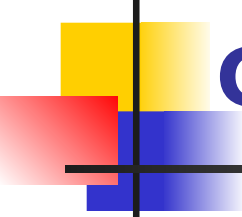


# Chapter VI: **MACROECONOMICS**

# Macro Economics



## Contents:

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- Objectives of macroeconomics
- Basic problems of macroeconomics
- National Income Accounting
- Approaches in measuring GDP(Measures of Output)
- Nominal GDP Vs Real GDP
- GDP Per Capita
- Shortcomings of GDP as a Measure of Economic Well-Being.
- Business cycle
- Unemployment
- Inflation

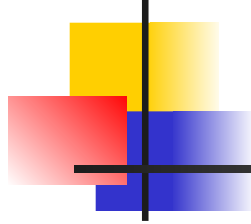


# Introduction

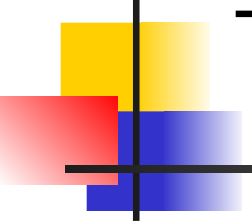
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- Macroeconomics focuses on the economic behavior and policies that affect consumption, investment, determinants of changes in wages and prices, monetary and fiscal policies (such as taxation, money stock, government budget, interest rate, etc).
- It is recognized since early periods that human beings are not self-sufficient in production of goods and services, hence exchange in between nations/regions too;
- In modern economic view development highly depend on trade among nations/countries: trade policies (import substitution, export promotion) and exchange policies (fixed, managerial or floating);
- How a country maintains healthy inflow of capital in the

# The Basic Problems in Macroeconomics:



- Business cycle
- Unemployment
- Inflation
- Budget deficit
- Balance of Payment (BoP) deficit *[Trade & Current account balances, Foreign investment, Borrowings & repayment]*
- Income distribution



# The objectives of Macro-Economics:

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- ✓ High economic growth
- ✓ Reduced unemployment
- ✓ Stable inflation
- ✓ Reduce budget deficit and balance of payment (BoP) deficit
- ✓ Fair income distribution

# 3.1 National Income

## Accounting Elements of National Economy:



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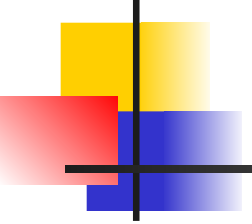
- Gross Domestic product (GDP)
- Government expenditure
- Total money supply
- Inflation
- Trade Balance
- Current Account Balance
- Balance of Payment (BoP)
- Exchange Rate



# Measures of Output (Production)

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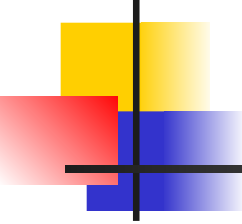
- **National Income Accounting (NIA)** refers to the measurement of aggregate economic activity, particularly national income and its components;  
\*Aggregate = Total or Gross
- It is the process of:
  - ✓ record keeping for the overall economic activities of a given country;
  - ✓ finding out the net output of a country through additions of value added and payments received after deductions of depreciations (capital wearing outs) and payments to foreign economy.
- This can be calculated in three d/t ways (NIA approaches):



## ***Measures of Output ... cont'd***

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- **NIA** is about measuring the value of economic activity such as Gross Domestic Product (GDP) and/or Gross National Product (GNP).
- **Gross Domestic Product (GDP)** is the total money value of final outputs produced within a nations borders in a given time period (usually a year) at current market prices;
- Gross Domestic Product is also referred to as
  - ✂ Nominal Gross Domestic Product
  - ✂ Current Gross Domestic Product



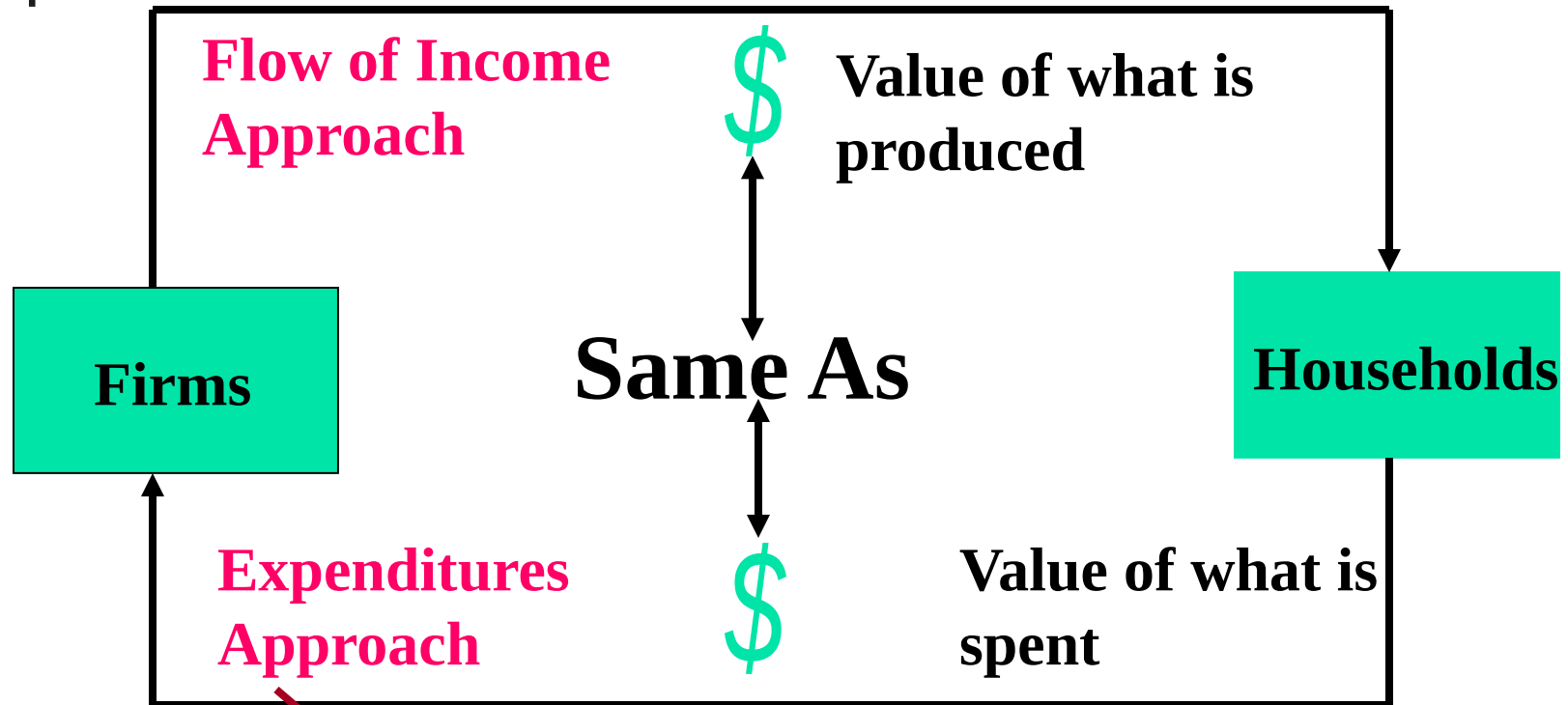
# Measuring Gross Domestic Product

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- The Flow of Income Approach
  - ✗ Households supply business with the factors of production in return for payment in the form of wages, profits, rent, and interest
- The Expenditures Approach
  - ✗  $C + I + G + X - M = \text{GDP}$
- The Value Added Approach
  - ✗ Adds the increase in value at each stage of the production and distribution process

# How GDP Is Measured?

Income (wages, salary, rent, interest, profits)



Expenditures by Consumers, Investors, Government, and Net Exports

$$(GDP = C + I + G + X -$$

## **A. Income Approach**

- ◆ It measures GDP in terms of income earned. It is the sum of all incomes accrued to factors of production that contribute to the production process.

- ◆ The major components of a country's income include:

$W + S$  = *Wage and salary - it is compensation for employees*

$R$  = *Rental income - income earned from land*

$I$  = *Interest - return for capital*

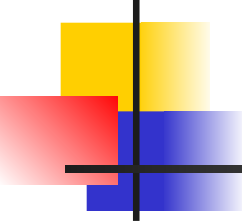
$\pi$  = *Profit - income earned by entrepreneurs.*

$D$  = *Depreciation - the wear out of capital goods in the production process.*

$IBT$  = *Indirect business taxes: eg. Sales tax, Excise tax paid by businesses to the government.*

- ◆ Depreciation and indirect business taxes are part of the incomes of owners of factors of production.

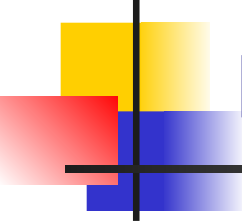
$$GDP = (W + S) + R + I + \pi + IBT + D$$



# The Flow of Income: The Disposable Income

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- GDP (Gross Domestic Product)
  - Depreciation
  - = Net Domestic Product
  - Indirect business taxes and subsidies
  - = Domestic Income (DI) = National Income =  $(W + R + I + P)$
  - Earnings not received by the producer (eg. social security payments & others)
  - + Receipts not earned (eg. transfer payments received, subsidies, etc.)
  - = Personal Income (PI)
  - Personal Taxes
  - = Disposable Personal Income (DPI)



## **B. Expenditure Approach**

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- ◆ It is the sum of all expenditures on final goods and services.
- ◆ The expenditures can be:

$$\text{GDP} = C + G + I + (X - M)$$

Where - C = Personal consumption exp,

- G = Government expenditure,

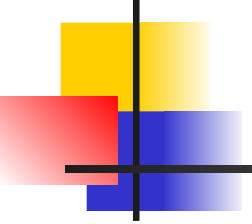
- I = Private investment Expenditure, and

- ( X -M) = Net exports



## C. Value Added in Various Stages of Production

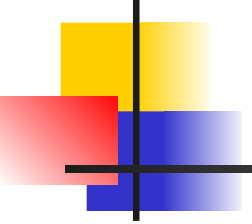
| Stages of Production                       | Value of Transactions | Value Added         |
|--------------------------------------------|-----------------------|---------------------|
| 1. Farmer grows wheat, sells it to miller  | Birr 0.12/gm          | Birr 0.12/gm        |
| 2. Miller grinds to flour, sells to baker  | Birr 0.28/gm          | Birr 0.16/gm        |
| 3. Baker bakes bread, sells it to retailer | Birr 0.60/gm          | Birr 0.32/gm        |
| 4. Bread store sells bread to consumer     | Birr 0.75/gm          | Birr 0.15/gm        |
| <b>Total</b>                               | <b>Birr 1.75/gm</b>   | <b>Birr 0.75/gm</b> |



# Two Things to Avoid when Compiling GDP

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- **Multiple counting**
  - **Only expenditures on final products - what consumers, businesses, and government units buy for their own use belong in GDP**
    - Intermediate goods are not counted
    - Used goods are not counted
- **Transfer payments**
  - **Transfer payments are not payments for currently produced goods and services**
    - When they are spent for final goods and services they will go into GDP as consumer spending



# Nominal GDP Vs Real GDP

## Removing the effect of Inflation

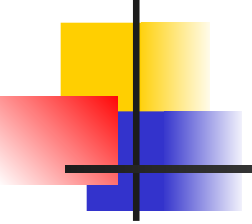
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- Suppose we invited the same friends to a birthday party each year for four years and purchased one giant cake each year.
- We notice that although the giant size cake doesn't change from year to year, it costs \$1 more each year.
- The pie didn't change, but the dollar value (price) of the pie did.
- If we want to compare GDP from year to year, we need to get rid of the inflation (price) effect!

# Computing Real GDP



|                                     | 2004        | 2005        |
|-------------------------------------|-------------|-------------|
| Nominal GDP (in billions)           | Birr 11,734 | Birr 12,378 |
| Change in Nominal GDP               |             | Birr 644    |
| Change in Price Level, 2004 to 2005 |             | 1.5%        |
| Real GDP in 2004 dollars            | Birr 11,734 | Birr 12,195 |
| Change in Real GDP                  |             | Birr 461    |



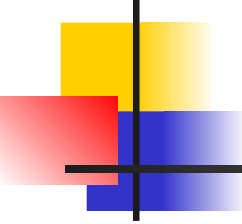
# Computing Real GDP

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- The general formula for computing real GDP is:

$$\text{Real GDP in year } t = \frac{\text{Nominal GDP in year } t}{\text{Price Index}}$$

$$\text{Real GDP in 2005} = \frac{\$12,378}{1.015} = \$12,195$$



# GDP and the “GDP Deflator”

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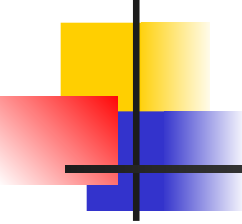
- To correct Nominal GDP for price increases from one year to the next, we must calculate real GDP using a Price Index.
- For GDP price adjustments, this price index is called the GDP Deflator and is calculated quarterly by the Department of Commerce.
- A price index is an index number that shows how the average prices of goods change over time. Based on percentage change from a “base year”.



# International Comparisons of GDP

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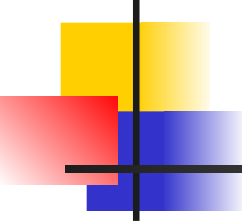
- International Comparisons of GDP are difficult for a number of reasons:
  1. Different countries use different national income accounting systems
  2. International exchange rates into dollars fluctuate
  3. Data from other countries may be unreliable



# Per Capita GDP

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- Per Capita GDP calculations attempt to give us additional information about how we are doing as an economy.
- Per Capita GDP calculations may be a better measure of the standard of living.
  - ✂ For citizens living in the same country over time
  - ✂ For comparing standards of living between citizens of different countries



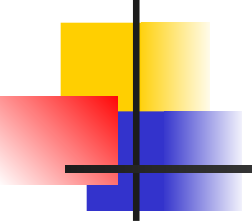
# Per Capita Nominal GDP

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$$\text{Per capita GDP}_{2005} = \frac{\text{GDP}_{2005}}{\text{Population}_{2005}}$$

$$\text{Per capita GDP}_{2005} = \frac{\$12,378,000,000,000}{297,000,000}$$

$$\text{Per capita GDP}_{2005} = \$41,677$$



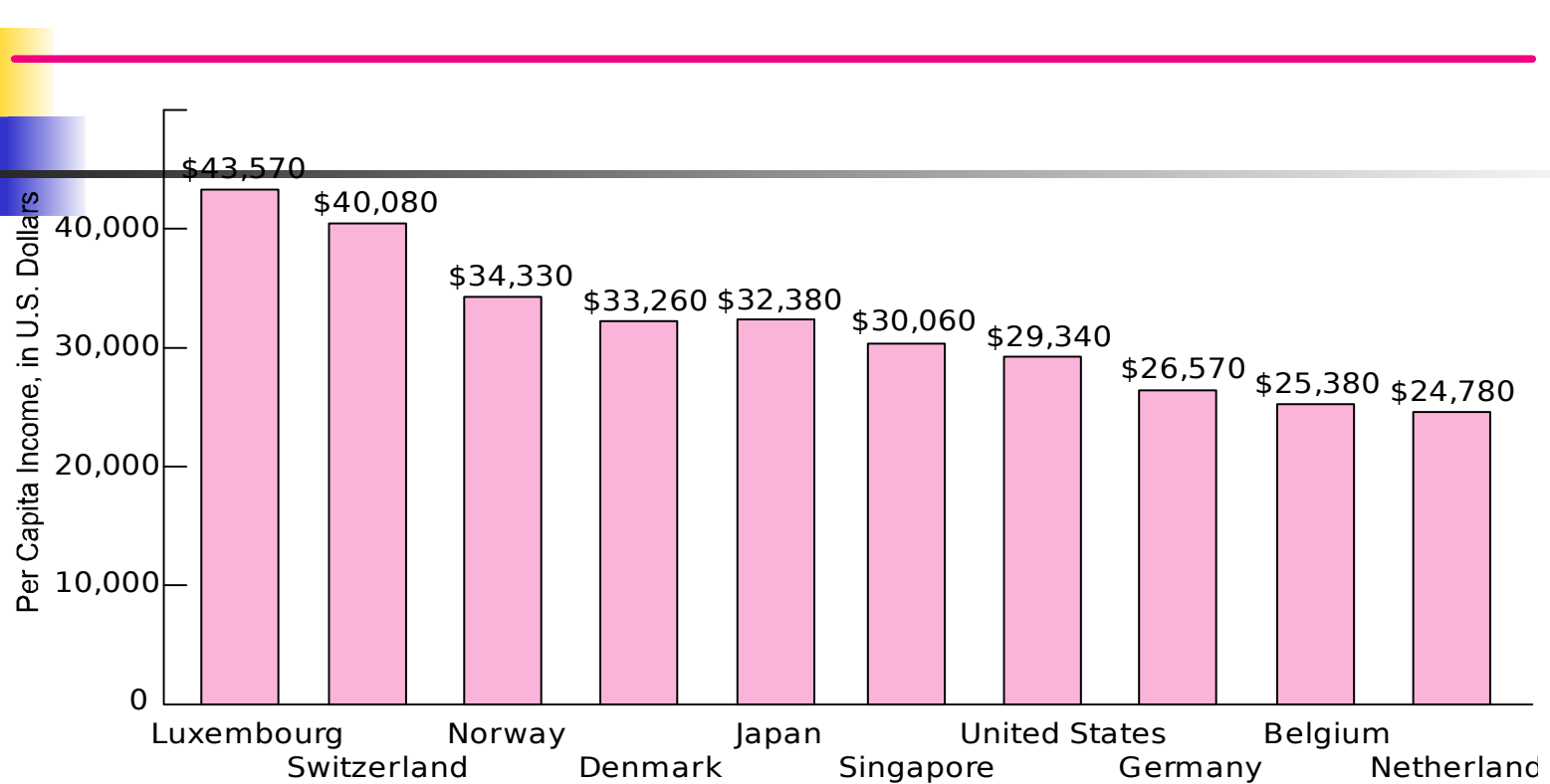
# Per Capita Real GDP

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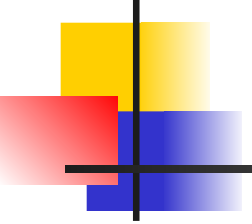
**To compare per capita GDP in one year with that of another year we have to correct for inflation. In other words, we really need to revise our formula**

$$\text{Per capita real GDP} = \frac{\text{Real GDP}}{\text{Population}}$$

# Per Capita GDP of the 10 Leading nations, 2000



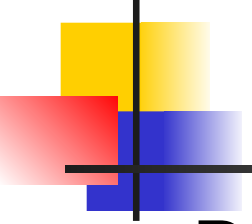
**International comparisons for per capita GDP are at least somewhat suspect because of varying national income accounting systems as well as fluctuations of foreign exchange rates**



# Shortcomings of GDP as a Measure of National Economic Well-Being

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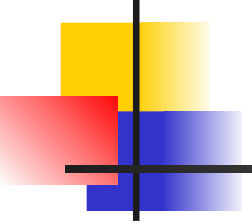
- Do the GDP accounts – either the expenditure side or the income side – tell us anything we really want to know about the quality of life?



# Shortcomings of GDP as a Measure of National Economic Well-being

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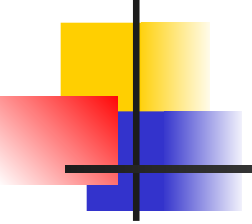
- **Production that is excluded**
  - Household production
  - Illegal production
  - The underground economy
- **Treatment of leisure time**
- **Human cost and benefits**
- **GDP gives us a ballpark idea of how much we produce, *not* necessarily how well off we are.**



# What Goes into GDP

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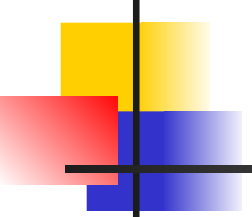
- **James Tobin and William Nordhaus: A Measure of Economic Welfare**  
GDP
    - The economic bads (pollution control, repairs)
    - The regrettable necessities (prisons, police, defense)
    - + Household, unreported, and illegal production
- A Measure of Economic Welfare**



## 3.2 Business Cycle

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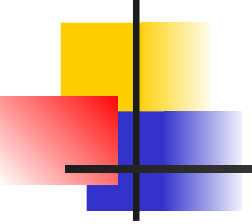
- Business cycle refers to the recurrent ups and downs in the level of economic activities. It is the fluctuations in economic activity overtime.
- **Peak (Boom)**: it is a period of maximum output during a cycle. It is the highest level of economic activity. There is:
  - High employment
  - High demand
  - High degree of utilization of resources
  - High level of production



## ***Business Cycle ... cont'd***

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- \***Recession (Contraction)**: it is a period when economic activities slow down.
  - Price declines
  - Output decline
  - Employment decline
  - Investment decline as demand decreases.
  
- **Trough**: it is the lowest level of economic activity over the Business Cycle. When the economy is at trough, there is idle resource.
  - Lowest level of output
  - Massive (large) unemployment
  - Low level of demand
  - Idle productive capacity

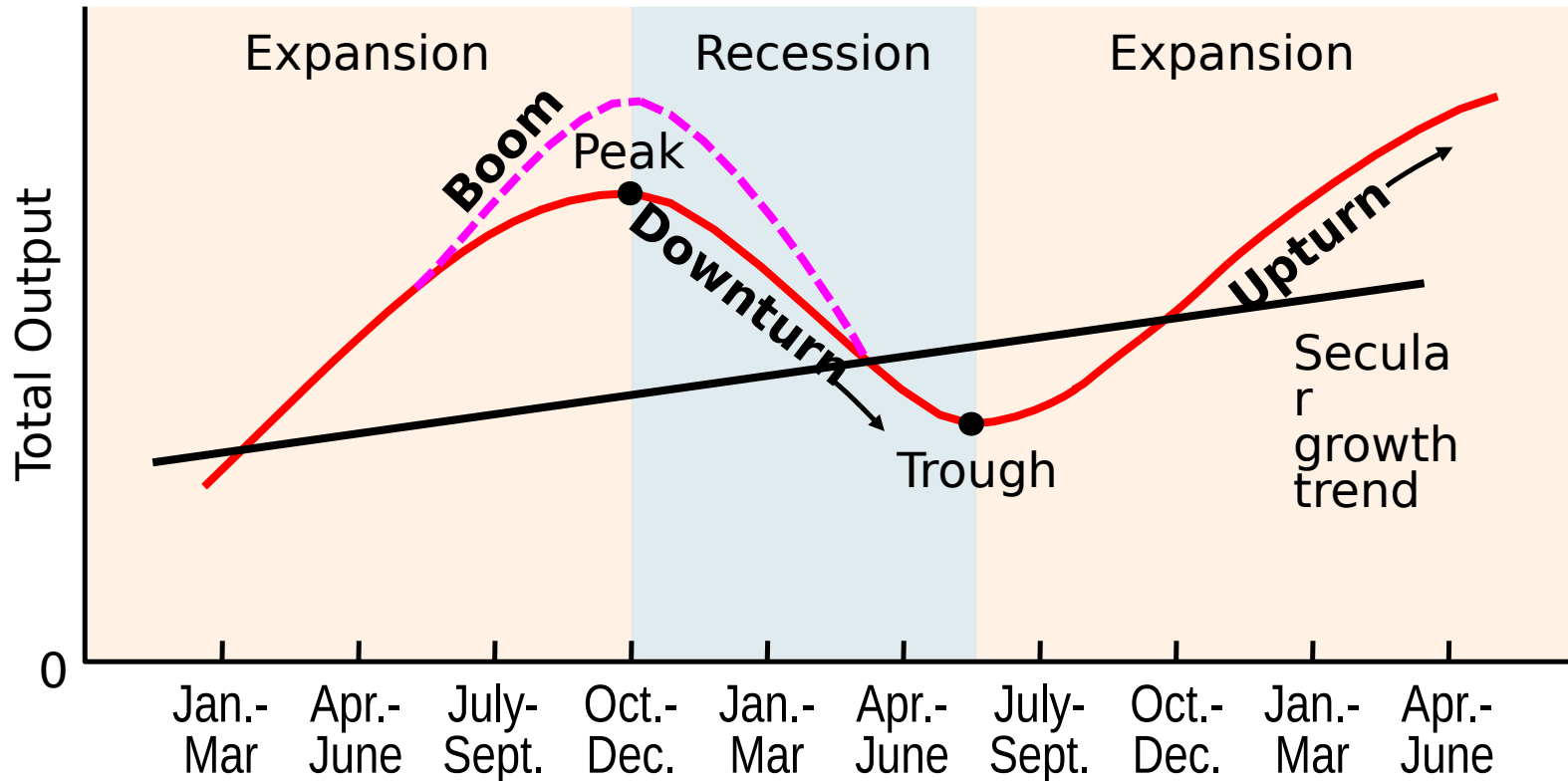


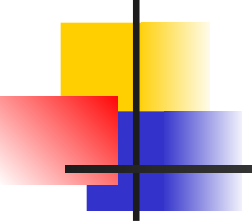
## ***Business Cycle ... cont'd***

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- \*Recovery/Expansion: it is an upturn of economic activity during the Business Cycle. There is:
  - Rise in production
  - Rise in employment
  - Rise in demand
  - Price of factors of production increases.
- Note: Recession is a decline in the level of economic activity in a very short period of time. If the decline in economic activity lasts for extended period it is called **depression**.

# The Phases of the Business Cycle

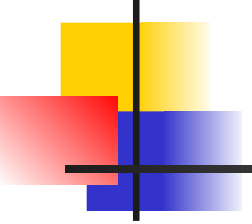




## 3.3 Unemployment

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- Unemployment refers to a pool of people above a certain age who do not have job and are actively seeking a job.
- The unemployed people are those who are not employed and actively seeking a job.
- And individuals who are currently working are called employed.
- Thus, the sum of employed and unemployed people gives the total labor force:  
Labor force = unemployed + employed (people)

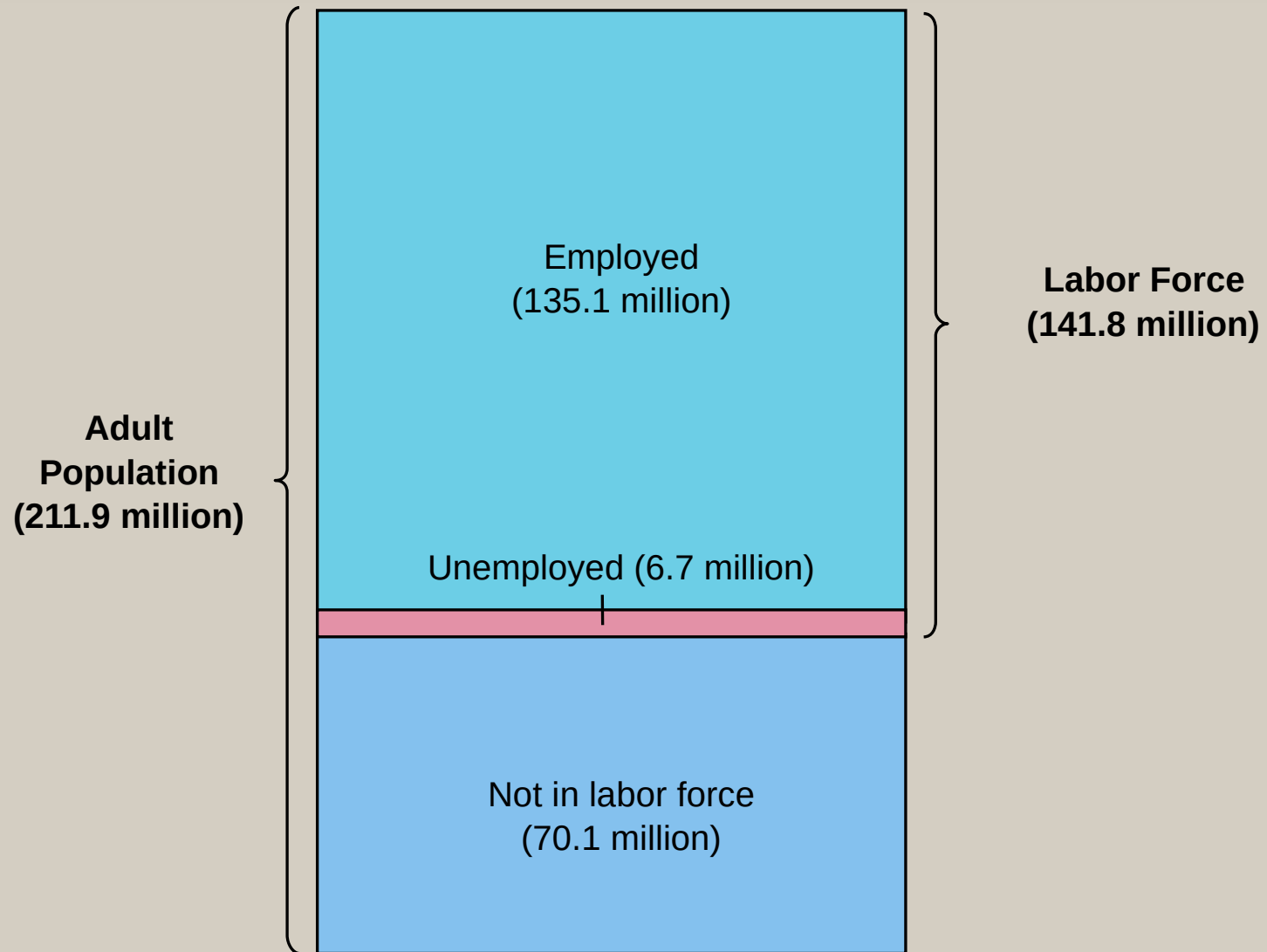


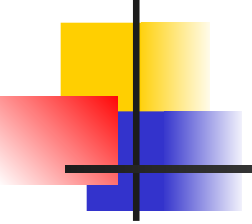
## ***Unemployment ... Cont'd***

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- A person is considered employed if he or she has spent most of the previous week working at a paid job.
- A person is unemployed if he or she is on temporary layoff, is looking for a job, or is waiting for the start date of a new job.
- Labor Force:
  - The *labor force* is the total number of workers, including both the employed and the unemployed.

# Figure 1 The Breakdown of the Population in 2001



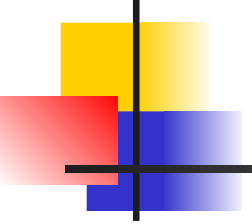


## ***Unemployment ... Cont'd***

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- The *unemployment rate* is calculated as the percentage of the labor force that is unemployed.

$$\text{Unemployment rate} = \frac{\text{Number unemployed}}{\text{Labor force}} \times 100$$



# Types of Unemployment

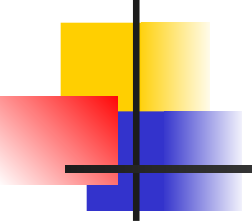
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## ▮ **Frictional Unemployment:**

- Unemployment caused:  
when people move from job to job and claim benefit in the meantime;
- The quality of the information available for job seekers is crucial to the extent of the seriousness of frictional unemployment.

## ▮ **Structural Unemployment:**

- Unemployment caused:  
as a result of the decline of industries & the inability of former employees to move into jobs being created in new industries.



## *Types of Unemployment ... Cont'd*

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- ▮ **Cyclical Unemployment:**

Caused by downfall of output

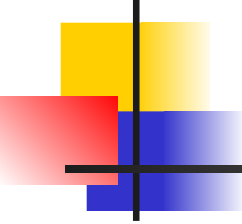
- ▮ **Seasonal Unemployment:**

Unemployment caused:

because of the seasonal nature of employment – tourism, skiing, cricketers, beach lifeguards, etc.

- ▮ **Technological Unemployment:**

Unemployment caused when developments in technology replace human effort. **E.g.** in manufacturing, administration etc.



## 3.4 Inflation

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- This is the process by which the price level rises and money loses value.
- There are two kinds of inflation:
  - a) Demand pull
  - b) Cost push



# The Two Types of Inflation

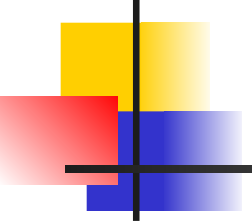
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## **Demand pull inflation**

- Demand pull inflation may be due to :
  - a) Increase in money supply
  - b) Increase in government purchases
  - c) Increase in exports

## **Cost Push**

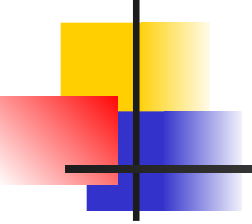
- Cost push inflation may arise because of:
  - a) Increase in money wage rates
  - b) Increase in money prices of raw materials.



# Price Indexes

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- Price Index =  $\frac{\text{Current Cost of Fixed Amount of Goods}}{\text{Base Year Cost of the Fixed Amount of Goods}}$
- **Consumption price index (CPI):** is the current value of goods and services used for consumption on the base year divided by the value at the base year price:
- It measures the change in the average price of a market basket of goods and services which represent consumption pattern of households.



## **Price Indexes ... Cont'd**

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- **Production Price index (PPI):** the ratio of current value of goods and services produced in the base year to their base year values;

$$CPI / PPI = \frac{Q_{B1}P_{C1} + Q_{B2}P_{C2} + \dots + Q_{Bn}P_{Cn}}{Q_{B1}P_{B1} + Q_{B2}P_{B2} + \dots + Q_{Bn}P_{Bn}}$$

Where  $Q_{B1}$  – Base year consumption/production of good/service

$P_C$  – Current Price, and

$P_B$  – Base year price

# Happy Times!



**Thank You !!**