

## 4 Properties of Trade

1. Helps both sides
2. Creates value
3. Positive Sum Game
4. Differences are Beneficial

H

C

P

D

## ~~3 Principles~~

1. Trade Creates Value

2. Incentives affect Behavior

3.

Unconstrained Vision: We have the resources necessary to satisfy everybody

Constrained Vision: We have unlimited desires but limited resources

Scarcity: Society's resources are limited (at the time) } limited  
- full set of wants and desires vision

Opportunity Cost: The highest valued forgone alternative

Incentive: a thing that motivates or encourages a person to do something

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## Demand

1. Price (-) ← negative relationship - Movement along

2. Consumer Income (+)

3. Price Expectations (+)

4. Tastes and Preferences (+/-)

5. Taxes (-)  
Sales & Excise

Change in quantity  
demanded

P -

C I +

P E +

T P +

T -

Shifts

change  
in  
demand

## Supply

1. Price (+)

P +  
C IR -

2. Cost of inputs/resources (-)

T +  
P E -

3. Technology (+)

T -  
P E -

4. Price Expectations (-)

5. Taxes (-)

1. Why can't  $P > P^*$ ?

$P^S > P^D \rightarrow \dots \dots P^I$

## 2. Why can't $f(p)$ ?

$Q^D > Q^S \rightarrow$  shortage

**Gross Domestic Product (GDP):** the market value of final goods and services produced in a country in a year

$\text{GDP} = \text{output} = \text{income}$

Two ways to increase income (GDP):

1. Produce more output

2. Produce a more valuable output

## Three Uses of GDP Data

## I. Living Standards

## 2. Economic Growth

### 3. Business Cycle

## 1. Market values

Market Value = Quantity  $\times$  Price

## 2. Services

**Services:** Output that provides benefits without a tangible product

### 3. Final Goods and Services

**Intermediate goods:** Goods that firms use package or bundle with other goods for sale at a later stage

**Final goods:** Goods sold to final users

#### 4. Product

Used goods not counted

Financial assets not counted

#### 4 Pieces of GDP

##### 1. Consumption C 70% ~

Private spending on goods and services not intended for use in future production

ex: <sup>non-durable</sup> pizza, <sup>durable</sup> washing machine, scooter

##### 2. Investment I 16-17% ~

Private spending on tools, plant, and equipment used to produce future output

Ex: shovel, tractor - thing

##### 3. Government Spending G

Spending by all levels of government on final goods and services

Ex: planes, govt jobs

##### 4. Net Exports NX

Exports - Imports

Ex: Jeep Toyota

$$C + I + G + NX = Y$$

#### Growth Rates

$$\text{Growth Rate of } X = \frac{\%}{\Delta X}$$

$$= \frac{\text{Change in } X}{\text{Starting } X}$$

$$= \frac{(X_1 - X_0)}{X_0}$$

Nominal GDP: GDP in current dollars

Raw GDP data, unadjusted for price changes

Real GDP: GDP adjusted for changes in overall price level  
→ GDP in "constant dollars"

Notation:

$$Y = \text{Real GDP} \quad \left. \begin{array}{l} \\ \end{array} \right\} PY = \text{Nominal GDP}$$

P = Price Level

Base Year = 2009

Computing Real GDP

Two Steps:

PY

1. Divide to filter out old prices

2. Multiply to put in new

$$\text{Real GDP}_t = \frac{\text{Nominal GDP}_t}{\text{Price Level}_t} \times 100$$

Step 1      Step 2

Shortcomings of GDP Data

1. Non-Market Production

NMP

A. Household Work

UA

B. Volunteer Work

EI

2. Underground Activity

LT

3. Environmental Impacts

## 4. Leisure Time

Q

$$L_u \text{st} = 2.6$$

Long-run Average GDP: 30% / Last GDP: 2.4  
 $U = 6\%$ ,

## Unemployment

$$U = 5.7\%$$

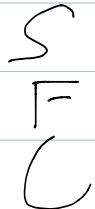
## Structural Unemployment

Caused by changes in the industrial makeup (structure) of the economy.  
is natural

Can increase

How to reduce?

Retrain or re-locate workers



## Frictional Unemployment

Caused by delays in matching available jobs and workers

Can decrease:

Anything that  $\downarrow$  search time

- information availability

Can increase:

Anything that  $\uparrow$  search time

- hiring and firing regulations

- unemployment compensation

## Cyclical Unemployment

Caused by economic downturns

## Natural rate of unemployment ( $U^*$ ):

The typical rate of unemployment when the economy is growing naturally.

Structural and frictional

No (real) unemployment

$$U^* > 0$$

Full employment output ( $Y^*$ ):

$$\overline{FEO}(Y^*)$$

The output level when unemployment is equal to the natural rate.

Unemployment rate ( $U$ ): The percent of the labor force that is unemployed

Labor force: People who are employed or actively seeking work

Labor force participation rate (LFR):

The portion of the (relevant) population that is in the labor force.

$$LFR = \frac{\text{Labor Force}}{\text{Relevant Population}} \times 100$$

Measuring Inflation

1. Estimate a general price level  $P$

→ Weighted-average of prices

$$P = \sum w_i p_i$$

Consumer Price Index (CPI)

Based on the consumption patterns of a typical consumer

GDP Deflator:

Includes the prices of all final goods and services in GDP

2. Calculate Growth Rate

Problems with Inflation (in book)

1. Future Price Uncertainty

\* Result: If the future price levels uncertain people unlikely to make long-term contracts

2. Price Confusion "Signal extraction problem"

Suppliers can't discern the source of price increases

\* Result: If firms are confused about the source of price changes, they misallocate resources

3. Money Illusion

Nominal Wage: expressed in current dollars

Real Wage: adjusted for price level changes

Money Illusion: People interpret nominal changes as real changes

4. Tax Distortions

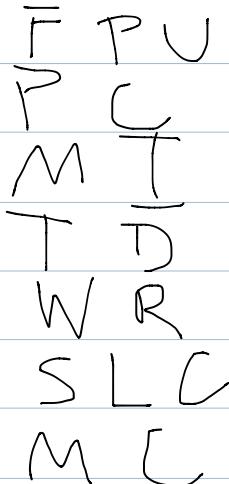
5. Wealth Redistribution

6. Shoe-leather costs

7. Menu Costs

Cause of Inflation

cause = <sup>Money</sup>  
Growth



The Loanable Funds Market

Capital Goods: Goods that are used to produce other goods and services.

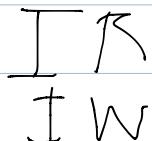
- A means + an end
- The purpose: helps produce

Investment: Spending on Capital

Supply = Savings

1. Interest Rate (Price) (+)

The reward for saving



## Law of Supply

TP  
CS

↑ price → ↑ quantity supplied

☰ Incentives affect behavior

## 2. Income and wealth (+)

Domestic and foreign

↑ income → ↑ supply

## 3. Time Preferences (-)

Now is preferred to later

Time Preference: Goods and services are more valuable the sooner they are delivered.

Time preference means...

... you must pay people to save

↑ TP → ↓ supply

## 4. Consumption Smoothing (+)

People generally prefer smooth consumption patterns

## Demand (Investment)

### 1. Interest Rate (Price) (-)

The cost of borrowing

Law of Demand:

↑ Price → ↓ quantity demanded

☰ Incentives affect behavior

I  
C P  
I C

Firms borrow iff:

$$\frac{\text{Expected return}}{\text{Investment}} > \frac{\text{Cost of Loan}}{(R)}$$

3 factors

1. R (-)

2. Capital Productivity (+)

3. Investor Confidence (+)