Intro to Economics Lecture Notes

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These are the lecture notes for Bryn Mawr College's undergraduate ECON B105, named Introduction to Economics, instructed by Margaret Ziurys Clarke. All errors are my responsability.

Use these notes only as a guide.

This class is being taugh remotely via Zoom.

Contents

1 Chapter 1: Limits, Alternatives, and Choices

February 16, 2021

1.1 Historical Background

Adam Smith, philosopher Smith's magnum opus is the book *The Wealth of the Nations* (1776). Talks about an invisible hand (self-interest) which operates the economy: If each individual pursues its own interest, they frequently promote society's interest effectively. Smith begins the tradition of classical economics.

Ricardo, Malthus, Mill Start of 19^{th} century. David Ricardo writes about the theory of capital. Thomas Robert Malthus writes about labor and population theories. James Mill synthesizes ideas of economics.

Karl Marx Karl Marx challenges the capitalist notion of common good, in the book *Das Kapital* (1867). Capitalism exploits and will result in a revolution.

John Keynes During the Great Depression, John Maynard Keynes writes *The General Theory of Employment, Interest and Money* (1936). He attacks macro aspects of classical econonomy and the "hands-off" approach (free market). He advocates for government intervention to solve major problems in economics, such as employment and inflation. This work gives rise to Keynesian economics.

Neoclassical Economics Second half of 20^{th} century. Neoclassical economics: rejection of Keynesian economics.

1.2 Economic Terms

Definition of economics Economics is a social science concerned with using scarce resources to obtain the maximum satisfaction of the unlimited human wants of society.

Ceteris paribus Other things being equal. In economics, it is usual to consider all variables are held constant, except the ones under consideration.

Correlation and causation Correlation is a systematics and dependable association between two sets of data. It is not definitive. Causation is definitive. *"Correlation does not imply causation"*.

1.3 Macroeconomics versus Microeconomics

Definition of macroeconomics Macroeconomics is concerned with aggregates (basic subdivisions, such as government, households, business sectors). No attention to specific units. Examples of topics are: total outputs, total incomes.

Definition of microeconomics Microeconomics is concerned with specific economic units. Takes apart the aggregates. Examples of topics are: price of a specific product, the income of a particular firm/household/industry.

1.3.1 Macroeconomics

Fallacy of composition Generalizations made at the micro level may not be valid at the macro level.

Economic goals The consumer price index, gross domestic product are example of indexes economists uses to measure aspects of the economy. Price stability and growth, measured by the indices above, are goals. Full employemnt is another goal: no workers should be involutarily out of work. Balance of trade is another goal: there is a reasonable balance between exports and imports.

1.3.2 Microeconomics

Factors of production (economic resources) Land — all natural resourses which are usable of production. Capital — man-made resources used to produced goods and services; capital goods do not direcly satisfy human goods. Labor — physical and mental human effort used to produce goods and services. Entrepreneurial ability — combines labor, land and capital and produces products, makes non-routine decisions, inovates, bears risk.

These resources are limited.

1.3.3 General

The economizing problem There are scarce resources, but unlimited human wants. Therefore, economic units search for an efficient allocation of resources.

Production possibilities model We will create a production possibilities model for the classroom. We will assume some things:

- Efficiency: full employment and full capacity (of all economic resources).
- Fixed and limited resources — may be reallocated.
- Fixed technology.
- We'll work in a economy that produces only two products: consumer good (satisfies imetiate need, ex. bread), capital good (satisfies more needs in the future, ex. robots).

Production possibilities table It deals with the question of choice: how much of each good should we produce?

	A	B	C	D	E
Bread production	0	1	2	3	4
Robot production	10	9	7	4	0

Table 1

The extremes (A and E) are unrealistic. Society wants a combination of consumer and capital goods.

Production possibilities curve See fig. 1.

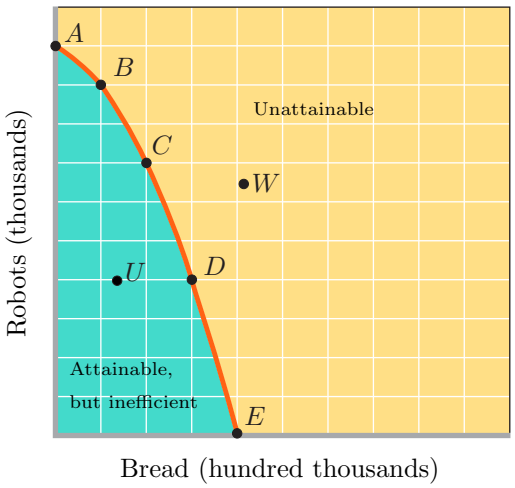

Figure 1: Example of production possibilities curve.

Opportunity Cost The amount of other products that must be sacrificed to produce a unit of a given product.

Law of Increasing Opportinity Cost As the amount of a product is increased, the amount of opportinity cost to produce a unit of this given product increases. Resources are better suited for some types of production than others. Thus, each time, to produce more breads, productivity is going to be lost. See table 2.

	Robots	Bread
Move from A to B	-1	$+1$
Move from B to C	-2	$+1$
Move from C to D	-3	$+1$
Move from D to E	-4	$+1$

Table 2

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1.4 Changing the assumptions

Unemployment of resources Represented by datapoint U on fig. 1.

Technology increasing Represented by a shift of the curve to up and right.

1.5 Extra

Arthur Laffer Low taxes incentivize people to work more. Thus, it makes economies grow.

2 Chapter 2: The Market System and Circular Flow

2.1 Five Fundamental Questions

What goods and services will be produced?

How will the goods and services be produced? What combination of resources and technologies will be used to produce goods and services? How will the production be organized?

Who will recieve the output? How should total output of goods be shared? Suggestions: based on need; based on contribution to product.

How will the system adapt to change? Can the economic system change fast enough to remain efficient? This implies a reallocation of resources, since consumer taste, resources and technology changes.

How will the system promote progress? How do we get output increase? How to get economic growth? This means the standard of living goes up. Technological improvements and capital accumulation will promote this.

2.2 The Economic Systems

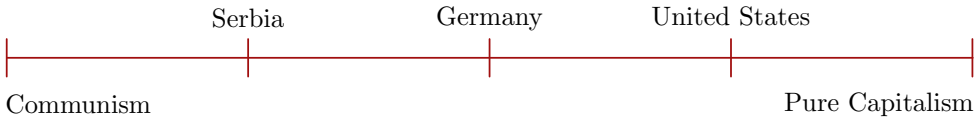

Figure 2: Communism–Capitalism Spectrum

Industrial Advanced Economies

Pure Capitalism Private ownership of resources. Direct economic activity. Free market. There's no need for any government intervention.

The Command Economy: Communism Public ownership of most resources. Economic decisions were made by a central economic planning board.

Mixed Systems Fall between Communism and Pure Capitalism. Examples:

- **U.S.**
  There is some government intervention and ownership.
- **Authoritarian Capitalism, e.g. Nazi Germany**
  Privately owned resources. Heavy government control over the markets.
- **Market socialism, e.g. Serbia**
  There is public ownership of resources, but also a partial free market.
- **Traditional/Costumary Economy, e.g. some Middle East countries**
  Property ownership and government intervention are basted on customs. Religions and cultural values dictate economic activity.

3 Chapter 3: Demand, Supply and Market Equilibrium

3.1 Price Determination

Introduction Why does the cost of —— is ——?

Price Price is a measure of a product's value.

Objective Value Cost of production value. Based on supply.

Subjective Value Based on individual preferences. Based on demand.

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3.2 Demand

Definition The relationship between the price of a product and the quantity people will buy.

Law of Demand Ceteris paribus, as price increases, the corresponding quantity demanded is going to decrease. Negative correlation. Ceteris paribus, quantity demanded is a function of price. See fig. 3.

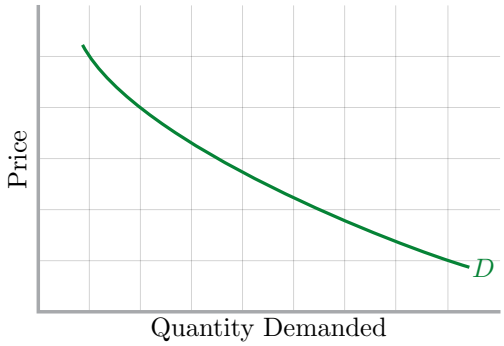

Figure 3: Demand curve

Individual vs. Market Demand See fig. 4.

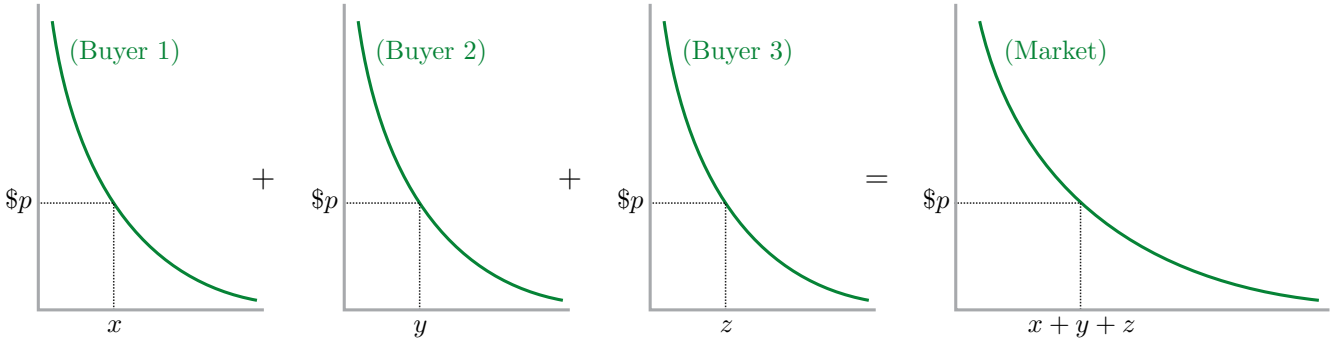

Figure 4: Market demand curve from individual demand curve

Changes in Quantity Demanded Quantity demanded changes because price changes. Graphically, it is a movement along a fixed demand curve caused by only a change in price. See fig. 5

Determinants of Demand

- Consumer Tastes/Preferences
- Number of Buyers (positive correlation)
- Income: normal goods — demand varies direcly with income; inferior goods — demand varies inversely with income.

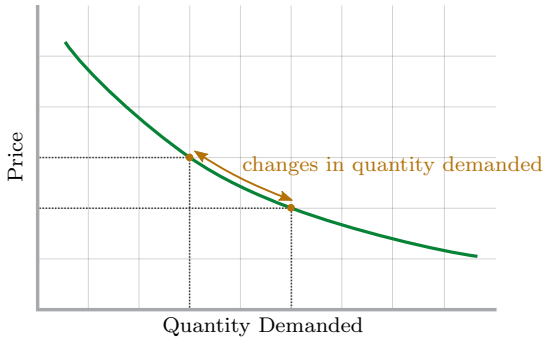

Figure 5: Changes in quantity demanded

- Prices of Related Goods: price of substitute goods (positive correlation), price of complementary goods (negative correlation).
- Consumer Expectations: future prices, future availability and future income.

Changes in Demand Shift of the whole demand curve because of determinants above (except from price). See fig. 6.

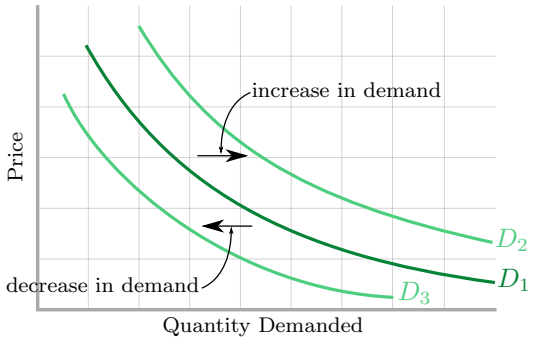

Figure 6: Changes in demand

3.3 Supply

Definition The relationship between the price of a product and the quantity people will sell.

Law of Supply Ceteris paribus, as price increases, the corresponding quantity supplied will increase. Positive correlation. Ceteris paribus, quantity supplied is a function of price. See fig. 7.

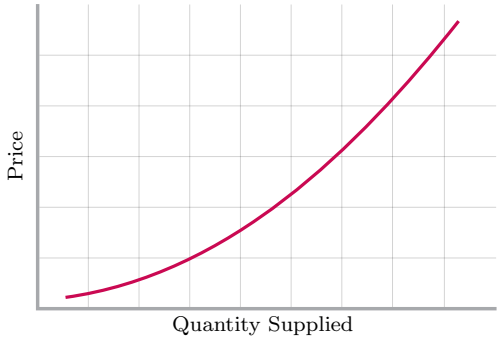

Figure 7: Supply curve

Individual vs. Market Supply Calculated the same as demand.

Changes in Quantity Supplied Quantity supplied changes because price changes. Graphically, it is a movement along a fixed supply curve caused by only a change in price. See fig. 8.

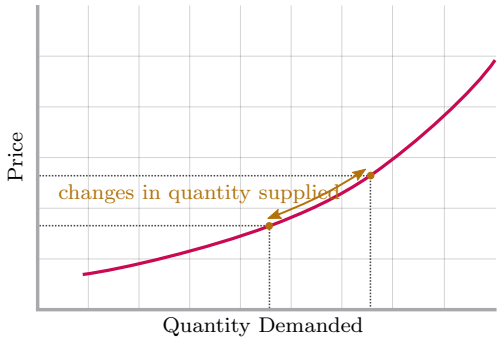

Figure 8: Changes in quantity supplied

Determinants of Supply

- Costs of production: the cheaper it is to produce, the greater will be the supply. This can be divided into:
  - Resource prices: the price of resources used to produce a product (negative correlation).
  - Technology: (positive correlation).
  - Taxes and subsidies: taxes (negative correlation) and subsidies (positive correlation).
- Prices of other goods: substitution in prodution (negative correlation).
- Producer Expectations: future prices, ...
- Number of sellers in the market: the more suppliers, the greater the supply.

Changes in Supply Movement of the entire supply curve. See fig. 9.

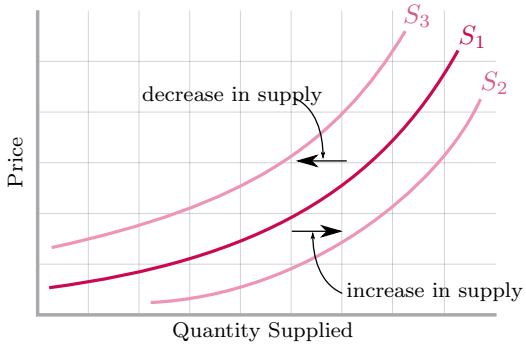

Figure 9: Changes in supply

3.4 Market Equilibrium

Equilibrium of Supply and Demand Price is determined where quantity supplied equals quantity demanded. P_E is the equilibrium price or market-clearing price, where the intentions of buyers and sellers match. See fig. 10.

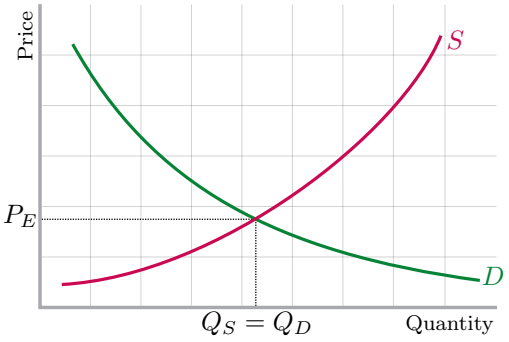

Figure 10: Equilibrium of Supply and Demand

Disequilibrium of Supply and Demand

- If the price is above the equilibrium price, we have an example of excess supply, or surplus. Surpluses drive prices down. See fig. 11.

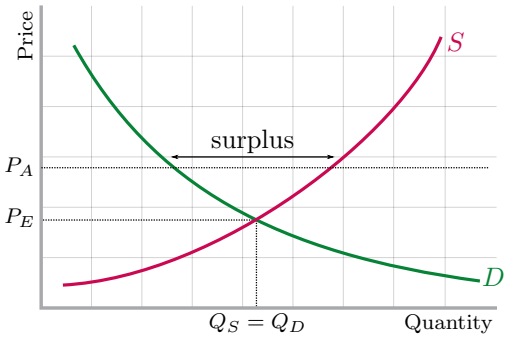

Figure 11: Excess supply

- If the price is below the equilibrium price, we have an example of excess demand, or shortage. Shortages drive prices up. See fig. 12.

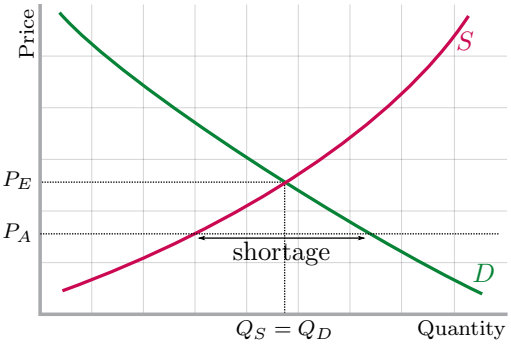

Figure 12: Excess demand

Market Equilibrium Application INSERT TABLE 3-8

Market Desiquilibrium Application

(I) Labor Market
- Q_a: labor demand with minimum wage.
- Q_e: employment without minimum wage.
- Q_b: labor supply with minimum wage (laborers who want to work at minimum wage)

INSERT HANDMADE GRAPH

(II) Price Ceilings: Rent control (lessors cannot raise the price).
There is excess demand.
INSERT HANDMADE GRAPH

3.5 Changes in Supply and Demmand

INSERT FIGURE 3.7

D increase:	$P \uparrow$	$Q \uparrow$
D decrease:	$P \downarrow$	$Q \downarrow$
S increase:	$P \downarrow$	$Q \uparrow$
S decrease:	$P \uparrow$	$Q \downarrow$

4 The Elasticity of Supply and Demand

March 5, 2021

4.1 Price Elasticity of Demand

(A) Introduction

(B) Define

Price Elastic Responsive to price changes. In other words, modest price changes result in consideral change in quantity purchased.

Price Inelastic Irresponsive to price changes. In other words, substantial price changes result in mostest change in quantity purchased.

(C) Elasticity of Demand Formula

$$E_d = \frac{\%\Delta Q_d}{\%\Delta P} = \frac{\dfrac{\Delta Q}{(Q_1+Q_2)/2}}{\dfrac{\Delta P}{(P_1+P_2)/2}}$$

(1) Rules
- When $E_d > 1 \longrightarrow$ Elastic
- When $E_d < 1 \longrightarrow$ Inelastic
- When $E_d = 1 \longrightarrow$ Unit Elasticity

(2) Qualifications
(a) Ignore Minus Sign: ΔQ and ΔP are taken in absolute values.
(b) Midpoint Formula: The reference for the porcentages is the midpoint.

(D) Application of Formula, e.g. Home Depot has a paint sale.
(1) Interior Wall Paint

	P	Q_d
Original Price	\$16	50 gals
Sale Price	\$12	100 gals

Find the Elasticity of Demand:

$$E_d = \frac{\frac{50}{75}}{\frac{4}{14}} = \frac{7}{3} \approx 2.3.$$

Thus, it is elastic.

(2) Porch Floor Paint

	P	Q_d
Original Price	\$16	20 gals
Sale Price	\$12	22 gals

Find the Elasticity of Demand:

$$E_d = \frac{\frac{2}{21}}{\frac{4}{14}} = \frac{1}{3} \approx 0.3.$$

Thus, it is inelastic.

(3) The Determinants of Price Elasticity of Demand
- **Substutability:** the larger the number of good substitute products, the greater the elasticity of demand, i.e., the greater price sensitivity. E.g. lower price cars are sensitive to price; in contrast, heroin is inelastic since there are no real substitutes.
- **Proportion of income:** the more significant a purchase (i.e., the more money alloted to it) the greater the elasticity of demand.
- **Luxuries vs. necessities:** The demand for necessities tends to be inelastic, while the demand for luxuries tends to be elastic. E.g., insulin is inelastic since it is a necessity; Caribe vacations are elastic.

- **Time:** The demand for a product tends to be more elastic the longer the time period. When the price of a product goes up, it takes time to experement with other products to see if they are acceptable as a substitue. With time, we will find other acceptable products.
  For example, as the price of Expresso goes up, given some time, you could switch your taste to Regular Coffee.

4.2 The Elasticity of Supply

(A) Introduction

(B) Definition. If producers are sensitive to price changes of what they are producing, then supply is elastic. If the producers are insensitive to price changes, then supply is inelastic.

(C) Supply Elasticity Formula

$$E_s = \frac{\%\Delta Q_s}{\%\Delta P} = \frac{\dfrac{\Delta Q}{(Q_1+Q_2)/2}}{\dfrac{\Delta P}{(P_1+P_2)/2}}$$

(1) Rules
- When $E_s > 1 \longrightarrow$ supply is elastic
- When $E_s < 1 \longrightarrow$ supply is inelastic
- When $E_s = 1 \longrightarrow$ unit elasticity

(D) The Determinants of Price Elasticity of Supply

- **Time:** The time a supplier/producer has to respond to a given change in the product price. The longer the amount of time a producer has to adjust to a price change, the greater the supply elasticity, i.e., the output response. The more time, the greater the ability of a producer to shift resources, which increases the elasticity of supply.

4.3 Supply and Demand Elasticity Appications

(A) **Tax on Cigarettes: Inelastic Demand.** When price increases due to a tax, demand is insensitive to the price change. Therefore, the quantity demanded decreases very little.

The supply curve will decrease, but the loss of sale to the producer is small, because the demand is inelastic.

The amount of impact the tax has on the sale of cigarettes is going to depend on the elasticity of the demand curve.

INSERT HANDMADE GRAPH

(B) **What if Cigarettes are Elastic?** When price encreases due to a tax, demand is sensitive to the price change. Therefore, the quantity demanded will decrease substantially.

INSERT HANDMADE GRAPH

4.4 Income Elasticity of Demand

(A) Definition: measures the responsiveness of consumer purchases to income changes.

$$E_i = \frac{\%\Delta \text{ in quantity demanded}}{\%\Delta \text{ in income}} = \frac{\dfrac{\Delta Q}{(Q_1+Q_2)/2}}{\dfrac{\Delta I}{(I_1+I_2)/2}}$$

(1) Normal Goods: positive elasticity. More normal goods are demanded when income goes up.

(2) Inferior Goods: negative elasticity.

(trillions)	Nominal	Price Index	Real GDP
2012	\$16.197	100.0%	
2017	\$19.519	107.19%	
2018			

5 Chapter 24

5.1 Measuring the Economy's Performance

(A) **Gross Domestic Product** is defined as the total market value of all final goods and services produced withing the nation boundaries in one year.
   — Final goods and services are goods and services purchased for final use. Not for resale and not for further processing.
   — Intermediate goods and services are goods ans services purchased for resale or further processing.

- Problems calculating GDP:
  (1) Multiple Counting.
  E.g. steel and automobiles.
  Solution:
  (2) Money vs. Real GDP.
  Deflation and inflation changes the value of money.
  GDP is a sales figure. Price × quantity. Price is the problem, not the quantity.
  We need to account for inflation and deflation.
  Nominal GDP is not adjusted for price changes. Real GDP is adjusted for price changes.

(B) Adjusting for Nominal GDP

(C) Formulas and Application
   (a) $\text{price index} = \dfrac{\text{price of a market basket in any specific year}}{\text{price of the same market basket in base year}}$.
   Some examples are Consumer Price Index (CPI), Producer Price Index (PPI), GDP Deflator.
   INSERT CPI GRAPH, FIGURE 8-6.
   (b) $\frac{\text{nominal GDP}}{\text{price index}} = \text{real GDP}$

5.2 Two sides of GDP

March 09, 2021

(*i*) Introduction
   (*i*) Expenditures Approach: You're summing all the expenditures mades for final goods and services to measure the GDP.
   (*ii*) Income Approach: Summing all the incomes generated by the production of final goods and services to measure GDP.

(*ii*) Expenditures Approach

$$\text{GDP} = C + I + G + X_n,$$

where C stands for consumption, I stands for *gross private domestic investment*; which can be divided in plant (construction, residential construction), equipment (computer systems, tools, etc), changes in inventory; G stands for government (local, state or federal spending).

(*iii*) Income Approach

$$\text{GDP} = W + \text{Rent} + I + \text{Profits} + T + 3 \text{ adjustments}$$

(*iv*) 3 adjustments
Net foreign factor income:
Statistical discrepancy: it used to match expenditures and income approach.
Depreciation or Consumption of Fixed Capital:

(*v*) Expenditures = Income.

5.3 Other national Accounts

(*i*) Net Domestic Product:

$$\text{GDP} - \text{depreciation} = \text{NDP}.$$

(*ii*) National Income: Income earned by Americans.

$$\text{National Income} = \text{NDP} - \text{statistical discrepancy} + \text{net foreign factor income.}$$

(*iii*) Personal Income: Income recieved. Tells the amount of income received for a year of production.

Personal Income = National Income−social security−taxes on production and imports−corporate income taxes−u

(*iv*) Disposable Income: the amount of income which household̈s can dispose if they choose to:

$$DI = PI - personaltaxes$$

$$DI = C + S$$

S = savings
SEE TABLE 7-4

6 Chapter 26

6.1 The Business Cycle

Define Business Cycle Recurrent ups and downs over a period of years in the level of economic activity

INSERT FIGURE 8-2

Four stages of Business Cycle

(*i*) Peak: full employment, full capacity.
(*ii*) Recession: output and employment on decine. Prices are headed in a downward direction.
(*iii*) Through: employment and output are at their lowest levels.
(*iv*) Recovery: employment and output move toward full employment.

Sources of Shocks Why are C, I, G or X_n constantly changing?

(*i*) Irregular inovation.
(*ii*) Productivity changes.
(*iii*) Monetary factors.
(*iv*) Political events.
(*v*) Financial instability.

6.2 Unemployment

Definition

(*i*) Unemployment is the failure of the economy to fully employ the labor force.
(*ii*) What is full employment? Something close to 100% of the labor force, due to frictional and structural unemployment
(*iii*) Natural Rate of Unemployment (NRU): When the economy is said to be producing its potential output. Given its resources, its producing as much as it can.

Types of Unemployment

(*i*) Frictional: Caused by workers voluntarily changing jobs, and temporary lay-offs. It is considered short-term. It is looked as desirable and inevitable.
(*ii*) Structural: Caused by changes in the structure of demand for consumer goods and in technology. It is considered to be long-term.
(*iii*) Cyclical: Caused by insufficient aggregate expenditures. As business activity increases, unenmployment is going to decrease.

Measuring Unemployment

(*i*) What is the unemployment rate?
(*ii*) Labor force is all people able and willing to work. Includes those employed, including part-time, and people willing to work.

6.3 Inflation

Definition Inflation is a rise in the average level of prices in the economy.

Measuring inflation

$$\text{Rate of Inflation} = \frac{\text{Price Index(Current Year)} - \text{Price Index(Previous Year)}}{\text{Price Index(Previous Year)}}$$

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Two Types of Inflation

(1) **Demand Pull:** inflation which is the result of an increase in aggregate demand.
This is when the aggregate expenditures begin to approach the production capacity of the economy. If demand increases and supply is constant because they can't produce anymore, the people who want the product will bid higher.
Coincides with high level of employment and high level of output.

(2) **Cost Push Inflation:** inflation which results in an decrease of aggregate demand.
This is when output and employment are on decline, when average prices are going up. Rising prices are a result of labor unions and large coorperations. If wages go up, then the production cost rises, and the coorperations rise the price for the consumers.

6.4 Redistributive Effects of Inflation

Introduction Inflation can redistribute income (paycheck) and your wealth (accumulated equity, what you own).

If you apply Real GDP formula to income:

$$\text{Real Income} = \frac{\text{Nominal Income}}{\text{Price Index}}$$

What is the difference between nominal income and real income? Nominal income is the number of dollars received in wages, rent, interest and profit. Real income is defined as the amount of goods and services one's nominal income will buy.

Using the same formula:

$$\text{Real Wealth} = \frac{\text{Nominal Wealth}}{\text{Price Index}}$$

Nominal wealth is the wealth in dollars. Real wealth is the amount of goods and services one actually can buy.

6.5 Who is Unaffected or Helped by Inflation?

Flexible–Income Receivers They derive their income only from social security, which is indexed with the CPI; so the real value they receive is the same.

Debtors

6.6 Two Terms: Inflation

Core Inflation Underlying increases in the CPI after volatile food and energy prices are removed.

Hyperinflation The purchasing power of money has decreased a lot.

7 Examination: Review

- Chapters 1, 2, 3, 4, 24, 26.
- Wall Street journal article.
- Basic calculator.

Format

- Identification: this is when I'll give you a word, term, law and define as concise as possible.
- Short essay: answer with about five sentences. Some of them you can get bullet points for, with explanations. (Wall Street journal).
- Math and Graph: a problem to solve. questions about a graph.

8 Chapter 27: Basic Macroeconomic Relationships

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8.1 Classical Theory

8.1.1 "Laissey-Faire" Economy

Capitalism can self adjust

Real Wage of Labor = Money Wage / Price Level

Self Adjusting Mechanism If the economy is in a recession, the price level is going down. Therefore, real wages go up. So, it is harder for employees to afford the wages; thus unemployment rises. Unemployed people now accept lower money wages. Real wages drop. Bussiness are able to hire more individuals. Unemployment goes back up.

8.2 Keynesian Theory

8.2.1 Introduction

1936, The General Theory

Real Wage of Labor = Money Wage / Price Level

However, money wages are inflexible downward because of labor unions. Capitalism is not a self adjusting economy.

8.3 The Kenesian Employment Theory

What is the model? $C + I + G + X_n$ = Income generated by the productions and services

8.3.1 Analytical Tools

Assumptions: no government consumption; only household saving $\therefore$ Gross Domestic Product = Disposable Income; constant price level.

Review the relationship of DI, C, and S: $DI = C + S$

8.3.2 Consumption and Saving

Consumption Schedule/Curve Household spend a large porpotion of a small disposible income than a large disposable income.

Saving Schedule Household save a smaller porpotion of a small disposible income than a large disposable income.

Therefore, as DI increases, households spend less and save more!

Application of schedules and 45% line:

Break Even Income:

(a) Break even invome is the level at which the households consume the entire income, i.e., when DI = C.
(b) Dissaving/Saving.

8.3.3 Average and Marginal Propensities

Average propensity to consume (APC): Fraction of disposible income that household spend on goods and services.

$$APC = \frac{\text{Consumption}}{\text{Income}}.$$

Average propensity to save (APS): Fraction of disposible income that household save.

$$APS = \frac{\text{Saving}}{\text{Income}}.$$

Marginal propensity to consume (MPC): The rate of change of consumption with respect to disposable income.

$$MPC = \frac{\Delta \text{ in Consumption}}{\Delta \text{ in Income}}$$

Marginal propensity to save (MPS): The rate of change of savings with respect to disposable income.

$$MPS = \frac{\Delta \text{ in Saving}}{\Delta \text{ in Income}}$$

For this course, we'll consider $MPC = .75$ and $MPS = .25$, unless otherwise stated.

March 23, 2021

Nonincome Determinants of Consumption and Saving

(a) **Wealth.** Because one has more wealth, the weaker the incentive to save. Thus, the larger the consumption and the larger the savings.
(b) **Real interest rate (related to wealth determinant).** If there is a decrease in interest rates, consumption is going to increase and savings are going to drop. Changes in interest rates can change the real value or the purchasing power of certain types of wealth.
(c) **(Consumer) Expectations.** If you expect price to increase or a shortage to occour in the future or your income increase in the future, your consumption increases and savings drop (now).
(d) **Consumer Indebtedness.** If consumers' debt is high, then households are going to decrease their spending to decrease their indebtedness.
(e) **Taxation.** An increase in taxes is going to decrease both consumption and savings. Taxes are paid partly at the expense of consumption and partly at the expente of savings.

8.4 Investment

8.4.1 Determinants of Investment

(1) **Expected Rate of Return.** Business and individuals invest with respect to their expectations. The more profit they make, the more incentive to invest.
Expected Rate of Return = Profit / Investment Cost.
(2) **Real Interest Rate.** The cost of borrowing the necessary money.
If the expected rate of return is equal to or greater than the real interest rate, then one should invest.

8.4.2 Investment Demand Curve

(*i*) **Introduction.**
(*ii*) **Inverse Relationship.** (see figure 9–5)
As the real interest rate drops, the investment spendings are going up.
(*iii*) What does the curve tell us?
(*iv*) (see figure 9–6)

9 Chapter 28: The Aggregate Expenditures Model

9.1 Expenditures–Output Model

9.1.1 Graphic Analysis

Use 45 degree line The value of what is measured on the horizontal and vertical axis are the equal.

Equilibrium Condition Level $C + I_g =$ Real GDP

Plot old Consumption and DI graph with Investment Add \$20 Billion of Investment to Consumption schedule. (see table 9–4 and figure 9–9).

9.1.2 Leakages–Injections Approach

Define. It is the determination of Equilibrium Real GDP by finding where the leakages equal the injections.

(a) Means Saving (leakage): Consumptions will fall short in relation to GDP.
(b) Means Investment (injections): Supplements consumption with capital and investment goods.

Conlude

- If $I > S$, then $C + I_g > GDP$.
- If $I < S$, then $C + I_g < GDP$.
- If $I = S$, then Equilibrium GDP.

9.1.3 The Multiplier

Changes in I or C and S will result in changes in Equilibrium GDP. * Choose Investment because it is more volatile.

If the expected rate of return increases or real interest rate falls, what happens to investment spending?

Multiplier Effect

- Is the effect upon equilibrium GDP due to a change in aggregate expenditures.
- Measure the Multiplier:

$$\text{Multiplier} = \frac{\Delta \text{ in Real GDP}}{\Delta \text{ initial change in expenditure}}$$

Example

Also the multiplier can be calculated as

$$\text{Multiplier} = \frac{1}{\text{MPS}} = \frac{1}{1 - \text{MPC}}$$

10 Chapter 30: Fiscal Policy, Deficits and Debt

March 26, 2021

10.1 Equilibrium vs. Full Employment GDP

Introduction

Recessionary and Inflationary Gaps

(1) Recessionary Gap: deficiency of spending.
Recessionary gap is the amount that aggregate expenditures fall short of the non inflationary full employment GDP.
INSERT HANDMADE GRAPH

(2) Inflationary Gap: excess of spending.
Inflationary gap is the amount by which aggregate expenditures exceed the full employment non inflationary GDP.
INSERT HANDMADE GRAPH

10.2 Government Spending (G)

How do we adjust for Gaps?

Introduction

- **Fiscal Policy:** government budget policy (G and taxes)
- **Monetary Policy:** FED (Federal Reserve System) (changes in the money supply)

Fiscal Policy Changes in the Public Sector.

If taxes increase by \$20 bilion, then disposable income is going to decrease by \$20 bilion. Using $MPC = .75$ and $MPS = .25$, the consumption decreases by \$15 bilion and savings decreasse by \$5 bilion.

10.3 Discretionary Fiscal Policy

Definition Deliberate changes in T and G by congress for the purpose of achieve the full employment non inflationary GDP.

Equation $Y = C + I + G$, where Y stands for real GDP.

(1) Recessionary Gap: where aggregate expenditures fall short of the full employment, non inflationary Y.
(2) Inflationary Gap: where expenditures exceed the full employment, non inflationary Y.
(3) How much increase or decrease G or T?

$$\Delta Y = k \times \Delta G,$$

where $k =$ multiplier.

10.4 Stabilizing the Economy

In times of a recession: Expansionary Fiscal Policy is used.

Means:

(a) increase government expending and/or;
(b) decrease taxes.

In times of inflation: Contractionary Fiscal Policy is used.

Means:

(a) decrease government expending and/or;
(b) increase taxes.

April 02, 2021

10.5 Non Discretionary Fiscal Policy

Definition Increases and decreases in net taxes which occur without congressional action/intervention. This non discretionary fiscal policy also brings stability to economic system but automatically.

Net Taxes

$$\text{net taxes} = T - \text{transfers and subsidies.}$$

(a) **Net Taxes vary directly with GDP.** (positive correlation)
(b) **Progressive Tax System:** As GDP increases, income goes up, and individuals are pushed into a higher tax bracket. Thus, tax revenue will increase (especially for inelastic products).

Built–in–Stabilizers (counter-cyclical)

- **Definition of a Built-in-Stabilizer:** Anything which tends to offset inflation and/or unemployment.
  In a recession, anything that increases the government deficit or decreases the surplus is a built-in-stabilizer. In times of inflation, anything that decreases the government deficit or increases the surplus in a built-in-stabilizer.
- **Tax Revenues are a stabilizer:** leakage
  - if leakages increase: the overall purchasing power decrease. Thus, it would offset inflation.
  - if leakages decrease: the overall purchasing power increase. Thus, it would offset recession.

(e.g.) Unemployment compensation and welfare are others built-in-stabilizers.

10.6 Budgets

- When $G = T$, we have a balanced budget.
- When $G > T$, we have a deficit. Now, when $G > T$ is OK but $G = T +$ borrowing (to finance government spending).

10.7 Deficits and Debt

Definition of Budged Deficit: It is the amount that G exceeds tax revenues from one year.

Definition of Public Debt: It is the total accumulation of deficits and surpluses that have occurred through time. (Does not include state and local governments.)

10.8 Budget Philosophies

Is a balance budget desirable?

- Prior to 1930's, it was accepted to be.
- After 1930's, it was not desirable, because it was considered pro-cyclical.
  (a) (Pro-cyclical) If it moves with the bussiness cycle, it rules out fiscal activity which is a counter-cyclical stabilizer force. Therefore, it intensifies the business cycle.
  (e.g.) During a recession, GDP decreases; employment decreases; taxes revenues decrease. To balance the budget, the government would decrease government spending/increase the taxes. *But, this is a contractionary policy!* It would make the recession worse.

Balanced Budget Alternatives

- **Cyclicaly Balanced Budget**
  Instead of balancing anually, the idea is to balance the budged during the business cycle. A problem is that the stages of business cycle can differ in magnetude and duration. A problem is that if the recession is long and the recovery was short, the government will have a debt.
- **Functional Finance**
  The idea is to balance the economy, not the budget. The government will provide a full employment non inflationary state regardless of the debt. A problem is that a lot of times this means spending more, and growing budged deficit.

11 Chapter 31: Money, Banking and Financial Institutions

11.1 Functions of Money

What is money?

- **Medium of Exchange:** used to buy and sell goods.
- **Unit of Account:** measures the relative worth of goods and services. It is a common denominator to compare goods and services.
- **Store of Value:** money is the most convenient form of store wealth. It is the more liquid asset.

11.2 The Supply of Money

Money Definition M_1

$$\begin{aligned} M_1 = &\text{ Currency} \\ &+ \text{Transactions Deposits} \\ &+ \text{Travelers Checks} \end{aligned}$$

(1) **Currency.**
- *Token money (coins).* The intrinsic value (the value of the coin itself) is less than its face value.
- *Paper money (federal reserve note).* Issued by federal reserve bank.

(2) **Transactions deposits.** Debitable (debit card) or checkable (checkings account). Offer safety and convenience. It is the most common form of money.

Money Definition M_2

$$\begin{aligned} M_2 = M_1 &+ \text{savings deposits} \\ &+ \text{small (less than \$100,000) time deposit} \\ &+ \text{money market deposit accounts} \\ &+ \text{money market mutual fund balances.} \end{aligned}$$

(1) **Near Monies.** They are highly liquid financial assets, i.e., they are easily converted into currency and transaction deposits.

April 06, 2021

11.3 What "Backs" the Money Supply?

In other words, why are currency and transactions deposits considered money?

Money as a Debt Realize money is a debt.

Value of Money Since money has no intrinsic value and is not backed by gold or another metal, then why is it considered money?

- **Acceptability.**
- **Legal Tender.** *"Acceptability from the law."* Citizens must accept it as a medium of exchange. Paper money is called *fiat money*, which is anything that is money because the money decretes it to be.
- **Relative Scarcity.** Money derives its value from its scarcity relative to its usefulness. Usefulness refers to what the money can buy. Scarcity says that given a constant demand for money, its value or its purchasing power is determined by the supplied money.

Money and Prices

- **Purchasing power of money varies inversely with the price level.** For example, when CPI increases, the purchasing power of a dollar decreases.
- **Historical Examples.** Germany after World War I. Argentina in the 1950s. Peru, Brazil...
- **Inflation can affect the acceptability of money as a medium of exchange.**

11.4 Determinants of Demand for Money

Why public wants to hold M_1 money?

- **Transactions Demand (D_t).** Defined as the amount of M_1 money people want to hold to use for buying goods and services. Nominal GDP is the basic detarminant of D_t (direct relationship).
- **Asset Demand (D_a).** Defined as the amount of M_1 money people want to hold as a store of value. It is the amount of their financial assets that they with to hold in the form of M_1 money. The lower the interest rate, the greater the D_a for M_1 money; and vice versa.

11.5 Structure of the U.S. Financial System

Federal Reserve System: Central Banking It has several levels:

- **Board of Governors.** Seven members appointed by the President. Their duty is to run monetary policies.
- **Next level down under the Board.** The twelve regional/district federal reserve banks. Dispersed throughout the U.S..
- **Federal Open Market Committee.** Consist of the seven members of the Board of Governors plus five of the presidents of federal reserve banks (the NY FED president is always there). Sets policies toward open market operations (buying and selling of government bonds).

Commercial Banks

- **6,700 Commercial Banks in U.S.** See figure 17.2.
- A *bank charter* is an official document permitting a banking company to commence business as a bank.

12 Chapter 32: Money Creation

12.1 Single Commercial Bank

Introduction

- **Balance Sheet.**
  Assets are things that the bank owns; while liabilities are things that the bank owes to others.

Assets =	Liabilities and Equity
Cash	Demand Deposits
Deposits at the FED	Savings Deposits
Short-term securities	Certificate of Deposit (CD)
Loans	Borrowings from the FED
	Capital (Equity)

Formation of a Commercial Bank

Citizens in Wahoo decide need another bank. They sell \$250 thousand dollars on stock, and receive in cash.

(1) Creating a bank: Wahoo Bank

Assets	Liabilities and Equity
Cash (\$250)	Capital Stock (\$250)

(2) Commence Operations. The bank buys property and equipment.

Assets	Liabilities and Equity
Cash (\$10)	Capital Stock (\$250)
Property and Equipment (\$240)	

(3) Accepts Deposits. A business deposits \$100 thousand dollars.

Assets	Liabilities and Equity
Cash (\$110)	Capital Stock (\$250)
Property and Equipment (\$240)	Demand Deposits (\$100)

Business of Wahoo deposits \$100,000.

(4) Depositing Reserves in a Federal Reserve Bank. Required Reserves are the minimum amount which a bank must keep on deposits with a FED or in the form of vault cash.

(a) Amount of Required Reserves = % of total demand deposits.

(b) This percentage is called the Reserve Ratio = $\frac{\text{Commercial Bank's Required Reserves}}{\text{Commercial Bank's Total Demand Deposits}}$.
(Fractional Reserve System of Banking: The required reserves are less than 100% of the total demand deposits.)

Assets	Liabilities and Equity
Cash (\$0)	Capital Stock (\$250)
Reserves (\$110)	Demand Deposits (\$100)
Property (\$240)	

(c) If the Reserve Ratio is 20%, their required reserves is \$20 thousand dollars.
The bank thinks Demand Deposits increase so the bank sends an extra \$90 thousand dollars to FED.
Now, the total reserves are \$110,000.

- **Definition of Excess Reserves:** Amount by which total reserves exceed required reserves.

$$\text{Total Reserves} - \text{Required Reserves} = \text{Excess Reserves}$$

$$\text{Total Reserves} = \text{Vault Cash} + \text{Deposits at the FED}$$

- The purpose of Required Reserves is the means by which the Board of Governors can control the lending ability of banks; therefore avoiding bank failures.

(5) Check is drawn against Wahoo Bank:

(a) A major depositor of Wahoo bank writes a check against his deposits for \$50 thousand dollars for farm machinery.

(b) A major depositor gives check to farm machinery company and is deposited in their bank: Bank X.

(i) How will Bank X collect claim of \$50 thousand dollars?

(ii) Check is sent to district bank where:

(a) clerk increases Bank X's reseves by \$50 thousand dollars and

(b) decreases Wahoo's bank reserves by \$50 thousand dollars.

(iii) Same check then is "cleared" and sent to Wahoo bank:
   (a) Now, Demand Deposits decrease by \$50 thousand dollars and
   (b) Reserves of Wahoo bank decrease by \$50 thousand dollars.

Assets	Liabilities and Equity
Cash (\$0)	Capital Stock (\$250)
Reserves (\$60)	Demand Deposits (\$50)
Property (\$240)	

April 09, 2021

12.2 Banking System as a Whole

Assumptions/Simplifications

(a) Reserve Ratio = 20%
(b) All banks are exactly meeting it: No excess reserves.
(c) Any acquired excess reserves are loaned out.

Multiple Lending Process

A1. A deposit of \$100 is made to bank A.
Required reserves are \$20.
A2. Loans increase by \$80 and Demand Deposits increase \$80.
A3. The borrower draws check for \$80 and Demand deposits decrease by \$80.
B1. The check \$80 is deposited to bank B.
Required reserves are \$16.
B2. Loans increase by \$64 and Demand Deposits increase \$64.
B3. The borrower draws chech for \$64 and Demand deposits decrease by \$64.

This process will continue and the \$80 worth of Excess Reserves (initially) will result in the Banking System lending or creating \$400. So, the Banking system will lend by a multiple of 5. $\$400 = \$80 \cdot 5$.

Monetary Multiplier

$$m = \text{Monetary Multiplier} = \frac{1}{\text{Required Reserved Ratio}} = \frac{1}{R}.$$

To determine the amount of Maximum Demand Deposit money created or lended is determined by

$$D = E \cdot m.$$