Chapter 5

# Part II - The Context of Business

## Chapter 5 - Measuring a Nation's Income

### The Economy's Income and Expenditure

- GDP measures 2 things at once:
  - The total income of everyone in the economy.
  - Total expenditure on the economy's output of goods and services.
- How? *These two things are the same. For an economy as a whole, income must equal expenditure.*
  - Every transaction has 2 parties: a buyer and a seller.
- Circular flow diagram
- Compute GDP in 2 ways:
  - By adding up the total expenditure by households
  - By adding up the total income (wages, rent, and profit) paid by firms.

### The Measurement of Gross Domestic Product

- **Gross Domestic Product (GDP):** The market value of all final goods and services produced within a country in a given period of time.
  - Adds together many different kinds of products into a single measure of the value of economic activity.
  - GDP is comprehensive. Includes all items including housing (rent)
  - GDP includes the value of **final** goods. Value of intermediary would be counted twice otherwise.
  - GDP includes **tangible goods** (food, clothing, cars) and **intangible services** (haircuts, housecleaning, dentist visits).
  - GDP includes goods and services **currently** produced. (GM's new car produced/sold is included, selling a used car is not).
  - GDP includes items produced domestically, regardless of the nationality of the producer.
  - GDP measures the value of production that takes place with a specific time interval. Usually a year or quarter.
- GDP for a quarter "at an annual rate" = GDP per quarter X 4 (used to compare annual figures more easily)
- GDP figures are modified by a statistical procedure called *seasonal adjustment*. (economists go beyond regular seasonal changes).

### The Components of GDP

- Y (GDP) = C (Consumption) + I (Investments) + G (Government Purchases) = NX (Net Exports)
- **Consumption:** Spending by households on goods and services, with the exception of purchases of new housing.
  - Durable goods: automobiles, appliances. Non-Durable goods: clothing, food. Services: haircuts, dental care.
- **Investment:** Spending on capital equipment, inventories, and structures, including household purchases of new housing.
- **Government Purchases:** Spending on goods and services by local, territorial, provincial, and federal governments. (salaries and public works)
  - Pension paid to elderly is a *transfer payment* and not included in GDP.
- **Net Exports:** The value of a nation's exports minus the value of its imports; also called the trade balance.

### Real versus Nominal GDP

- If total spending is rising from one year to the next, one of two things must occur:
  - (1) The economy is producing a larger output of goods and services.
  - (2) Goods and services are being sold at higher prices.
- **Nominal GDP:** The production of goods and services valued at current prices.
- **Real GDP:** The production of goods and services valued at constant prices (through a base year).

### The GDP Deflator

- A measure of the price level calculated as the ratio of nominal GDP to real GDP times 100.

### GDP And Economic Well-being (shortcomings)

- "Measure everything, in short, except that which makes life worthwhile..."
- Helps us to lead to a good life
- Measure our ability to obtain the inputs into a worthwhile life.
- Leisure loss from producing more goods and services.
- Excludes value that takes place outside markets. (Ex. Goods produced at home)
- Excludes quality of environment.
- Leaves out distribution of income. (100 people earning $50,000 versus 10/100 people earning $500,000 amounts to same $50,000 GDP.

# Chapter 6

Sunday, January 31, 2010
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## Chapter 6 - Measuring the Cost of Living

### Consumer Price Index (CPI)

- **Consumer Price Index:** A measure of the overall cost of the goods and services bought by a typical consumer.

### How the Consumer Price Index is Calculated

1. Determine the basket.
2. Find the prices.
3. Compute the basket's cost.
4. Choose a base year and compute the index.
5. Compute the inflation rate.

- **Core inflation:** The measure of the underlying trend of inflation. (excludes most volatile components from CPI)
- Unless you happen to buy exactly the same goods and services that the typical consumer is assumed to buy, changes in the CPI can never perfectly measure changes in your personal cost of living.

### Problems in Measuring the Cost of Living

- Goal of CPI is to measure changes in the cost of living.
- 3 problems:
    - **Substitution bias:** Consumers substitute toward goods that have become relatively less expensive. CPI assumes a fixed basket of goods, which ignores the possibility of consumer substitution, overstating the increase in the cost of living from on year to the next.
    - **Introduction of New Goods:** Consumers have more variety to choose from, each dollar is more valuable (worth more), consumers need fewer dollars to maintain any given standard of living. CPI is based on a fixed number of goods/services, does not reflect increase in value of dollar.
    - **Unmeasured quality change:** If quality of good deteriorates from one year to next, value of a dollar falls. If quality rises from one year to the next, the value of a dollar rises. Trying to compute the price of a basket of goods of constant quality, but quality is hard to measure.

### The GDP Deflator versus the Consumer Price Index

- GDP deflator is the ratio of nominal GDP to real GDP.
- GDP deflator reflects the current level of prices relative to the level of prices in the base year.
- 2 Major differences:
    - GDP deflator reflects prices of all goods and services *produced domestically*. CPI reflects the prices of all goods and services *bought by consumers*.
    - Various prices are weighted to yield a single number for the overall level of prices. CPI compares the price of a *fixed* basket of goods/services to the price of a basket in the base year. GDP deflator compares the price of *currently produced* goods/services to the price of the same goods/services in the base year, changes automatically over time.

### Correcting Economic Variables for the Effects of Inflation

- Goal of CPI is to measure changes in the cost of living.

**Dollar Figures from Different Times**

- The price of gas was no higher in 2003 than it was 46 years earlier! (9.5 cents versus 65.8 cents)
- Between 2003-2005, gas prices increased by an average 17% per year.

### Indexation

- Price indexes are used to correct for the effects of inflation when comparing dollar figures from different times.
- When some dollar amount is automatically corrected for inflation, the amount is said to be **indexed** for inflation.
- **Inflation:** The automatic correction of a dollar amount for the effects of inflation by law or contract.
- Cost-of-living allowance automatically raises the wage when the CPI rises.

### Real and Nominal Interest Rates

- We need to know how to correct for the effects of inflation.
- The higher the inflation rate, the smaller the increase in purchasing power.
- **Nominal interest rate:** The interest rate as usually reported without a correction for the effects of inflation. (change in dollar amounts).
- **Real interest rate:** The interest rate corrected for the effects of inflation.
    - Real interest rate = Nominal interest rate - Inflation rate

# Chapter 7

Friday, February 05, 2010
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## Chapter 7 - Production and Growth

### Economic Growth Around the World

- Living standards vary widely from country to country.
- The growth rate measures how rapidly real GDP per person grew in the typical year.
- World's richest countries have no guarantee that they will stay the richest and the world's poorest will stay the poorest countries forever.

### Productivity: Its Role and Determinants

Why Productivity is so Important

- **Productivity:** The amount of goods and services produced from each hour of a worker's time.
- GDP measures 2 things at once: an economy's income is the economy's output.
- A nation enjoys a high standard of living only if it can produce a large quantity of goods and services.
- Why are some economies so much better at producing goods and services than others?

### How Productivity is Determined

- **Physical Capital:** The stock of equipment and structures that are used to produce goods and services.
    - Capital is a factor of production used to produce all kinds of goods and services, including more capital.
- **Human Capital:** The knowledge of skills that workers acquire through education, training, and experience.
    - Human capital is a produced factor of production. (need teachers, libraries, etc.)
- **Natural Resources:** The inputs into the production of goods and services that are provided by nature, such as land, rivers, and mineral deposits.
    - Two types: renewable (trees) and nonrenewable (oil).
- **Technological Knowledge:** Society's understanding of the best ways to produce goods and services.
    - Common knowledge (everyone knows it, Henry Ford), Proprietary knowledge (coke recipe), Proprietary for a short time period (patent expiring).
- Difference between human capital and technological knowledge is that T.K refers to society's understanding about how the world works while H.C refers to the resources expended transmitting this understanding to the labour force.

### Economic Growth and Public Policy

- What can government policy do to raise productivity and living standards?

The Importance of Saving and Investment

- One way to raise future productivity is to invest more current resources in the production of capital.
- The growth of capital accumulation requires society sacrifice consumption of goods and service in the present in order to enjoy higher consumption in the future.
- Encouraging saving and investment is one way the gov't can encourage growth, and in the long run, raise the economy's stand of living.

### Diminishing Returns and Catch-Up Effect

- **Diminishing Returns:** The property whereby the benefit from an extra unit of input declines as the quantity of the input increases.
    - An increase in the saving rate leads to higher growth for a while.
    - In the long run, the higher saving rate leads to a higher **level** of productivity and income, but not to higher **growth** in these variables.
- **Catch-up effect:** The property whereby countries that start off poor tend to grow more rapidly than countries that start off rich.

### Investment from Abroad

- Foreign direct investment: a capital investment that is owned and operated by a foreign entity.
- Foreign portfolio investment: an investment that is financed with foreign money but operated by domestic residents.

### Education

- Investment in human capital - as important as investment in physical capital for a country's long-run economic success.
- Investment in human capital has an opportunity cost (wages foregone while in school).
- Positive externality: effect of one person's actions on the well-being of a bystander.
- Brain drain: the emigration of many of the most highly educated workers to rich countries, where these workers can enjoy a higher standard of living.

### Health and Nutrition

- Healthier workers are more productive.

- Making the right investments in health of population is one way to increase productivity and raise living standards.

## Property Rights and Political Stability

- Policymakers can foster economic growth by protecting property rights and promoting political stability.
- In order for the price system to work is economy-wide respect for property rights.
- **Property rights:** the ability of people to exercise authority over the resources they own.
- One threat to property rights is political instability.
- Economic prosperity depends in part on political prosperity.

## Free Trade

- Inward-oriented policies: aimed at raising productivity and living standards within the country by avoiding interaction with the rest of the world.
- Outward-oriented policies: Integrate these countries into the world economy. Trade.

## Research and Development

- Living standards are higher today than before because technological knowledge has advanced.
- Knowledge is a public good. Once one person discovers an idea, the idea enters society's pool of knowledge, and other people can freely use it.
- The patent system enhances the incentive for individuals and firms to engage in research.

## Population Growth

- Most direct effect is on the size of the labor force: more people to produce but also use the goods/services.

**Stretching Natural Resources**

- Malthus proposed an increasing population would continually strain society's ability to provide for itself.
- Gov't charities/assistance allowed poor to have more children, placing greater strains on society's productive capabilities.
- Malthus was wrong. Famines do occur from time to time as a result of unequal income distribution or political instability than an inadequate production of food.
    - Why was he wrong? Growth in mankind's has offset the effects of a larger population.

**Diluting the Capital Stock**

- A smaller quantity of capital per worker leads to lower productivity and lower GDP per worker.
- Most apparent in case of human capital: high populated countries place a burden on educational system.
- Rapid population growth makes it harder to provide workers with the tools they need to achieve higher levels of productivity.
- Low population growth will not be able to support a growing share of population that is retired, collecting pension funds and expecting to be cared for in publicly funded hospitals.

**Promoting Technological Progress**

- If there are more people, then there are more scientists, inventors and engineers to contribute to technological advance, which benefits everyone.
- World growth rates have increased as world population growth has. (1 billion people vs. 100 million)
- Regions with more people had more technological progress.
- A large population is a prerequisite for technological advance.

**1 of the 10 principles:**
**A country's standard of living depends on its ability to produce goods and services.**

# Chapter 8

Friday, February 19, 2010
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## Chapter 8 - Saving, Investment, and the Financial System

- **Financial system:** the group of institutions in the economy that help to match one person's saving with another person's investment.

### Financial Institutions in the Canadian Economy

- Financial institutions have the same goal - directing the resources of savers into the hands of borrowers.
- **Financial Markets**
  - Financial institutions through which savers can directly provide funds to borrowers.
    - **Bond Markets**
      - **Bond:** a certificate of indebtedness. (An IOU)
      - **Bond's term:** the time that it takes to mature.
      - Long term bonds pay higher interests than short-term bonds.
      - **Credit risk:** borrower fails to pay back interest or principal.
    - **The Stock Market**
      - **Stock:** A claim to partial ownership in a firm.
      - TSX, NYSE, NASDAQ.
- **Financial Intermediaries**
  - Financial institutions through which savers can indirectly provide funds to borrowers.
    - **Banks**
      - Take in deposits from people who want to save and use these deposits to make loans to people who want to borrow.
      - Facilitate purchases of goods and services by allowing people to write cheques against their deposits. (medium of exchange)
    - **Mutual Funds**
      - An institution that sells shares to the public and uses the proceeds to buy a portfolio of stocks/bonds.
      - Allows owners to diversify.
      - Gives ordinary people access to skills of professional money managers.

### Saving and Investment in the National Income Accounts

- Y = C + I + G + NX
- GDP = Consumption + Investment + Gov't Purchases + Net Exports (Exports - Imports)
- Y - C - G = I = S (NX=0)
- S = I. **(S) National Saving (saving):** The total income in the economy that remains after paying for consumption and gov't purchases.
- S = Y - C - G or S = (Y - T - C) + (T - G)  T=taxes
- **Private saving (Y-T-C):** The income that households have left after paying for taxes and consumption.
- **Public saving (T-G):** The tax revenue that the government has left after paying for its spending.
- **Budget surplus:** An excess of tax revenue over gov't spending. (T > C)
- **Budget deficit:** A shortfall of tax revenue from gov't spending. (T < C)
- **The meaning of saving and investment**
  - **Saving:** Put money aside (i.e. deposit unspent money in a bank or use it to buy a bond or some stock from a corporation.)
  - **Investment:** Purchase of new capital, such as equipment or buildings.

### The Market for Loanable Funds

- The market in which those who want to save supply funds and those who want to borrow to invest demand funds.
- **Supply and Demand for Loanable Funds**
  - Saving is a source of supply for loanable funds.
  - Investment is the source of demand for loanable funds.
  - Interest rate is the price of the loanable fund.
  - Supply curve slopes upwards while demand curve slopes downward.
  - Adjustment of interest rate to reach equilibrium occurs for the usual reasons.
- **Policy I: Saving Incentives**
  - An Increase in the Supply of Loanable Funds
  1. Tax incentives for saving increase the supply of loanable funds…
  2. …Which reduces the equilibrium interest rate…
  3. …and **raises** the equilibrium quantity of loanable funds.
  - If a reform of the tax laws encouraged greater saving, the result would be lower interest rates and greater investment. (p.175)
- **Policy II: Investment Incentives**
  - An Increase in the Demand for Loanable Funds
  1. An investment tax credit increases the demand for loanable funds…
  2. …Which raises the equilibrium interest rate…
  3. …and **raises** the equilibrium quantity of loanable funds.
  - If a reform of the tax laws encouraged greater investment, the result would be higher interest rates and greater saving. (p.177)
- **Policy III: Government Budget Deficits and Surpluses**
  - The Effect of a Government Budget Deficit
  1. A budget deficit decreases the supply of loanable funds…
  2. …Which raises the equilibrium interest rate…
  3. …and **reduces** the equilibrium quantity of loanable funds.
  - When the gov't reduces national saving by running a budget deficit, the interest rate rises, and investment falls. (p.178)
  - **Crowding out:** A decrease in investment that results from government borrowing.
  - **Vicious Circle:** Cycle that results when deficits reduce the supply of loanable funds, increase interest rates, discourage

investment, and result in slower economic growth; slower growth leads to lower tax revenue and higher spending on income-support programs, and the result can be even higher budget deficits.

- **Virtuous Circle:** Cycle that results when surpluses increase the supply of loanable funds, reduce interest rates, stimulate investment, and result in faster economic growth; faster growth leads to higher tax revenue and lower spending on income-support programs, and the result can be even higher budget surpluses.

# Chapter 9

Friday, February 26, 2010
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## Chapter 9 - Unemployment and its Natural Rate

### Identifying Unemployment

- **How Is Unemployment Measured?**
  - Statistics Canada measures unemployment and produces data on aspects of the labour market.
  - Data from 50,000 households: labour force survey.
    - Places each adult (15 or older) into 3 categories:
      - Employed: Spent some of previous week working at paid job.
      - Unemployed: Temporary layoff or is looking for a job.
      - Not in the labour force: does not fit into any of these categories (full-time student, homemaker, retiree).
  - **Labour force: The total number of workers, including both employed and the unemployed.**
  - **Unemployment rate: The percentage of the labour force that is unemployed. (Unemp. Rate = Number of unemployed/Labour force X 100).**
  - **Labour force participation rate: The percentage of the adult population that is in the labour force. (Labour force/Adult population X 100).**
  - Both rates computed for the entire adult population and for more specific groups (young, old, men, women).
  - Labour force data also allow economists and policymakers to monitor changes in the economy over time.
  - Figure 9.2 shows unemployement rate and the amount by which it changes from year to year vary widely for different regions of the country.
- **Does the Unemployment Rate Measure What We Want It To?**
  - Easy to distinguish between a person with full-time job and not working at all, but hard to distinguish between a person who is unemployed and a person who is not in the labour force.
  - Movements into and out of labour force are common. Unemployment doesn't end always end by seeking a job, maybe leave labour f orce.
  - On the one hand, some of those who report being unemployed may not be trying hard to find a job (temp. layoff).
  - On the other hand, some who report being out of labour force may want to work.
    - **Discouraged searchers: Individuals who would like to work but have given up looking for a job.**
  - It is best to view the official unemployment rate as a useful but imperfect measure of joblessness.
- **How Long Are the Unemployed without Work?**
  - Averages hide the fact that the average spell of unemployment varied widely across the country.
  - Averages also hide the fact there may be a wide dispersion of unemployment experiences across individuals.
  - Most unemployed for short period of time.
  - Economists and policymakers must be careful when interpreting data on unemployment and when designing policies to help the un employed.
  - Policy solutions directed to fixing the unemployment problem should be directed toward those suffering prolonged spells of un employment.
- **Why Are There Always Some People Unemployed?**
  - Why economies experience unemployment: in ideal labour market, wages would adjust to balance quantity of labour supplied and quantity of labour demanded. Adjustment of wages would ensure all workers are always fully employed.
  - **Natural rate of unemployment: The rate of unemployment to which the economy tends to return in the long run.**
  - Observed unemployment rate fluctuates around the natural rate.
  - The observed unemployment rate differs from the natural rate due to the existence of cyclical unemployment.
  - **Cyclical Unemployment: The deviation of unemployment from its natural rate.** (arises due to short term economic fluctuations)
  - 4 Explanations of unemployment in the long run:
    - It takes time for workers to search for the jobs that are best suited for them. (explain relatively short spells of unemploym ent)
    - **Frictional Unemployment: Unemployment that results because it takes time for workers to search for the jobs that best suit their tastes and skills.**
    - Next 3 explanations for unemployment suggest that number of jobs available in some labour markets may be insufficient to give a job to everyone who wants one. (Explain longer spells of unemployment)
      - **Structural Unemployment: Unemployment that results because the number of jobs available in some labour markets is insufficient to provide a job to everyone who wants one.**
      - Results when wages are set above the level (due to min. wage laws, unions, efficiency wages) that brings supply and demand into equilibrium.

### Job Search

- **Job Search: The process by which workers find appropriate jobs given their tastes and skills.**
- **Why Some Frictional Unemployment Is Inevitable**
  - Changes in demand for labour among different firms.
  - Different regions of the country produce different goods, employment can rise in one region and fall in another. (high oil prices --> bad for Oil-filthy Alberta, good for Manufacturing Ontario). SECTORAL SHIFTS. (time to search for jobs in new sectors)
  - Because the economy is always changing.
  - Each year there is a very large transition of workers from contracting firms to expanding firms.
- **Public Policy and Job Search**
  - Precise amount of frictional unemployment is unknown.
  - Faster information about job opening spreads / worker availability, the more rapidly economy can match workers and firms. (Internet)
    - Will reduce economy's natural rate of unemployment.
  - Government programs try to facilitate job search in various ways.
  - Advocates (gov't program make economy operate more efficiently) and Critics (gov't should not interfere) views
- **Employment Insurance**
  - **Employment Insurance (EI): A government program that partially protects workers' incomes when they become unemployed.**
  - Expense ($15 billion in 2006) and controversial (may increase frictional unemployment)
  - Does reduce the income uncertainty faced by unemployed people.

### Minimum-Wage Laws

- Structural unemployment results when number of jobs is insufficient for number of workers.
- Not a predominant reason for unemployment in our economy.
- Binding most often for least skilled and least experienced members of the labour force, such as teenagers. It is only among these workers that minimum-wage laws explain the existence of unemployment.
- If the wage is kept above the equilibrium level for any reason, the result is unemployment.
- Figure 9.5

### Unions and Collective Bargaining

- **Union: A worker association that bargains with employers over wages and working conditions.**
- Level of labour-force unionization has fallen slowly since 1989.
- Union membership higher now, but opposite case for USA.
- Unionization is highest in industries in the public sector (education, public administration, and health care) and lowest in the food and accommodation

industry.

- **The Economics of Unions**
  - **Collective bargaining: The process by which unions and firms agree on the terms of employment.**
  - **Strike: The organized withdrawal of labour from a firm by a union.**
  - Union workers typically earn about 10 - 20% more than similar workers who do not belong to unions.
  - Conflict between insiders who benefit from high union wages and the outsiders who do not get the union jobs.
  - Outsiders can respond in one of two ways: Remain unemployed for the chance to become insiders and earn high union wage OR take jobs in firms not unionized.
  - Explicit agreements among members of a cartel are illegal.
- **Are Unions Good or Bad for the Economy?**
  - **Critics**
    - Merely a type of cartel.
    - When unions raise wages, they reduce the quantity of labour demanded, cause some workers to be unemployed and reduce wages for rest of economy.
    - Inefficient (high union wages reduce employment below efficient level) and inequitable (some workers benefit at the expense of other workers).
  - **Advocates**
    - Necessary antidote to market power of the firms that hire workers.
    - Company Town: one firm does most hiring and can control wages it offers. (employees must move or stop working).
    - A union may balance the firm's market power and protect the workers from being at the mercy of the firm owners.
    - Important for helping firms respond efficiently to workers' concerns.
    - Unions allow firms to provide the right mix of job attributes.
    - Benefit of helping firms keep a happy and productive work force.
  - No consensus among economists about whether unions are good or bad for the economy. (may be adverse/beneficial in different situations).

The Theory of Efficiency Wages

- **Efficiency Wages: Above-equilibrium wages paid by firms in order to increase worker productivity.**
- Firms operate more efficiently if wage are above equilibrium level.
- In all 3 cases (minimum wages, unions, efficiency wages), unemployment is result of wages above the level that balances the quantity of labour supplied and the quantity of labour demanded.
- Difference: Minimum-wage laws and unions prevent firms from lowering wages in presence of a surplus of workers while opposite is true for efficiency.
- 4 different efficiency-wage theories (explanations) for why firms may want to pay high wages.
  - **Worker Health**
    - Better paid workers eat a more nutritious diet, meaning workers are healthier and more productive.
    - Firm may find it more profitable to pay high wages for productive workers than to pay lower wages and have less healthy, less prod. workers.
    - Not relevant in rich countries like Canada, but for less developed countries (Africa).
  - **Worker Turnover**
    - The more a firm pays its workers, the less often its workers will choose to leave.
    - Can reduce turnover among workers by paying them a high wage.
    - It is costly for firms to hire and train new workers.
  - **Worker Effort**
    - High wages make workers more eager to keep their jobs and thereby give workers an incentive to put forward their best effort.
    - Firms raise wages above equilibrium level, causing unemployment and providing an incentive for workers not to shirk their responsibilities.
  - **Worker Quality**
    - When a firm pays a high wage, it attracts a better pool of workers to apply for its jobs and thereby increases the quality of its work force.
    - If firm reduces wage in response to surplus, the most competent applicants may chose not to apply.

# Chapter 10

Saturday, March 06, 2010
3:49 PM

## Chapter 10 - The Monetary System

### The Meaning of Money

- **Money:** The set of assets in an economy that people regularly use to buy goods and services from other people.

#### The Functions of Money

1. **Medium of Exchange**
   - An item that buyers give to sellers when they want to purchase goods and services.
   - Transfer of money allows transaction to occur. Money is the commonly accepted medium of exchange.
2. **Unit of Account**
   - The yardstick people use to post prices and record debts.
   - When we want to measure and record economic value, we use money as the unit of account.
3. **Store of Value**
   - An item that people can use to transfer purchasing power from the present to the future.
   - When a seller accepts money today, that seller can hold the money and become a buyer of another good/service another time.
   - Money is not the only store of value in economy, as other assets can be held.
   - *Wealth:* Refers to the total of all stores of value, including both money and nonmonetary assets.

- **Liquidity**
  - The ease with which an asset can be converted into the economy's medium of exchange. (Money is most liquid asset)
  - When people decide in what form to hold their wealth, they have to balance the liquidity of each possible asset against the asset's usefulness as a store of value.
  - Money does not have a high store of value. (When prices rise, value of money falls)

#### The Kinds of Money

- **Commodity money:** money that takes the form of a commodity with intrinsic value.
  - *Intrinsic value:* Item would have value even if it were not used as money. (Ex. Gold)
- **Fiat money:** money without intrinsic money that is used as money because of government decree.

#### Money in the Canadian Economy

- **Money stock:** quantity of money circulating in the economy.
- **Currency:** the paper bills and coins in the hands of the public.
- **Demand deposits:** balances in bank accounts that depositors can access on demand by writing a cheque or using a debit card.
- Money stock for Canadian economy includes not just currency but also deposit in banks and other financial institutions that can be readily accessed to buy goods and services.
- Most widely followed measures of money stock are M1 (Demand deposits + Currency) and M2 (M1 + Savings Accounts + Term Deposits)

### The Bank of Canada

- **Bank of Canada:** The central bank of Canada
- **Central Bank:** An institution designed to regulate the quantity of money in the economy.
- 4 Jobs:
  1. Issue Currency
  2. Act as a banker to commercial banks
  3. Act as banker to Canadian government.
  4. Control the quantity of money that is made available to the economy, called the money supply.
- **Money Supply:** the quantity of money available in the economy.
- **Monetary policy:** the setting of the money supply by policymakers in the central bank.

#### Monetary Policy

- Bank of Canada has power increase/decrease the number of dollars in the economy.
- Helicopter-vacuum metaphor.

### Commercial banks and the Money Supply

#### The Simple Case of 100-Percent-Reserve Banking

- **Reserves:** Deposits that banks have received but have not loaned out.
- If banks hold all deposits in reserve, banks do not influence the supply of money.

#### Money Creation with Fractional-Reserve Banking

- **Fractional-reserve banking:** a banking system in which banks hold only a fraction of deposits as reserves.
- **Reserve Ratio:** the fraction of deposits that banks hold as reserves.
- When banks hold only a fraction of deposits in reserve, banks create money.

#### The Money Multiplier

- **Money Multiplier:** The amount of money the banking system generates with each dollar of reserves.
- The money multiplier is the reciprocal of the reserve ratio.
- The higher the reserve ratio, the les of each deposit the banks loan out, and the smaller the money multiplier.
- If R is the reserve ratio, each dollar generates 1/R dollars of money.

#### The Bank of Canada's Tools of Monetary Control

- **Open-Market Operations**
  - Central banks can increase (decrease) the supply of money in circulation by buying (selling) something.
  - **Open-Market Operations: The purchase or sale of government bonds by the Bank of Canada.**
  - To increase the money supply, the Bank of Canada can buy government bonds or T-bills. (gov't gets money)
  - To decrease the money supply, the Bank of Canada can sell government bonds or T-bills to the public. (take money away from public)
  - **Foreign Exchange Market Operations:** The purchase or sale of foreign money by the Bank of Canada.
    - If BoC buys U.S. dollars, the Canadian money supply increases. (deposits)
    - If Boc sells U.S. dollars, the Canadian money supply decreases. (withdrawn)

    - **Sterilization:** The process of offsetting foreign exchange market operations with open-market operations, so that the effect on the money supply is cancelled out.
- **Changing Reserve Requirements**
    - **Reserve requirements:** regulations on the minimum amount of reserves that banks must hold against deposits.
    - Influence how much money the banking system can create with each dollar of reserves.
    - An **increase in reserve requirements** means that banks must **hold more reserves** and, therefore, can **loan out less of each dollar** that is deposited; as a result, it **raises the reserve ratio**, **lowers the money multiplier**, and **decreases the money supply**.
    - A **decrease in reserve requirements lowers the reserve ratio**, **raises the money multiplier** and **increases the money supply**.
    - The Bank of Canada does not currently use changes in reserve requirements to change the money supply. (must pay penalty and borrow from BoC if money runs out).
    - With 0 required reserves, Canadian banks choose a very low reserve ratio (currently about 2%), so the Canadian money multiplier is very large.
- **Changing the Overnight rate**
    - **Bank rate:** The interest rate by the Bank of Canada on loans to commercial banks.
    - Operating band sets the pattern for all short-term interest rates in Canada.
    - **Overnight rate:** the interest rate on very short-term loans between commercial banks.
        - Stays very close to the middle of the operating band, so overnight rate will always be about one-quarter of a percent below the bank rate.
    - A **higher overnight rate discourages banks from borrowing reserves from the Bank of Canada.** Thus, an **increase** in the **overnight rate reduces the quantity of reserves in the banking system,** which in turn **reduces the money supply.**
    - A **lower overnight rate encourages banks to borrow from the Bank of Canada, increases the quantity of reserves, and increases the money supply.**
- Bank of Canada currently uses open-market operations for long-run control of the money supply and changes in the overnight rate for short-term control of the money supply.
- Lowers overnight rate when it wants the money supply to expand and raises the overnight rate when it wants the money supply to contract.
- Bank of Canada closely watches overnight rate as it sets all other interest rates in Canada.
- 8 dates are chosen on which the BoC announces that it will increase, decrease, or leave the overnight rate unchanged. However, it can be changed at anytime if desired.

Problems in Controlling the Money Supply

- 2 problems exist because much of the money supply is created by our system of fractional-reserve banking.
- Bank of Canada doe not control the amount of money that households choose to hold as deposits in banks.
    - The more money that households deposit, the more reserves banks have, and the more money that he banking system can create.
    - The less money that households deposit, the les reserves banks have, and the less money the banking system can create.
- Bank of Canada does not control the amount that commercial bankers choose to lend.
    - Once money is deposited in a bank, it create more money only when the bank loans it out.
    - Banks can simply choose to hold money as extra reserves.
- In a fractional-reserve banking, the amount of money in the economy depends in part on the behaviour of depositors and bankers.
- Bank of Canada cannot perfectly control the supply of money.
- It can raise the overnight rate to slow down the money supply if its growing too fast.
- It can lower the overnight rate to increase the money supply if its growing too slowly or falling.

# Chapter 11

Thursday, March 11, 2010
6:57 PM

## Chapter 11 - Money Growth and Inflation

### The Classical Theory of Inflation

- Quantity theory of money
- Most economists use it today to explain **long-run determinants** of the **price level** and the **inflation rate**.

### The Level of Prices and the Value of Money

- Inflation is more about the **value of money** than about the **value of goods**.
- Economy's overall price level can be viewed in 2 ways:
  - Price of a basket of goods and services. (when price level rises, people pay more for the goods/services they buy).
  - Value of money (A rise in the price level means a lower value of money because each dollar now buys a smaller quantity of goods/services).
    - The quantity of goods and services that can be bought with $1 equals 1/P.
    - If P is the price of goods and services measured in terms of money, 1/P is the value of money measured in terms of goods and services.
    - Thus, when the overall price level rises, the value of money falls.

### Money Supply, Money Demand, and Monetary Equilibrium

- What determines the value of money? The answer is the supply and demand for money determines the value of money.
- Supply of Money determinant:
  - Quantity of Money as a policy variable that the Bank of Canada controls.
- Demand of Money determinant (many):
  - Average level of prices in the economy. A higher price level (a lower value of money) increases the quantity of money demanded.
- What ensures that the quantity of money the Bank of Canada supplies balances the quantity of money people demand?
  - Depends on time horizon being considered.
  - In the long run, the overall level of prices adjusts to the level at which the demand for money equals the supply.
  - If price level is **above** equilibrium level, people will want to hold **more** money than BoC has created, so the price level must **fall** to balance supply and demand.
  - If price level is **below** equilibrium level, people will want to hold **less** money than BoC has created, so the price level must **rise** to balance supply and demand.
  - At the **equilibrium** level, the quantity of money that people want to hold exactly **balances** the quantity of money supplied by the Bank of Canada.
- Figure 11.1: **How the Supply and Demand for Money Determine the Equilibrium Price Level (P.243)**

### The Effects of a Monetary Injection

- Figure 11.2: An Increase in the Money Supply
  - An increase in the money supply…
  - …decreases the value of money…
  - …and increases the price level.
- **Quantity theory of money:** a theory asserting that the quantity of money available determines the price level and that the growth rate in the quantity of money available determines the inflation rate.

### A Brief Look at the Adjustment Process

- Immediate effect of a monetary injection is to create an excess supply of money. (Quantity of money now exceeds the quantity demanded)
- People try to get rid of the excess money in various ways (buy goods/services, make loans to others by buying bonds, or deposit into a bank savings acct).
  - In either case, the injection of money increases the demand for goods and services.
- Economy's ability to supply goods and services has not changed. (output determined by available labour, physical capital, human capital, natural resources, and technological knowledge) NONE IS ALTERED BY INJECTION.
- Thus, greater demand causes the prices for goods/services to increase.
- Increase in price level --> increases the quantity of money demanded as people are using more dollars for every transaction.
- Eventually, the economy reaches a new equilibrium at which the quantity of money demanded again equals the quantity of money supplied.
- In this way, overall price level for goods/services adjusts to bring money supply and money demand into balance.

### The Classical Dichotomy and Monetary Neutrality

- **Classical dichotomy:**
  - The theoretical separation of nominal and real variables.
  - **Nominal variables:** variables measured in monetary units.
  - **Real variables:** variables measured in physical units.
- Dollar prices are nominal variables, whereas relative prices are real variables.
- Changes in money supply, according to Hume, affect nominal variables but not real variables.
- **Monetary Neutrality:** The proposition that changes in the money supply do not affect real variables.

### Velocity and the Quantity Equation

- **Velocity of money:** the rate at which money changes hands.
- If P is the price level (the GDP deflator), Y is the quantity of output (real GDP), and M is the quantity of money, the velocity is:
  - V = (P X Y) / M
- **Quantity Equation:** the equation M X V = P X Y relates the quantity of money, the velocity of money, and the dollar value of the economy's output of goods and services.
  - M (Quantity of Money)
  - V (Velocity of Money)
  - P (Price of Output) ——→ Dollar value of the economy's output of goods/services.
  - Y (Amount of Output)
  - An increase in the quantity of money (M) in an economy must be reflected in the other 3 variables: price level (P) must rise, the quantity of output (Y) must rise, or the velocity (V) of money must fall.
- Elements necessary to explain the equilibrium price level and inflation rate:
  1. The velocity of money is relatively stable over time.
  2. Because money is stable, when the central bank changes the quantity of money (M), it causes proportionate changes in the nominal value of output (P X Y).
  3. The economy's output of goods and services (Y) is primarily determined by factor supplies (labour, physical capital, human capital, and natural resources) and the available production technology. In particular, because money is neutral, money does not affect output.
  4. With output (Y) determined by factor supplies and technology, when the central bank alter the money supply (M) and induces proportional changes in the nominal value of output (P X Y), these changes are reflected in changes in the price level (P).
  5. Therefore, when the central bank increases the money supply rapidly, the result is a high rate of inflation.
- These five steps are the essence of the quantity theory of money.

### The Inflation Tax

- Why do central banks of countries that experience hyperinflation choose to print so much money that its value is certain to fall rapidly over time?
  - The governments of these countries are using money creation as a way to pay their spending.
- **Inflation tax:** the revenue the government raises by creating money.
  - When gov't prints too much money, the price level rises, and the dollars in your pocket become less valuable.
  - Inflation tax is like a tax on everyone who holds money.
  - The inflation ends when the government institutes fiscal reforms - such as cuts in gov't spending - that eliminate the need for the inflation tax.

### The Fisher Effect

- Effect of money on interest rates.
- Interest rates are important as they provide a link of the present economy and future economy through their effects on saving/investment.
- Real interest rate = Nominal interest rate - Inflation rate
- When the Bank of Canada increases the rate of money growth, the result is both a higher inflation rate and a higher nominal interest rate.
- **Fisher effect:** the one-for-one adjustment of the nominal interest rate to the inflation rate. (LONG RUN, does not apply in the short run)
- Nominal interest rate adjusts to the expected inflation. Expected inflation moves with actual inflation in the long run but not necessarily in the short run.

## The Costs of Inflation

### A Fall in Purchasing Power? The Inflation Fallacy

- It might seem that inflation directly lowers living standards.
- When prices rise, buyers of goods and services pay more for what they buy. Sellers get more for what they sell. Inflation in incomes goes hand in hand with inflation in prices. Inflation does not in itself reduce people's real purchasing power.
- **Shoeleather Costs**
  - The resources wasted when inflation encourages people to reduce their money holdings. (time and convenience sacrificed)
- **Menu Costs**
  - The costs of changing prices. (cost of printing catalogues, advertising, etc.)
- **Relative-Price Variability and the Misallocation of Resources**
  - Because prices change only once a while, inflation causes relative prices to vary more than they otherwise would.
  - Market economies rely on relative prices to allocate scarce resources.
- **Inflation-Induced Tax Distortions**
  - Almost all taxes distort incentives, cause people to distort their behaviour and lead to a less efficient allocation of the economy's resouces.
  - Inflation tends to raise the tax burden on income earned from savings.
  - Inflation exaggerates the size of capital gains and inadvertently increases the tax burden on this type of income.
  - Tax treatment of interest income: after-tax real interest rate provides the incentive to save, saving is much less attractive in the economy with inflation than in the economy with stable prices.
- One solution is to index the tax system. Tax laws could be rewritten to take account of the effects of inflation. (Tax treatment of capital gains and interest income are not indexed)
- **Confusion and Inconvenience**
  - Difficult to judge the costs of the confusion and inconvenience that arise from inflation.
  - To some extent, inflation makes investors less able to sort out successful from unsuccessful firms.
- **A Special Cost of Unexpected Inflation: Arbitrary Redistributions of Wealth**
  - Redistributions occur because many loans in the economy are specified in terms of the unit of account - money.
  - Unexpected changes in prices redistribute wealth among debtors and creditors.
  - A **hyperinflation** enriches Sam at the expense of Big bank because it diminishes the real value of the debt; Sam can repay the loan in less valuable dollars than he anticipated.
  - A **deflation** enriches Big bank at the expense of Sam because it increases the real value of the debt; Sam has to repay the loan in more valuable dollars than he anticipated.
  - The cot of unexpected inflation is important to consider with the fact: Inflation is especially volatile and uncertain when the average rate of inflation is high.
    - If a country pursues a high-inflation monetary policy, it will have to bear not only the costs of high expected inflation but also the arbitrary redistribution of wealth associated with unexpected inflation.

# Chapter 12

Saturday, March 20, 2010
12:42 AM

## Chapter 12 - Open-Economy Macroeconomics: Basic Concepts

**Closed economy:** An economy that does not interact with other economies in the world.
**Open economy:** An economy that interacts freely with other economies around the world.

### The International Flows of Goods and Capital

- 2 ways open economy interacts with rest of world: in world markets for goods and services AND World Financial Markets.

#### The Flow of Goods: Exports, Imports, and Net Exports

- **Exports:** Goods and services that are produced domestically and sold abroad.
- **Imports:** Goods and service that are produced abroad and sold domestically.
- **Net Exports:** The value of a nation's exports minus the value of its imports; also called the trade balance.
- **Trade Balance:** The value of a nation's exports minus the value of its imports; also called net exports.
- **Trade Surplus:** An excess of exports over imports.
- **Trade Deficit:** An excess of imports over exports.
- **Balanced Trade:** A situation in which exports equal imports.
- 6 factors influencing a country's exports imports, and net exports. (p.268)

#### The Flow of Financial Resources: Net Capital Outflow

- **Net capital outflow:** The purchase of foreign assets by domestic residents minus the purchase of domestic assets by foreigners.
  - 4 factors that influence net capital outflow (p.271)

#### The Equality of Net Exports and Net Capital Outflow

- Net capital outflow (NCO) = Net exports (NX)
- When NX>0, NCO>0
- When NX<0, NCO<0
- Current Account Balance = Net exports + Net inflow of dividends and interest payments

#### Saving, Investment, and Their Relationship to the International Flows

- Y = C + I + G + NX
- Y - C - G = I + NX, but NX = NCO
- Y - C - G = I + NCO
- Savings = Y - C - G (National savings)
- S = I + NX = I + NCO

International Flows of Goods and Capital: Summary

| Trade Deficit | Balanced Trade | Trade Surplus |
|---|---|---|
| Exports < Imports | Exports = Imports | Exports > Imports |
| Net Exports < 0 | Net Exports = 0 | Net Exports > 0 |
| Y < C + I + G | Y = C + I + G | Y > C + I + G |
| Saving < Investment | Saving = Investment | Saving > Investment |
| NCO < 0 | NCO = 0 | NCO > 0 |

### The Prices for International Transactions: Real And Nominal Exchange Rates

#### Nominal Exchange Rates

- **Nominal exchange rate:** The rate at which a person can trade the currency of one country for the currency of another.
- **Appreciation:** An increase in value of a currency as measured by the amount of foreign currency it can buy.
- **Depreciation:** A decrease in the value of a currency as measured by the amount of foreign currency it can buy.

#### Real Exchange Rates

- **Real exchange rate:** The rate at which a person can trade the goods and services of one country for the goods and services of another.
- Real exchange rate = (Nominal exchange rate X Domestic price) / (Foreign Price)
  - The real exchange rate depends on the nominal exchange rate and on the prices of goods in the two countries measured in the local currencies.
- Real exchange rate = (e X P) / (P*) - Canadian basket (P), price index for a foreign basket (P*), nominal exchange rate between the Canadian dollar and foreign currencies (e).
  - This real exchange rate measures the price of a basket of goods and services available domestically relative to a basket of goods and services available abroad.
- A country's real exchange rate is a key determinant of its net exports of goods and services.
  - A depreciation (fall) in Canada's real exchange rate means that Canadian goods have become cheaper relative to foreign goods. This encourages domestic residents and foreigners to buy Canadian products, resulting in Canada's exports to rise and imports to fall, thus increasing Net Exports.
  - An appreciation (rise) in Canada's real exchange rate means that Canadian goods have become more expensive compared to foreign goods, so Canada's NX fall.

### A First Theory Of Exchange-Rate Determination: Purchasing-Power Parity

- **Purchasing-power parity:** A theory of exchange rates whereby a unit of any given currency should be able to buy the same quantity of goods in all countries.

#### The Basic Logic of Purchasing-Power Parity

- Based on principle of the *law of one price*. This law asserts that a good must sell for the same price in all locations.
- The process of taking advantage of differences in prices in different markets is called *arbitrage*. (supply and demand would equilibrate the two markets to the same price)
- *Purchasing-power parity* states that a unit of all currencies must have the same real value in every country.

#### Implications of Purchasing-Power Parity

- (P) Price of a basket of goods in Canada (measured in dollars)
- (P*) Price of a basket of goods in Japan (measured in yen)

- (e) The nominal exchange rate (the number of yen a dollar can buy).
- For purchasing power to be the same: 1/P = e/P*
- With rearrangement, 1 = (eP) / (P*)
    - LHS is constant and RHS is the real exchange rate. Thus, *if the purchasing power of the dollar is always the same at home and abroad, then the real exchange rate - the relative price of domestic and foreign goods - cannot change.*
- With rearrangement, e = P* / P
    - That is, the nominal exchange rate equals the ratio of the foreign price level (measured in units of foreign currency) to the domestic price level (measured in units of domestic currency).
    - *According to the theory of PPP, the nominal exchange rate between the currencies of two countries must reflect the different price levels in those countries.*
- Key implication is that nominal exchange rates change when price levels change.
    - *When the central bank prints large quantities of money, that money loses value both in terms of the goods and services it can buy and in terms of the amount of other currencies it can buy.*

Limitations of Purchasing-Power Parity

- PPP is not completely accurate. Exchange rates do not always move to ensure that a dollar has the same real value in all countries all the time.
    1. First reason is that many goods are not easily traded. (haircuts)
    2. Second reason is that even tradable goods are not always perfect substitutes when they are produced in different countries.
- For these reasons, the real interest rates fluctuate overtime.

## Interest Rate Determination in a Small Open Economy with Perfect Capital Mobility

- Canada is described as a *small open economy with perfect capital mobility.*

A Small Open Economy

- **Small open economy:** An economy that trades goods and services with other economies and, by itself, has a negligible effect on world prices and interest rates.

Perfect Capital Mobility

- **Perfect capital mobility:** Full access to world financial markets and that people in the rest of the world have full access to the Canadian financial market.
- Real interest rate in Canada should equal the real interest rate prevailing in world financial markets.
    - R (Canadian real interest rate) = r^w (the world real interest rate)
- People taking advantage of arbitrage opportunities will ensure that the price differentials disappear.
- The theory that the real interest rate in Canada should equal the that in the rest of the world is known as interest rate parity.
- **Interest rate parity:** A theory of interest rate determination whereby the real interest rate on comparable financial assets should be the same in all economies with full access to world financial markets.

Limitations of Interest Rate Parity

- The real interest rate in Canada is not always equal to the real interest rate in the rest of the world for 2 reasons.
    1. Financial assets carry with them the possibility of default. Buyers incur a default risk. Interest rate differences may persist as higher default risk result in higher interest rates for savers or buyers.
    2. Financial assets offered for sale in different countries are not necessarily perfect substitutes for one another.

# Chapter 14

March-29-10
1:56 AM

## Chapter 14 - Aggregate Demand and Aggregate Supply

**Recession:** A period of declining real incomes and rising unemployment.
**Depression:** A severe recession

### Three Key Facts About Economic Fluctuations

#### Fact 1: Economic Fluctuations Are Irregular and Unpredictable

- Fluctuations in the economy are often called the **business cycle.**
- When real GDP grows rapidly, business is good.
- When real GDP falls during recessions, businesses have trouble.
- Economic fluctuations do not follow a regular, predictable pattern.

#### Fact 2: Most Macroeconomic Quantities Fluctuate Together

- Real GDP is the most commonly used variable to monitor short-run changes in the economy.
    - Most comprehensive measure of economic activity. (measures final goods/services produced in an economy over a period of time AND total income (adjusted for inflation) of everyone in economy.
- However, for measuring short-run changes in the economy, it does not really matter which measure of economic activity you choose. Most macroeconomic variables move together (income, spending, production)
- When economic conditions deteriorate, much of the decline is attributable to reductions in spending on new factories, housing, and inventory.

#### Fact 3: As Output Falls, Unemployment Rises

- When real GDP declines, the rate of unemployment rises.
- In times of recession, unemployment rate rises substantially.
- Unemployment rate never approaches zero, but fluctuates around its natural rate.

### Exploring Short-run Economic Fluctuations

#### The Assumptions of Classical Economics

- Previous chapters developed theories to explain what determines most important macroeconomic variables in long-run.
- Previous analysis was based on 2 related ideas:
    - **Classical dichotomy:** Separation of variables into real (those that measure quantities or relative prices) and nominal variables (those measured in terms of money).
    - **Money neutrality:** Changes in money supply **affect nominal** variables, not real variables.
- "Money is a veil" - Nominal variables may be the first things we see because they are expressed in units of money. But what's important are the real variables and economic forces that determine them. We need to look beneath the veil to understand these real variables.

#### The Reality of Short-Run Fluctuations

- Most economists believe that classical theory describes the world in the long run, but not in the short run.
- In short run, real and nominal variables are highly intertwined, and changes in the money supply can temporarily push real GDP away from its long-run trend.
- To understand how economy works in short run, we need to **forget** about the classical dichotomy and money neutrality.
- Our new model focuses on how real and nominal variables **interact.**

#### The Model of Aggregate Demand and Aggregate Supply

- Model of short-run economic fluctuations focuses on behaviour of 2 variables:
    1. Output of goods and services, as measured by Real GDP.
    2. Overall price level, as measured by CPI or GDP deflator.
- **Model of aggregate demand and aggregate supply:** The model that most economists use to explain short-run fluctuations in economic activity around its long-run trend.
- On the **vertical axis is the Overall price level** in economy and on **horizontal axis is overall quantity of goods/services**.
- **Aggregate-demand curve:** A curve that shows the quantity of goods and services that households, firms, and the government want to buy at each price level.
- **Aggregate-supply curve:** A curve that shows the quantity of good and services that firms choose to produce and sell at each price level.
- The **price level** and **quantity of output adjust** to bring aggregate demand and aggregate supply into **balance**.

### The Aggregate-Demand Curve

- Tells us the quantity of all goods and services demanded in the economy at any given price level.

- A fall in the economy's overall level of prices tends to raise the quantity of goods and services demanded. Vice-versa.
    - 3 reasons for negative relationship:
        - As the price level falls, real wealth rises, interest rates fall, and the exchange rate depreciates. These effects stimulate spending on **consumption, investment, and net exports**. Increased spending on these components means a larger quantity of goods and services demanded.

Why the Aggregate-Demand Curve Slopes Downward

- Note: Y = C + I + G + NX
- We must examine how the **price level** affects the quantity of good and services demanded for consumption, investment, and net exports.
    - **The Price Level and Consumption: The Wealth Effect**
        - A **decrease** in the price level makes consumers **wealthier**, which in turn encourages them to **spend more**. The increase in consumer spending means a **larger quantity of good/services demanded.**
        - An **increase** in the price level **reduces** the **real value of money**, in turn **reducing wealth**, **consumer spending**, and the **quantity of goods and services demanded**.
    - **The Price Level and Investment: The Interest Rate Effect**
        - A **lower** price level **reduces** the interest rate, encourages **greater** spending on investment goods, and thereby **increases** the quantity of goods and services demanded.
        - A **higher** price level **raises** the interest rate, **reducing** investment spending and **reduces** the quantity of goods and services demanded.
    - **The Price Level and Net Exports: The Real Exchange-Rate Effect**
        - A **fall** in the Canadian price level causes the real exchange rate to **depreciate,** and this depreciation **stimulates** Canadian net exports and thereby **increases** the quantity of goods/services demanded.
        - An **increase** in the Canadian price level causes the real exchange rate to **appreciate,** and this appreciation **reduces** Canadian net exports and thereby **decreases** the quantity of goods/services demanded.

Why the Aggregate-Demand Curve Might Shift

- **Shifts Arising from Changes in Consumption.**
    - Because quantity of goods/services demanded at any price level is **lower**, the aggregate-demand curve **shifts to the left.**
    - Because quantity of goods/services demanded at any price level is **higher**, the aggregate-demand curve **shifts to the right.**
    - Any event that changes how much people want to consume at a given price level shifts the A-D curve.
    - E.g.: Government taxes (when gov't cuts taxes ---> encourages people to spend more ----> AD shifts to right).
- **Shifts Arising from Changes in Investment.**
    - Any event that changes how much firms want to invest at a given price level.
    - Other examples are tax policy (tax credit for investment) and money supply (increase in MS ---> AD shifts to right)
- **Shifts Arising from Government Purchases.**
    - Most direct way that policymakers shift A-D curve is through gov't purchases. (More purchasing ---> AD to right)
- **Shifts Arising from Changes in Net Exports.**
    - Any event that changes net exports for a given price level also shifts AD.
    - When US has a recession, it buys less from Canada, shifting AD to left. Vice-versa.
    - Net Exports sometimes change because of movements in the exchange rate. (Speculators bid up / down)

**The Aggregate-Supply Curve**

- Tells us the total quantity of goods and services that firms produce and sell at any given price level.
- The aggregate-supply curve shows a relationship that depends crucially on the TIME HORIZON being examined.
- In the long run, the aggregate-supply curve is vertical, whereas in the short run, the A-S curve is upward sloping.

Why the Aggregate-Supply Curve Is Vertical in the Long Run

- *In the long run, an economy's production of goods and services (its Real GDP) depends on its supplies of labour, capital, and natural resources and on the available technology used to turn these factors of production into goods and services.*
- Because the price level does not affect these long-run determinants of real GDP, the long-run aggregate-supply curve is vertical.
- **A change in the price level does not affect the quantity of good and services supplied in the long run.**
- Vertical long-run happens to represent the classical dichotomy and monetary neutrality.
    - LRAS - quantity of output (a real variable) does not depend on the level of prices (a nominal variable).

Why the Long-Run Aggregate-Supply Curve Might Shift

- The LRAS curve gravitates to the **natural rate of output:** the production of goods and services that an economy achieves in the long run when unemployment is at its normal rate.
- **Shifts Arising from Changes in Labour**
    - More immigrants means higher workers so LRAS curve shifts to **right.**
    - LRAS curve also depends on natural rate of unemployment. (Ex. If gov't increases minimum wage substantially, natural rate of unemployment increasing causing the LRAS curve to shift to the **left.**)
- **Shifts Arising from Changes in Capital**

- An increase in the economy's capital stock increases productivity and, thereby, the quantity of goods and services supplied. This causes LRAS curve to shift to **right.**
- An decrease in the economy's capital stock decreases productivity and, thereby, the quantity of goods and services supplied. This causes LRAS curve to shift to **left.**
- Same logic applies regardless of whether we are discussing physical (machine) or human (uni degrees) capital.

- **Shifts Arising from Changes in Natural Resources**
  - An economy's production depends on its natural resources, including its land, minerals and weather.
  - New discovery would shift LRAS curve to **right.** Hard weather conditions for farmers would shift LRAS to **left**.
  - World oil market has historically been an important source of shifts in aggregate supply.
- **Shifts Arising from Changes in Technological Knowledge**
  - Perhaps the most important reason that the economy today produces more than it did a generation ago is that our technological knowledge has advanced.
  - We can produce more goods and services from any given amounts of labour, capital, and natural resources.
    - Causes LRAS curve to shift to **right.**
  - Many other events like trade barriers opening and closing cause LRAS curve to shift.

Why the Short-Run Aggregate-Supply Curve Slopes Upward

- **Sticky-Wage Theory.** Slopes upward because nominal wages are based on expected prices and do not respond immediately when the actual price level turns out to be different from what was expected.
- Stickiness of wages gives firms an incentive to produce **less** than the natural rate of output when the price level turns out to be **lower** than expected and to produce **more** when the price level turns out to be **higher** than expected.

Why the Short-Run Aggregate-Supply Curve Might Shift

- Changes from labour, capital, natural resources, or technological knowledge.
- New variable is the price level that people expected to prevail.
  - An **increase** in the expected price level **reduces** the quantity of goods and services supplied and shifts the short-run aggregate-supply curve to the **left**.
  - A **decrease** in the expected price level **raises** the quantity of goods and services supplied and shifts the SRAS curve to the **right**.

**Two Causes of Economic Fluctuations**

- The economy begins in equilibrium.
  - Long-run equilibrium of the economy is found where the aggregate-demand curve crosses the long-run aggregate-supply curve (point A). When the economy reaches this long-run equilibrium, wages, prices, and perceptions will have adjusted so that the short-run aggregate-supply curve crosses this point as well.
- **The Effects of a Shift in Aggregate Demand**
  1. In the short run, shifts in aggregate demand cause fluctuations in the economy's output of goods and services.
  2. In the long run, shifts in aggregate demand affect the overall price level but do not affect output.
  3. Policymakers who influence aggregate demand can potentially mitigate the severity of economic fluctuations.
- **The Effects of a Shift in Aggregate Supply**
  - **Stagflation:** A period of falling output and rising prices.
  1. Shifts in aggregate supply can cause stagflation - a combination of recession (falling output) and inflation (rising prices).
  2. Policymakers who can influence aggregate demand can potentially mitigate the adverse impact on output, but only at the cost of exacerbating the problem of inflation.

# Chapter 15

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## Chapter 15 - The Influence of Monetary and Fiscal Policy on Aggregate Demand

**Readings**: Principles of Macroeconomics (Mankiw et al.) Chapter 15, with the exception of pages 384-386 (i.e. the section on fixed exchange rates). Do read the FYI boxes. This chapter is MUCH too long, and parts of it are MUCH too difficult. Do not worry about figures 15.10 and 15.11 or the bottom part of Table 15.2 The portions that deal with the open economy are not easy to grasp.

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### How Monetary Policy Influences Aggregate Demand

- The A-D curve shows the total quantity of goods and services demanded in the economy for any price level.
- The A-D curve slopes downward for the 3 reasons: The Wealth Effect, The interest-rate Effect, and The real exchange-rate Effect.

#### The Theory of Liquidity Preference

- **The theory of liquidity preference:** Keynes's theory that the interest rate adjusts to bring money supply and money demand into balance.

**Money Supply**

- Bank of Canada alters money by 2 ways:
  - By changing the quantity of reserves in banking system through open-market operations (buy/selling of gov't bonds) or (buying/selling foreign currencies in the market for foreign-currency exchange).
  - By changing the bank rate.
- The Money-Supply curve is a vertical line because we assume that the supply of money is not affected at all by changes in the interest rate.

**Money Demand**

- Out of the many factors that determine the quantity of money demanded, the interest rate is the one emphasized by the theory of liquidity preference.
  - The interest rate is the opportunity cost of holding money.
- Another key determinant of the quantity of money demanded is the fact that money is used to buy goods and services.
  - As a result, when either the quantity or the price of goods and services increases, people need to hold more of their assets in the form of money.
    - The quantity of goods and services people buy = real GDP.
    - The prices of goods/services is represented by a price index such as the CPI or GDP deflator.
- For a given interest rate, an **increase** in the dollar value of transactions causes the demand for money to **increase**. Money demand curve shifts to the **Right**.
- For a given interest rate, an **decrease** in the dollar value of transactions causes the demand for money to **decrease**. Money demand curve shifts to the **Left**.

**Equilibrium in the Money Market**

- Interest rate adjusts to balance supply and demand for money at the *equilibrium interest rate*.
- At interest rates above the equilibrium level, the quantity of money that people want to hold, is lower than the quantity of money that the Bank of Canada has supplied. As a result, people with excess supply try to get rid of it by buying interest-bearing bonds or by depositing it an interest-bearing bank account. Because bond issuers and banks prefer to pay lower interest rates, they respond to this surplus by lowering the interest rates they offer. As interest rate falls, people become more willing to hold money until the equilibrium interest rate is reached.
- At interest rates below the equilibrium rate, the quantity of money that people want to hold is greater than the quantity of money that the Bank of Canada has supplied. As a result, people try to increase their holdings of money by reducing their holdings of bonds and other interest bearing assets. As people cut back on holdings of bonds, bond issuers find they have to offer higher interest rates to attract buyers. So the interest rate rises and approaches the equilibrium level.

#### The Downward Slope of the Aggregate-Demand Curve

1. A higher (lower) price level raises (reduces) money demand.
2. Higher (lower) money demand leads to a higher (lower) interest rate.
3. A higher (lower) interest rate reduces (increases) the quantity of goods and services demanded.

- End result of this analysis is a **negative** relationship between the **price level** and the **quantity of goods and services demanded**, which is illustrated by a downward-sloping aggregate demand curve.

#### Changes in the Money Supply

- Whenever the quantity of goods and services demanded changes *for a given price level*, the aggregate-demand curve shifts.
- When the Bank of Canada increases the money supply, it lowers the interest rate and increases the quantity of goods and services demanded for any given price level, shifting the aggregate-demand curve to the right. Conversely, when the Bank of Canada contracts the money supply, it raises the interest rate and reduces the quantity of goods and services demanded for any given price level, shifting the aggregate-demand curve to the left.

#### Open-Economy Considerations

- Canada is a small open economy with perfect capital mobility (Interest rate of Canada = Interest rate of World)
- In a small open economy, a monetary injection by the Bank of Canada causes the dollar to depreciate in value. Because this depreciation of the dollar causes net exports to rise, there is an additional increase in demand for Canadian-produced goods and services that is not realized in a closed economy. In the end, a monetary injection in an open economy shifts the aggregate-demand curve farther to the right than it does in a closed economy.
- The Bank of Canada cannot simultaneously choose the size of the money supply and the value of the Canadian dollar. By choosing to change the money supply, the Bank of Canada must allow the exchange rate to vary.

### How Fiscal Policy Influences Aggregate Demand

- **Fiscal Policy:** The setting of the level of government spending and taxation by government policymakers.

#### Changes in Government Purchases

- When policymakers change the money supply or level of taxes, they shift the aggregate-demand curve by influencing the spending decisions of firms or households.
- When the government alters its own purchases of goods and services, it shifts the aggregate demand curve directly.

#### The Multiplier Effect

- The additional shifts in aggregate demand that result when expansionary fiscal policy increases income and thereby increases consumer

spending.
- This positive feedback from demand to investment is sometimes called the *investment accelerator*.
- Marginal propensity to consume (MPC) - the fraction of extra income that a household consumes rather than saves.
- Multiplier = 1/(1-MPC)
- For an open economy, we must consider the Marginal propensity to import (MPI) - fraction of extra income that a Canadian household spends on imported goods.
- Multiplier = 1/(1-MPC+MPI)
- The multiplier can work in other ways too (bad ways - a recession in the US reduces the demand for Canada's NX by $10 billion actually means a $20 billion contraction in aggregate demand when MCI = 0.25, MPC = 0.75 multiplier = 1/(1-0.75+0.25)=2.0

The Crowding-Out Effect on Investment

- **Crowding-out effect on investment:** The offset in aggregate demand that results when expansionary fiscal policy raises the interest rate and thereby reduces investment spending.
    1. When, as a result of the multiplier effect, a $5 billion increase in government spending increases aggregate demand by an amount in excess of $5 billion,
    2. The increase in spending increases money demand
    3. Which increases the equilibrium interest rate
    4. Which in turn partly offsets the initial increase in aggregate demand.
- When the government increases its purchases by $5 billion, the aggregate demand for goods and services could rise by more or less than $5 billion, depending on whether the multiplier effect or the crowding-out effect on investment is larger.

Open-Economy Considerations

- **Flexible Exchange Rate**
    - **Crowding-out effect on net exports:** The offset in aggregate demand that results when expansionary fiscal policy in a small open economy with a flexible exchange rate raises the real exchange rate and thereby reduces net exports.
    - In a small open economy, an expansionary fiscal policy causes the dollar to appreciate. Because this appreciation of the dollar causes net exports to fall, there is an additional crowding-out effect that reduces the demand for Canadian-produced goods and services. In the end, fiscal policy has no lasting effect on aggregate demand.
- **The Coordination of Monetary and Fiscal Policy**
    - For fiscal policy to have a lasting effect on the position of the aggregate-demand curve, the Bank of Canada must choose the appropriate exchange rate policy.

Changes in Taxes

- When gov't cuts personal income taxes, it increases households' take-home pay. Tax cut shifts the A-D curve to the right.
- Similarly, a tax increase depresses consumer spending and shifts the A-D curve to the left.

Deficit Reduction

- Deficit reduction can have minimal impact on the level of A-D if the central bank adopts the appropriate exchange-rate policy.

## Using Policy to Stabilize the Economy

- **Should policymakers use these instruments to control aggregate demand and stabilize the economy?**

The Case for Active Stabilization Policy

- If monetary and fiscal policy can be used to stabilize the economy, then surely these tools should be used to offset the harmful effects of economic fluctuations.
- Based on the theory of Keynes

The Case against Active Stabilization Policy

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# Macro Facts

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Canada's growth rate from (1870-2003) = 2.04% from $2834 to $41679.

| Latest indicators | |
|---|---|
| Population estimate (Note) (October 2009) | 33,873,357 |
| CPI annual inflation (December 2009) | 1.3% |
| Unemployment rate (January 2010) | 8.3% |
| Monthly GDP growth (November 2009) | 0.4% |

Current rate of unemployment: 8.3%

Rate of real GDP growth in Canada (% terms) on an annual basis: 0.2%

Level of nominal, current dollar GDP in Canada: $1.5 trillion.

Rate of annual price inflation: 1.3%

Wages: Grew by 2.3% annually on average, outstripping inflation.
Average Wage = $42,600 per year