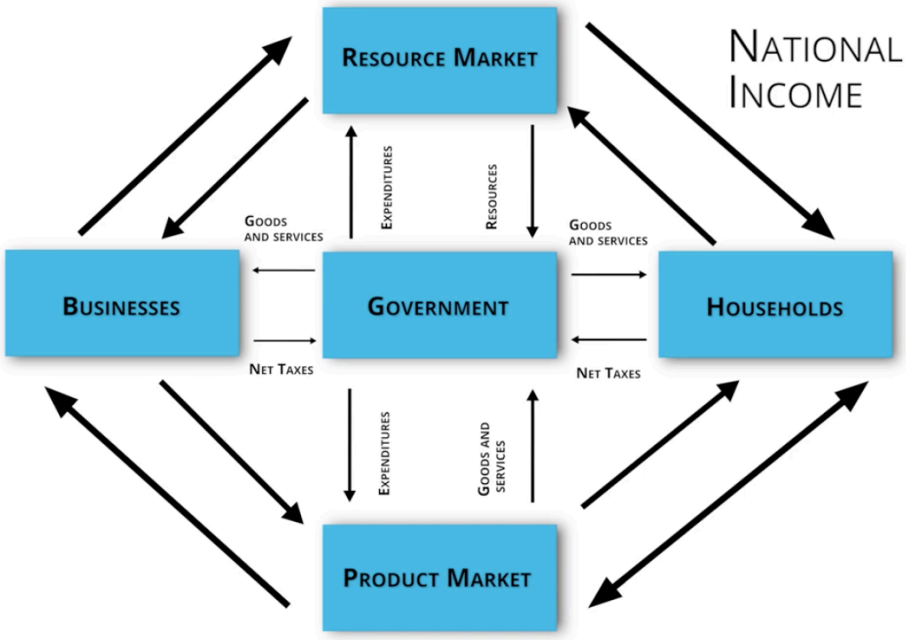


Circular Flow Model (Keynesian View)

2-Sector Model - Closed, Private Economy



Open Mixed Economy

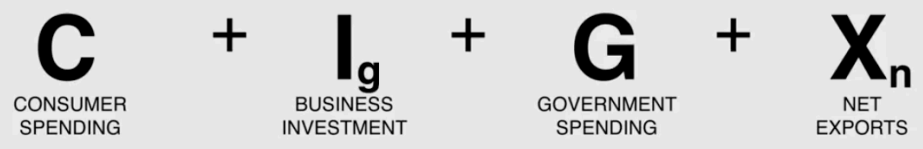


Not intermediate

Regardless of consumption

Gross Domestic Product: The sum of all final goods and services produced within a country
- Measure of overall economic activity

Elements of the GDP (also known as Aggregate Demand)



Elements of GDP:
- Consumption 68%
- Investment 17%
- Government 18% (Only spending, excluding transfers)
- Net Exports -3% (Exports - Imports)

*Based on US GDP 2015

Not included in GDP:
- Household Production
- Illegal Activities
- Transfer Payments (e.g. Obligatory)
- Environmental Destruction

Aggregate Demand = The sum of *all* demand in an economy
i.e. my demand curve + your demand curve + everyone else's demand curve
demand curve for food + demand curve for house + demand curve for everything else

What is **aggregate supply**? _____

Business Cycle: Instability of the economy in the long-run

Recession = 2 or more quarters of negative GDP growth (decline)

The economy is naturally unstable, so government policies may be needed.

Fiscal policy: Regulating the economy by △ G or △ T (regulation that is *not* directly money)
So if people spend too much, there will be inflation. To reduce inflation, the government can ↓ G so there are less money spent and ↑ T so people are more likely to save than consumer - again, less money spent
On the contrary, if people don't spend enough, the opposite is true: encouraged to spend

Classical economists is about the foundation of almost everything we have seen in microeconomics so far: Flexible prices and wages the adjust to the equilibrium. **Keynesians**, on the other hand, believes in the rigid (being inflexible) nature of markets: prices tend to stay.

Recessions: What would **Classical economists** do?
Nothing: ↓ Nominal wage = ↑ Employment

Recessions: What would **Keynesians** do?
↑ G - directly increases GDP
↓ T - more discretionary income, so ppl can spend more
but: **budget deficit**; **misallocation of resources: X represent consumer preferences = inflation**

Part 8 Policies: To Deal With Economic Growth, Inflation, Unemployment, The Balance Of Payments On The Current Account And Protection Of The Environment

Chapter 38: Fiscal Policy

Fiscal Policy - Decisions about government expenditure, taxation and borrowing

How budgets are spent:

Mandatory Spending: Payments governments are obliged to make
e.g. Jobseeker's Allowance

Discretionary Spending: Payments governments can choose whether or not to make
e.g. Investing on a new state highway

Purpose of Taxation:

Generate revenue to afford public services
Discourage a behavior (e.g. tax on tobacco)
Regulate the aggregate demand
Minimize the wealth gap by taxing the rich people more
Demand Management