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Microeconomics

Supply and Demand

Laws

Law of Demand

Rational consumers will always buy more of a good they want when the price falls, and less when the price rises

Law of Supply

As price rises, firms will produce more of that good.

The Law of Diminishing Marginal Utility:

As we consume additional units of something, the utility derived e for each marginal unit diminishes.

Effects

The income effect:

Real income refers to the actual buying power of a consumer. AS the price of a good decreases, the quantity demanded increases because consumers now have more real income to spend. With more buying power, they sometimes choose to buy more of the same product.

The substitution effect:

As the price of a good decreases, consumers switch from other substitute goods to this good because its price is comparatively lower.

Price Mechanism

Prices are how resources are allocated between competing interests in a market economy. Prices send the signals to producers and consumers regarding what should be produced, how it should be produced, and for whom—prices are signals from buyers to sellers and from sellers to buyers

- Leads to a reallocation of resources

Equations

Linear Demand Equation

$$Q_d = a - bP$$

a = quantity demanded at $P=0$. Changed by non-price determinants of demand.

b = amount by which the quantity will change as price changes (how responsive consumers are to change in price)

Linear Supply Equation

$$Q_s = c + dP$$

c = quantity supplied at $P=0$. Changed by non-price determinants of supply.

d = amount by which quantity will change as price changes

Determinants

Non-price determinants of demand (demand shifters)

- Tastes – A change in consumer's tastes and preferences – Most important factor
- Other related goods' prices – A change in the price of substitutes and complementary goods
- Expectations – The expectations among consumers of the future prices of a good or their future incomes
- Incomes – A change in consumers' incomes
- Size of the market – A change in the number of consumers
- Special circumstances – Changes in factors such as weather, natural disasters, new scientific studies, etc...

Non-price determinants of supply

- Subsidies – Government payments to producers for each unit produced will increase supply
- Taxes – Payments from firms to governments will decrease supply
- Technology – New technologies make production more efficient and increase supply
- Other related goods' prices – Substitutes in production. If another good which a firm can produce rises in price, firms will produce more of that good and less of the other one
- Resource costs (costs of production) – If the costs of inputs falls, supply will increase. If input costs rise, supply decreases
- Expectations of producers – If firms expect the prices of their goods to rise, they will increase production now. If they expect prices to fall, they will reduce supply now
- Size of the market – If the number of firms in the market increases, supply increases. If the number of firms in the market decreases, supply decreases.

Elasticity

Demand

PED

How responsive consumers are to a change in the price of a good

PED < 1

- Necessary
- Cheap
- No substitutes
- Cannot make yourself
- Addictive

Determinants of PED

- Substitutes – The number of substitutes available. More substitutes, demand is more elastic.

- Proportion of income – Proportion of income the purchase of a good represents. Higher proportion, demand is more elastic.
- Luxury or necessity – If a good is a necessity, demand is less elastic. If it is a luxury, demand is more elastic
- Addictive – More addictive, demand is less elastic
- Time – The amount of time a consumer has to respond to a price change. If the price remains high for a long time, consumers can find alternatives and the good's demand becomes more elastic over time.

Supply

PES

How responsive producers are to a change in the price of a good

Price Elasticity of Supply (PES)

= %change in quantity supplied / %change in price

= $\% \Delta Q_s / \% \Delta P$

Determinants of PES:

- Market Period – Supply is highly inelastic immediately after a change in price, because rapidly changing supply is difficult (this is the major one)
- Short-Run – Firms can use their fixed capital more or less intensively, making supply slightly more elastic
- Long-Run – Firms have time to vary amount of capital they use, so supply is highly elastic.
- Mobility of Resources – Supply is more elastic if resources can be quickly put into or out of production. Low-skill manufactured goods tend to be more elastic
- Ability to store stocks – If large inventories can be kept, producers can respond to price changes by taking more or less goods out of inventory

Goods

Effects of Income

Normal good

An increase in consumers' income will increase (shift) the demand.

Inferior (Giffen) good

An increase in consumers' income will decrease (shift) the demand.

Veblen (Ostentatious) goods

Increase in price won't make demand fall (luxury goods).

Scarcity

Free good

Desired and unlimited

Economic good

Desired and limited (Scarce)

Rivalry and Excludability

Rivalrous

One consumer's enjoyment of the benefits of a good diminishes others' enjoyment of it

Excludable

Once a good has been provided, it is possible to exclude any individual from enjoying its benefits

Rivalrous and/or Excludable Goods

Public Good

- Benefits society
- Not provided by the free market—Govt. has to provide all of it
- Non-rivalrous
- Non-excludable

e.g. infrastructure, parks, fire and police protection, national defense

Common-access resource

- Rivalrous
- Non-excludable

e.g. a lake

Welfare and Market Failure

Surpluses

Consumer Surplus

The benefit enjoyed by consumers who are willing to pay higher than necessary for the good

Producer Surplus

The benefit enjoyed by producers who would be willing to sell for a lower price

Total Welfare

Sum of Consumer and Producer surplus

MSB and MSC

Demand = MSB

Demand for a good represents the benefits that society derives from its consumption

Supply = MSC

Supply of a good represents the cost to society of producing the good

Society

Those not involved in the market transaction

Externalities

Externality

An effect when the production or consumption of a good creates benefits or costs on a third party not involved in the market.

Negative externalities of consumption:

Too many resources allocated to the consumption of a good

The consumption of a good causes external effects on others

Positive externalities of production:

for example: ecotourism

Market Failure

Market Failure

Inefficient allocation of goods and services

Too much bad or not enough good

$MSB \neq MSC$

Tragedy of the Commons

Over-use of common-access resources because people only think of their own benefits

Asymmetric Information

Lack of perfect knowledge by either the producer or consumer.

- Consumers may not buy an optimal quantity of a product (e.g. used cars)
- Producers may not be able to set their prices correctly (e.g. lying on health insurance questionnaires)

There can be external costs ("spillover costs"), e.g. lying on a health insurance questionnaire, making everybody else pay more.

Theory of the Firm

Laws

Law of diminishing marginal product

As more of a product is produced, a point is reached where the marginal product for a marginal cost decreases

Factors of Production

Land

Land resources

Paid with Rent

Labour

Human resources (physical and intellectual)

Paid with Wages

Capital

Tools and technology used to produce goods and services

Paid with interest

Entrepreneurship

innovation and creativity (not scarce, unlike others) Paid with profits

Durations

Market period and short run

Fixed plant periods. Cannot add or remove factors of production, can only use existing ones more

Long run

Variable plant period, can increase or decrease factors of production.

Efficiency

Allocative Efficiency

Producing where $MC = AR$

Every good is produced up to the point where the last unit has a marginal cost for the producer equal to the marginal benefit to the consumer.

Productive Efficiency

Producing at the minimum of the ATC curve, minimizing average resource input

Costs and Losses

Fixed costs (in short run)

- Rent
- Interest
- Normal profit

Variable Costs (in short-run)

- Wages
- Transportation costs of the produced goods
- Raw material costs
- Manufactured inputs

$$TC = TVC + TFC$$

$$AFC = TFC/Q$$

Decreases as output increases

$$AVC = TVC/Q$$

$$ATC = TC/Q = AFC + AVC$$

$$MC = \Delta TVC / \Delta Q$$

Explicit costs

Costs for land, labour, and capital

Implicit costs

The opportunity cost representing what a firm must give up to use (and thus not sell) a factor of production it already owns.

Shut-down rule

A firm can always minimize losses if:

$P < AVC$ and/or $TFC > \text{total losses when continuing to operate}$

- Total losses if firm continues to operate = $(AR - ATC) \times Q$
- Total losses if it shuts down = $TFC = (ATC - AVC) \times Q$

Revenues and Profits

Revenues

$$TR = P \times Q$$

$$AR = TR / Q = P$$

$MR = \Delta TR$ resulting from an increase in output of one unit

Per-unit Profit

$$AR - ATC$$

Profit Maximization

$$MC = MR$$

Revenue Maximization

$$MR = 0$$

Normal Profit

Minimum profit needed just to keep an entrepreneur operating in their current market. If not met, entrepreneur should move into another market

Economic profit ("abnormal profits")

When revenues exceed all costs and normal profits. Firms attracted to industries with economic profits

$$TR - TC$$

Market Structures

Perfect Competition

- Same costs
- Many firms
- Homogeneous products
- Normal profits in the long-run, due to entry/exit of firms
- Low barriers to entry

Monopolistic Competition

- Fairly large number of firms
- Small amount of price-making ability
- Some product differentiation
- Relatively easy entry and exit
 - Entry eliminates profits and exit eliminates losses

e.g. restaurants in a big city, automobiles, apparel

Effects

- Does not achieve productive or allocative efficiency
- Higher prices, lower output
- Less consumer surplus
- Non-price competition

Oligopoly

- Small number of firms
- Significant amount of price-making ability
- Often significant product differentiation, though sometimes not (e.g. oil)
- High barriers to entry

e.g. cell phone service providers, airplane manufacturers, movie studios, beer in US, gasoline for cars

Collusion

Firms have an incentive to cooperate, as they are interdependent

Can collude by agreeing on product quality or by fixing high prices

Open/formal Collusion

An official organization ("cartel") through which price and output decisions are agreed upon

Effects

- Higher prices
- Lower output
- Decreased consumer surplus
- Stifles innovation
- Reduced productive and allocative efficiency

Tacit/Informal Collusion

Price leadership in which the biggest firm sets the price and smaller firms follow

- Prices are "sticky" upwards due to reluctance of firms to raise prices
- Prices are "slippery" downwards, as all firms have to follow downwards to prevent a loss of demand

Price Wars:

When tacit agreements break down and firms continually lower their prices and increase output to increase demand

- Temporarily approaches efficiency

- Price leadership restored once firms recognize their collective decrease in surplus

Non-collusive Oligopoly & The Kinked Demand Curve

If firms decrease price, other firms will also decrease their prices and demand won't increase much

If firms increase price, other firms will maintain their prices and demand will decrease significantly

Effects:

Stable prices, as changing prices decrease revenue

Monopoly

When a single firm controls a large share of the market for a particular good.

- Can charge a higher price and produce at a lower quantity than is socially optimal
- Price-maker
- Significant barriers to entry
- Unique product

e.g. Microsoft, local utilities, state liquor stores, cable and phone providers, rail transportation

Effects of Monopoly

- Market failure, because resources are under-allocated towards production
- Loss of consumer surplus
- Income transfer from consumers to shareholders
- Higher price, lower output
- $P > \min ATC$, \therefore no productive efficiency
- $P > MC$, \therefore no allocative efficiency
- Economies of Scale
- Less consumer choice

Natural Monopoly

Monopoly that is *more* efficient due to economies of scale, and has lower costs than if same output were produced by multiple firms.

Should be regulated by government, to prevent abuse and foster efficiency

Govt. can subsidize if:

- $P > P_{SO}$
- $Q < Q_{SO}$

Properties of Structures

Non-price Competition

- Branding
- Product improvement
- Customer service
- Location
- Advertising

Barriers to entry

- Legal barriers
- Economies of scale
- Exclusive ownership of resources by firms in market
- Strategic pricing by firms in market
- Brand loyalty

Economies of Scale

Increasing returns to scale → Constant returns to scale → Decreasing returns to scale ("Diseconomies of Scale")

LRAC curve

Price-takers

Firms who can decide their own price because they do not have to produce at a lower cost or sell at the lowest price (inefficient)

Price-makers

Firms who cannot raise prices as they sell in a highly competitive market

Price Discrimination

Price Discrimination

When a firm with market power charges different prices for an identical product

- Firm must have some monopoly power
- Market Segregation (able to determine who is willing to pay what)
- No resale (difficult for buyers to resell the product)

First Degree

By individual consumer—"perfect price discrimination"

No consumer surplus

Second Degree

By a quantity

e.g. buying in bulk

Third Degree

By consumer group

e.g. age, time of purchase, gender, nationality, location

Effects of price discrimination:

- Higher economic profits
- More output produced and sold
- Consumer surplus reduced/eliminated
- Allocative efficiency improved (level of output closer, or at, $P = MC$)
- More efficient allocation of resources—increase in total welfare

Miscellaneous

Economic Problem:

What should be produced?

How should it be produced?

For whom should it be produced?

Production Possibilities Model

PPC = Production Possibilities Curve

PPF = Production Possibility Frontier

Law of Increasing Opportunity Cost

As the output of one good increases, the opportunity cost in terms of other goods tends to increase

Market Equilibrium

Where the price and quantity at a level at which supply exactly equals demand

Macroeconomics

Gross Domestic Product

Definition and Calculation

GDP

Total output of products of a country in a year

Includes only final products and services which were actually sold

Excludes nonproduction transactions

Calculating GDP

Income method: $W + I + R + P$

Output method: primary output + secondary output + tertiary output

Expenditure method: $C + I + G + X_n$

Nonproduction transactions

- Secondhand sales
- Purely financial transactions
- Public transfer payouts (e.g. welfare)
- Private transfer payments (e.g. allowance, alimony)
- Sale of stocks and bonds

Variants

Shortcomings of GDP

- Ignores development
- Ignores work of people that is not paid for
- Does not reflect changes in working hours over time
- Does not include the black market
- Does not measure total well-being in a nation

Nominal GDP

The value of a nation's output produced in a year

Real GDP

Use prices from a base year to measure output.

GDP deflator = $\text{Nominal GDP} / \text{Real GDP} \times 100$

Per Capita GDP

GDP/Population

GNP

Gross National Product, the total value of output produced in a year by the factors of production provided by a nation. Includes companies producing abroad.

Green GDP

= GDP - losses to environment and biodiversity resulting from economic growth

Macroeconomic Objectives

Full employment: most of those who are willing and able to work have a job

Price-level stability: unstable prices lead to unstable livelihood

Economic growth

Improved equality in income distribution

AD and AS

Definitions

Aggregate Demand

The total demand for the output of a nation

Aggregate Supply

Total quantity of output of goods and services produced by the firms in a nation at a range of price levels in a particular period of time

SRAS

The relationship between the price level of a nation's output and the level of output produced in the fixed-wage and price period (during which wages and prices are relatively inflexible)

LRAS

The relationship between the price level of a nation's output and the level of output produced in the flexible-wage and price period (during which wages and prices in the economy can adjust to the level of demand)

Vertical at full employment, meaning that in the long-run the economy will always produce at full employment, because wages and prices will adjust.

Effects

Wealth Effect

Higher price levels reduce the purchasing power or the real value of households' wealth and savings, thus they spend less and AD decreases

Interest rate effect

Banks raise interest rates on loans when price increases. At higher interest rates, people and firms consume less because they take out fewer loans and put more money into savings

Net export effect

As prices in a country fall, goods and services in that country become more attractive to foreign customers

Determinants

AD

Determinants of Consumption

- Disposable income
- Wealth
- Expectations
- Real interest rates
- Household debt
- Taxation

Determinants of Investment

- Real interest rate
- Business confidence
- Technology: new technology spurs investment
- Business taxes
- Degree of excess capacity (if firms are producing at their maximum, they are more likely to invest)
- Expectations (firms will invest more if they expect prices to rise)

Determinants of Net Exports

- Foreign and domestic incomes
- Exchange rate
- Protectionism
- Tastes and preferences

Determinants of Government Spending

- Fiscal Policy
 - Contractionary will decrease
 - Expansionary will increase
- Government budget
- Budget deficit shifts AD to the right
- Budget surplus shifts AD to the left

AS

- Wage rates (cost of labour)
- Resource costs
- Energy and transportation costs
- Government regulations (which increase costs for firms)
- Business taxes
- Exchange rates (which affect the price of imported inputs)

Propensities

Marginal Propensity to Consume (MPC)

The proportion of a change in national income (Y) that goes towards consumption by households

$$\Delta C / \Delta Y$$

Marginal Propensity to Save (MPS)

A leakage: the proportion of a change in national income (Y) that goes towards savings by households

$$\Delta S / \Delta Y$$

Marginal Propensity to Import (MPI)

A leakage: the proportion of a change in national income (Y) that goes towards buying imports (M) by households

$$\Delta M / \Delta Y$$

Marginal Rate of Taxation

The proportion of a change in national income that goes towards paying taxes (T) by households

$$\Delta T / \Delta Y$$

Multipliers

Multiplier Effect

When a component of AD changes, the change in the total spending in the economy will be greater than the initial change in expenditures

Spending multiplier

$$k = 1 / (1 - MPC)$$

Tax Multiplier

How much total spending will increase following a decrease in taxes

$$-MPC / MRL$$

MRL = Marginal Rate of Leakage

Unemployment

Definitions

Unemployment

The state of being out of work, actively seeking work, but unable to get work

- Must be of legal working age (usually 16-65)
- Does not include under-employment, which is working part-time but wanting to work full-time, or being over-qualified for one's job

Cyclical Unemployment

Unemployment caused by the recession phase of the business cycle

- Caused by fall in AD
- Affects all classes

Frictional Unemployment

Those searching for jobs or waiting to take jobs soon

- Desirable as it indicates job mobility
- Includes seasonal unemployment

Structural Unemployment

Unemployment due to changes in the structure of demand for labour

- Obsolescence of skills
- Changes in the geographic distribution of labour (e.g. due to foreign competition)
- Changes in the prices of output

Statistics & Measures

Total Labour Force (TLF)

Population of people who are of legal working age, willing to work, and physically able to work

Employed + Unemployed

Unemployment Rate (UR)

Number of people unemployed / TLF $\times 100$

Labour Force Participation Rate (LFPR)

Percentage of population in labour force

Natural Rate of Unemployment

= Full employment = Frictional + Structural

Effects

Individual

- Decreased household income
- Increased levels of psychological and physical illness

Societal

- Increased poverty and crime
- Transformation of traditional societies (e.g. urbanization)

Economic

- Decreased consumption
- Under-utilization of productive resources: not achieving production possibilities
- Downwards pressure on wages

Inflation

Definitions

Inflation

An increase in the average price level of goods and services over time

Disinflation

A decrease in the inflation rate

Deflation

A decrease in the average price level of goods and services over time

Calculation

Consumer Price Index

Measures the price of a set basket of consumer goods that the typical household in a nation consumes between one time period and another

$CPI = 100 \times \text{price of basket in one year} / \text{price of basket in base year}$

Weighted Price Index

Use weights to make certain goods more important in the calculations

Inflation rate

The percentage change in CPI between two years

$IR = 100 \times (CPI_{\text{year2}} - CPI_{\text{year1}}) / CPI_{\text{year1}}$

Inflation is needed to create an incentive to spend and (for firms) invest

- Deflation
 - inflation < 0%
 - Discourages investment and growth
- Low inflation
 - $0\% < \text{inflation} < 5\%$
- High inflation
 - $5\% < \text{inflation}$
 - AD grows rapidly due to people spending, causing demand-pull inflation

Causes

Inflation

Demand-Pull

AD above full employment

1. AD increases
2. Output cannot keep up with demand
3. Prices increase due to scarcity

- High costs of production
- High prices
- High wages

SRAS shifts back because firms will, due to high costs, reduce employment, reduce output, and increase prices

Cost-Push

Negative Supply Shock ("stagflation")

"stagflation" = stagnant growth + inflation

- An increase in the average price level
- A decrease in output
- Inflation
- Unemployment

Self-corrects in the long-run with changes in resource costs (e.g. lower wages due to increased unemployment)

Deflation

Recession

AD below full employment

1. Demand falls
2. Profits fall
3. Workers fired
4. Demand falls
5. Profits fall
6. ...

Fiscal policy used to get out quickly

Economy will self-correct, because workers will begin accepting lower wages, and thus costs of production will decrease and SRAS will shift bringing the equilibrium point back to full employment (though with lower prices)

Positive Supply shock

1. Costs of production decrease
2. Short-run economic growth
3. If costs stay low, LRAS will increase. If costs go back to normal, SRAS will just shift back.

Effects

High Inflation

- Lower real incomes
- Lower real interest rates for savers
- Higher nominal interest rates for borrowers
- Reduced international competitiveness

- Local goods become more expensive than foreign competitors' goods
- Real foreign investment decreases

Deflation

- Rising unemployment
- Delayed consumption—can lead to further deflation and the deflationary/recessionary spiral
- Declining investment due to expectations of low demand
- Increased real debt burden on borrowers

Relationship Between Unemployment and Inflation

Phillips Curve

Economic Growth

Definitions

Economic Growth

Change in the total output of a nation between two periods of time

$$(\text{GDP}_{\text{year2}} - \text{GDP}_{\text{year1}}) / \text{GDP}_{\text{year1}}$$

Per Capita Economic Growth

Better indicator of how the average person is doing

Growth in Potential Output

Long-run economic growth

Economy is producing at full employment and output increases

Long-Run Economic Growth

Increase in a nation's productive capacity

LRAS shifts right, along with everything else

Causes of Long-Run Economic Growth

Quality and/or quantity of productive resources must increase

Physical Capital and Technology

The quantity and quality of technology and infrastructure in a nation

Only accumulated through investment by the private sector or the government

Human Capital and Productivity

Quality and quantity of a labour force in a nation

Education and training improves it, as well as access to technology and population growth

Can be improved by private or public sector

Consequences of Economic Growth

+

- Higher income
- Greater output

-

- Externalities
- Inflation
- Structural unemployment
- Composition of output: if growth is in a sector that damages humans (e.g. weapons)
- Unequal distribution of income

Income Distribution

Definitions

Equality

Everyone earns the same amount, no matter their skills or contribution to the market

Equity

Fairness in the distribution of income

Achieved with:

- Progressive tax
- Fiscal policy that redistributes wealth

Relative Poverty

Some households in a nation are poor relative to richer households

Absolute Poverty

When a household earns an income below a level that affords the basic necessities of life

Lorenz Curve

Plots percentage of a nation's total income against the percentage of the nation's population

$A/(A+B)$ = Gini Coefficient

Relevant Taxes & Payments

Regressive Tax

Decreases proportion of income as households get richer

e.g. indirect tax (sales tax)

Proportional Tax

Remains constant as a proportion of income as incomes increase

No effect on equality

Progressive Tax

Increases proportion of income as households get richer

Promotes equality

Transfer Payments

A payment from the government to an individual for no goods or services in exchange

e.g.:

- Social security
- Nutritional subsidies
- Educational subsidies
- Healthcare subsidies
- Welfare benefits

Fiscal Policy

Definition

Changes in the level of government spending and taxation aimed at either increasing or decreasing the level of aggregate demand in an economy to promote macroeconomic objectives

- A type of demand-side policy
- Greatest impact in countries where G is a large proportion of AD

Government Revenue

Taxes

Direct Taxes

Taxes on incomes earned by households and firms

Indirect Taxes

e.g. taxes on consumption

Laffer Curve

Plots tax revenue against tax rates

After a certain point, increasing taxes decreases tax revenue

Sales

Sale of Goods and Services

Government can sell things

Privatization of Govt.

Can privatize state-owned enterprises

Sale of Govt. Property

Government Expenditures

Current Expenditures

Day-to-day costs of running the government

Includes wages and salaries

Capital Expenditures

Investment made by govt in capital and infrastructure

Transfer Payments

Income transferred from one group to another for nothing in return

Do not contribute to GDP

e.g. unemployment pay, pension, disability pay

Surpluses and Deficits

Balanced Budget

Expenditures = taxes

Budget Surplus

Expenditures < taxes

Decrease in AD and national debt

Budget Deficit

Expenditures > taxes

Increase in AD and national debt

National Debt

(Sum of all past deficits)-(sum of all past surpluses)

Expansionary Fiscal Policy

- Reduction in taxes
- Increase in government spending
- Can cause a deficit
- Spending multiplier and tax multiplier both apply
 - The size of a tax cut is greater than the size of a spending increase if achieving the same increase in AD
 - Tax cuts are less direct

Effects

Long-Run Economic Growth?

Need to direct spending towards quantity and/or quality of productive resources

Such spending has supply-side effects:

- Education spending will improve human capital
- Research and development will improve technology and thus improve physical and human (in the case of healthcare) capital
- Rewarding innovation and entrepreneurship will, too, improve technology

This occurs in the following order

1. Spending increased
2. AD increases
3. SRAS shifts right
4. If the spending is maintained, LRAS will eventually shift too

Crowding-Out?

If a government spends too much money, it can crowd-out private spending, as the government will borrow money

- Reduces economy's ability to self-correct
- Possibly reduces long-run growth rate

Government Bonds

Certificates of debt that a government sells to borrow money

Cost of Borrowing

Investors more willing to lend at low interest rates if they trust govt. will pay it back

Crowding-Out

Increase in interest rates by govt to convince people to buy bonds

- People spend the money on bonds rather than savings or consumption
- Banks have less money to give out loans, shifting the supply of loanable funds inwards

Causes AD to jump back a bit following a stimulus

When Might it Happen?

- During a deep recession, crowding-out will not happen as there is already very little investment and spending
- During a mild recession, crowding out might happen as govt. needs to offer very high interest rates to make the bonds attractive and there is lots of investment and consumption to crowd out

Monetary Policy

Definitions

Monetary Policy

A Central Bank's manipulation of the money supply and interest rates in an economy aimed at stimulating or contracting AD to promote macroeconomic objectives, focusing on:

- Full employment

- Economic growth
- **Price level stability** (most relevant)

Central bank

A body that is usually independent of the main government

- Can inject new currency by issuing currency to banks
- Sets reserve requirements

Money Supply

M1

Most liquid

Currency and checkable deposits

M2

M1+ some less liquid forms:

- Savings deposits
- Long-term deposits which can only be accessed after some time

M3

M2+ even less liquid forms:

- Long-term deposits that require penalties when withdrawn

Reserves

Reserve Requirement

Fraction of checking account balances that commercial banks must keep in the vaults and not loan out

Required Reserve Ratio

Proportion of money banks must keep in reserve

Excess Reserves

(Actual reserves)-(required reserves)

Federal Funds

Funds that banks hold with the CB as their reserve requirement

Interest Rate

For savers: The opportunity cost of holding on to money (cash) as an asset

For borrowers: the cost of borrowing money

Federal Funds Rate

The interest rate that banks charge to each other on loans of federal funds

Money Market

Supply of money is vertical as it is determined by the CB's monetary policies

Demand for money slopes down as, at lower interest rates, households demand more money as an asset and for transactions

Demand is shifted by GDP

Money Multiplier

An initial change in a bank's total deposits causes a greater change in the overall money supply in the economy, as it is loaned, spent, deposited, loaned, spent...

= $1/(\text{required reserve ratio})$

If a deposit of \$100 is made with an RRR of 10%, it will create additional spending of $90 \times (1/0.1) = \$900$

Tools of Monetary Policy

Changing RRR

A lower RRR increases the supply of money banks can lend out

Not done often as it is difficult and expensive for banks to adhere to changing RRR's

Changing the Discount Rate

Interest rate the CB charges commercial banks for short-term loans

When other banks don't have money to loan to a bank and the bank is below the RRR, the bank must borrow from the CB (the lender of last resort), at an interest rate called the Discount Rate (higher than the interest other banks charge)

Changing the discount rate changes how aggressive banks are with loaning out lots of money

Open Market Operations

Buying and selling government bonds on the open market

Buying bonds increases the supply of money

Selling bonds decreases the supply of money

Money multiplier applies: if CB buys \$50 of bonds at an RRR of 0.1, total change in money supply is \$500

Effects

AD

Both the C and I components are sensitive to interest rates

At higher interest rates households and firms take out fewer loans, and households save more money

Supply-Side Policies

Definition

Policies aimed at increasing AD *and* promoting long-run economic growth

Involve decreasing costs for businesses

Examples

- Reducing minimum wage

- Reducing labour union power
- Reducing government spending on unemployment benefits
 - increased incentive to work
 - lower wages
- Reducing government regulation
- Reducing protectionism
 - incentive for efficiency
 - cheaper raw materials
- Investment in Human and Physical capital
 - Merit goods
 - Education
 - Public goods
 - Infrastructure

Evaluation

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- APL decreases
- Output increases
- Employment increases

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- Inequality, as supply-side policies focused on labour typically harm working-class
- Externalities due to deregulation
- Hard to implement, politically, as results are often only seen after a long period of time

International Trade

Free Trade

Benefits

Get things you can't produce domestically

Get things cheaper from elsewhere

Comparative Advantage

When one nation has a lower opportunity cost of producing a good

Protectionism

Restrictions placed by a government on free trade to make domestic producers more competitive

Tariffs

Taxes placed on imported goods, services, or resources

Increase the price of imported goods

Government gains revenue

Quotas

A physical limit on the quantity of a good, service, or resource that can be imported

Causes a shortage of imports in the short-run

Subsidies

Money given to domestic producers

Increases domestic supply

Exchange Rates

Types

Floating Exchange Rates

Prices determined by the market forces of supply and demand

Benefits:

- Monetary policy freedom
- Automatic adjustment—should be the right exchange rate, reflecting true demand and supply
- No forced savings due to holding foreign reserves
- Managing could lead to more persistent current or financial account surpluses or deficits

Managed Exchange Rates

CB keeps rate within an acceptable window and acts against fluctuations

Benefits:

- Less speculation
- Ability to reduce imported inflation
- Can make currency weak to increase X_n
- More stability → increased investor confidence

Fixed Exchange Rates

Currency is pegged to another currency

Exchange rate does not change

Achieved through:

- Interest rates
- Official reserves (changed buying and selling foreign currencies)
- Exchange controls (limits on amount of exchange possible)

Determinants of Exchange Rates

Affect the supply and demand of a currency

- Tastes and preferences
- Relative interest rates
 - At higher interest rates, foreigners will demand more financial assets
- Relative price levels
 - If a country's inflation is high relative to trading partners, demand for its exports and currency will fall
- Speculation
- Relative incomes
 - Higher foreign incomes lead to more demand for domestic currency

Effects

Appreciation

- Lower inflation, due to cheaper imports
- Slower growth, due to decreased net exports
- Decreased net exports
 - Increased unemployment
 - Firms may move overseas
 - Current account → deficit
 - Financial account → surplus

Depreciation

- Higher inflation (cost-push due to expensive imports)
- Faster growth
- Fall in unemployment
- Current account → surplus
- Financial account → deficit

Balance of Payments

Balance of Payments

The flow of money for financial and real transactions between the people of a nation and the rest of the world

Accounts

Current Account

Records the flow of money for the purchase of goods and services between a country and its trading partners

Surplus: $X > M$

Includes:

- Goods (the "visible" balance)
- Services (the "invisible" balance)
- Income Balance—incomes transferred in and out of a country
- Transfer Balance—payments made between nations for nothing in exchange (e.g. aid)

Consequences of Current Account Surplus

- Currency appreciation, as $X_n > 0$
- Increased ownership of foreign assets (due to financial account deficit)
- Reduced domestic consumption—less goods available to domestic consumers as everything is being exported
- Foreign governments may increase their protectionism

Financial Account

Records the flow of money for the acquisition of real and financial assets (e.g. factories, buildings, real estate, bonds, shares) by the people of one nation in all other nations

Surplus: foreign citizens own more domestic assets than vice versa

Includes:

- Physical Assets (e.g. real estate, factories, office buildings, and other Fs of P)
- Financial Investment (e.g. purchase of assets like shares in companies and bonds)
- Capital Account—a sub-account measuring the transfer of capital goods and debt forgiveness

Official Foreign Exchange Reserves

Reserves of foreign currency held by a central bank

If $FA + CA > 0$, size of reserves decreases

If $FA + CA < 0$, size of reserves increases

Correcting a Current Account Deficit

- Exchange rate devaluation
- Expansionary monetary policy \rightarrow lower interest rates \rightarrow depreciation
- Protectionism
- Contractionary fiscal policy \rightarrow lower price levels \rightarrow more attractive exports

Marshall-Lerner Condition

If $PED_{X_n} > 1$, depreciation will move the current account towards surplus, because exports will be cheaper and imports will be more expensive but increased exports and decreased imports will offset this

If $PED_{X_n} < 1$, depreciation will move the current account towards deficit

If $PED_{X_n} = 1$, depreciation will have no effect

J-Curve Effect

In the short-run, $PED_{X_n} < 1$, so a depreciation will decrease net exports and move the current account balance further into deficit, but in the long-run, $PED_{X_n} > 1$, so the current account balance will move into surplus

Economic Integration

Types

Preferential Trading Area

Countries within a region eliminate/reduce barriers on certain goods

Free Trade Area

Countries in a region agree to reduce or eliminate barriers

Customs Union

Removal of tariffs among members

Acceptance of a common tariff against those outside the CU

Common Market

All barriers to trade in goods and services, capital, and labour removed

Non-tariff barriers reduced/eliminated

Economic and Monetary Union

Common Market + a common currency

Complete Economic Integration

Economic and Monetary Union + political integration

Trade Creation vs. Trade Diversion

Trade Creation

Entering a trade agreement with another nation creates trade

- Helps exporters in both nations
- Hurts domestic producers of the country without a comparative advantage
- Hurts govt. due to a lack of tariff revenues

Trade Diversion

Entering into a customs union (A and B) means that there will be relatively higher barriers between A and C

→A will shift more towards trading with B rather than C

- Helps country B
- Hurts country C
- Can hurt/help country A depending on the change in tariffs combined with new markets and removed markets

WTO

Purpose:

- Administer WTO trade agreements
- Act as a trade negotiation forum
- Handle trade disputes among nations
- Monitor national trade policies
- Provide technical assistance to developing countries
- Cooperate with other international organization

Terms of Trade

A measure of the relative prices of imports and exports of a nation

ToT deteriorate: import price increases and/or export price decreases

ToT improve: import price decreases and/or export price increases

Development

Definition

Development

An increase in living standards for a country

e.g. life span, education, income

Growth vs. Development

- Growth can happen without development, and vice versa
- Growth can worsen development (e.g. income inequality)
- Growth can help development (e.g. less unemployment→higher living standards)
- Development can help growth (e.g. good education→more productivity)

Uneconomic Growth

Growth accompanied by costs deferred to the long-term

e.g. environmental externalities

Birth Rates

- Globally dropping
- Drop faster in MEDCs than LEDCs

Dependency Ratio

People not in labour force : people in labour force

- High birth rates→high dependency ratio
- Very low birth rates→high dependency ratio

Some issues

Low GDPpc→less development

Agrarian economies→less development as agriculture doesn't require education or anything and doesn't generate much revenue

Slums and informal sectors→less development due to unlevied taxes

Poverty Cycle

A cycle through which individuals or communities in poverty remain in poverty

1. Low income
2. Low saving
3. Low capital investment
4. Low productivity

Differences between LDCs

- Resource endowments—not all LDCs have no resources
- Climate—not all LDC's have the equatorial climate
- History—colonial/imperial past can be positive or negative for economy
- Political systems—more democracy can lead to better development, but not always
- Political stability—many LDCs, but not all, have had conflict

Indicators

Income

GDP per capita

The GDP per person, though it does not measure income

GNI

Gross National Income

The value of all production from Fs of Ps of a country

= GDP + net income flow

- GDP > GNI—many more foreign firms operating domestically
- GDP < GNI—many domestic firms operate abroad

Wealthier countries have higher GNIs than poor countries

Some poor countries with lots of repatriated income (e.g. The Philippines) have high GNI

PPP

Purchasing Power Parity

Accounts for spending power of currencies

Health

Adolescent Fertility Rate

Life Expectancy

Multiple

WB focuses on these indicators:

- Access to water
- Contraceptives
- Access to phones
- Diesel prices
- CO₂ emissions
- Expenditure per student on education
- Endangered plants/animals
- Immunization rates
- Internet users
- Poverty rates
- Dependency ratio
- Patent applications

Millennium Development Goals

2000-2015

Each has specific statistical requirements

- Eradicate extreme poverty and hunger
- Achieve universal primary school
- Promote gender equality
- Reduce child mortality
- Improve maternal health
- Combat diseases
- Ensure environmental sustainability
- Develop a global partnership for development

Composite

Human Development Index

- Life expectancy
- Adult literacy and combined primary, secondary, and tertiary enrollment ratio
- GDP PPP per capita

High GDPpc does not necessarily mean high HDI

Gender Inequality Index

HDI is not necessarily always a sign of good gender parity

Factors Affecting Development

Obstacles

Insufficient Natural Resources

Cannot sustain domestic need without resources

No resources to export for money→inability to import capital to extract resources

Natural Resource Curse/Trap

Over-reliant on one resource→no diversification→vulnerable to price volatility

Geography Trap

- Surrounded by poor countries
 - Small export market
 - No good places to import from
- Landlocked

International Obstacles

- Narrow range of exports
- A currency that is non-convertible on the Forex market (e.g. DPRK money)
- Over-dependence on primary goods

- Hinders investment in development
- Countries are "price-takers" for primary exports
- A worsening of the ToT will decrease the standard of living

Overcoming Development Obstacles

- Trading Blocs
 - Facilitate development
 - Allows producing at comparative advantage
- Diversification of Output
 - Makes less vulnerable to price volatility
 - Can be done by investing in human capital

History

- Health has improved
- Incomes have improved
- Export revenues have been expended on development

Contributors

- Import Substitution
 - Use protectionism to reduce domestic consumers' dependence on imports
 - Can decrease standard of living if goods become more expensive or of a lower quality
- Export Promotion
 - Ad campaigns (e.g. tourism)
 - Devaluation of currency
- Trade Liberalization
 - Reciprocity
 - Risky if dumping occurs

Foreign Direct Investment

Definitions

FDI

Long-term investment by a company in the market of another country

- Inward flow of FDI=foreign investment in domestic market
- It is investment in productive assets
- Used to be mainly between MEDCs, now trend is more towards LEDCs

- Cheap labour
- Little regulation
- Natural resources
- Large domestic market
- Will easily accept investment and free trade, as they get foreign currency

Greenfield

Companies construct new facilities from scratch

Brownfield

companies invest in existing infrastructure

MNCs

Multi-National Corporations

Usually come from MEDCs

Evaluation

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- Encourages government investment in infrastructure
- Provides R&D improvements
- Stimulates domestic industry
- Exposure to technology improves capital stock
- Helps break poverty cycle
- Increases worker income
- Increases employment
- Increased tax revenues
- Increases training level of workers
- Provides competition for domestic industries→efficiency
- Improves consumer choice
- Can help a nation find its comparative advantage

-

- Employment often only grows for low-skilled jobs, as high-skilled workers are brought in
- Some industries are capital-intensive, and thus don't employ many
- Profits are repatriated
- MNCs avoid taxes
- Crowd-out domestic companies by borrowing domestically and raising interest rates
- May import capital and not use domestic goods
- MNCs have lots of power
 - Lobbying—poor regulations, lower taxes

- Corruption
- Environmental abuse
- Overwhelm competition by local businesses

Foreign Aid

Sources

Official Development Assistance

- Financial, technical assistance from one country to another (Bilateral)
- Must be concessional (no or little payback)

NGOs

Usually more specifically directed and on a smaller scale

Can cover areas ODA's can't

Rely on donors

Why Donate to Either?

- Donate due to guilt (colonialism)
- Feel a connection, due to some history or relations
- Political/strategic motivations
- Help conduct good business with trading partners
- Tied aid has some kind of condition, to help the donor

Types

- Debt relief
- Technical assistance
- Assistance for education, healthcare...
- Humanitarian aid for disasters
- Commodity assistance (equipment to help with some economic/health issue)

Evaluation

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- Aid is not the problem, but its delivery is
- Addresses areas where growth alone will not
- There is need for it

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- Inefficient
- Corruption
- Rarely gets to those who need it
- Displaces local investment and markets
- Fosters dependency

Trade vs. Aid

- Reducing protectionism (rather than sending aid) can expand markets for LDCs
- However, rich countries may bring cheap agricultural goods on poor countries, hurting their economies

Institutions

WTO

- Encourage all nations to liberalize trade
- Get MEDCs to take LEDCs' needs into account
- Promoting LEDC access to export markets
- Promoting increased movement of labour
 - Increases remittance payments
 - Could cause brain drain

World Bank

Components

- IBRD
- IFC
- IDA
- MIGA
- ICSID

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- Conditional loans
- Loss of sovereignty when accepting and then having to repay loans under WB supervision
- Allows for dominance of rich countries in voting procedures

International Monetary Fund

Duties

- Foster monetary cooperation
- Facilitate stability
- International lender of last resort if country is in a monetary crisis
- Stabilization policies (suggestions for governments):
 - Govt. Budget Austerity (budget cuts)
 - Supply-side (reduction of minimum wage and subsidies)
 - Inflation controls (high interest rates)
 - Currency floating
 - Trade liberalization

-

- MEDCs hold lots of power—they're the main lenders

Foreign Debt

Causes

LDCs borrow from other nations to get an inflow of funds in financial account (helps balance out a current account deficit)

Destinations

- Infrastructure projects that often fail
- Lots goes to arms that fight wars
- Corruption
- Often not much is put towards development

Money is often spent on interest, and not the principal

Fixing Debt Issues

- Concessionary loans
- Debt relief

Balance between Markets and Intervention

Market-led Growth Strategies (Laissez-faire):

Components

- Minimize government role
- Maximize how well supply and demand work in markets
- Export-led growth
- Encourage FDI
- Privatize industries
- Deregulate
- Structural Adjustment Policies
- Use IMF and World Bank loans

-

- Infrastructure may be under-provided (public good)
- Unemployment may short-run increase due to less government
- Other countries' protectionism can make export-led growth difficult
- rural/urban migration and slums due to rapid change and deregulation
- Lack of political stability can hinder FDI

Interventionist Growth (Keynesian):

Components

- Active role of government
- Manipulate workings of the markets
- Import substitution
- Protectionist trade policies
- Exchange rate intervention
- Regulation
- Nationalization of industries
- Government involvement in export markets to help promote key industries

-

- Large public sectors
- Inefficiency
- Corruption

- Large deficits→borrowing→increased money supply→inflation
- Large infrastructure investments can fail, and successes only show results in the long-run