Macroeconomic Objectives

Unemployment

- **Unemployment:** refers to people of working age who are actively seeking employment but are not employed
    - **Unemployment Rate = (Unemployed ÷ Labour Force) × 100**
- **Labour force:** is the number of people who are employed plus the number of people of working age that are not employed.
    - **Labour Force = Employed + Unemployed**
- **Labor force participation rate (LFPR):** is the ratio of the number of people in the labour force to the entire working age population of a nation
    - **LFPR =[Labor Force ÷ Labor Force Population] × 100**

Inflation & Deflation

- **Inflation:** is a sustained increase in the general price level
- **Disinflation:** refers to a decrease in the rate of inflation
- **Deflation**: is a sustained decrease in the general price level
- **Consumer price index (CPI):** is a measure of the cost of living for the typical household and compares the value of a basket of goods and services in one year with the value of the same basket in a base year
  - Inflation and deflation are measured as a percentage change in the value of the basket from one year to another
  - $\%\Delta CPI = (CPI_{NEW} - CPI_{OLD}) \div CPI_{OLD}$

Constructing a Weighted Price Index

- **Weighted price index:** is a measure of average price in one period relative to a reference period called a base year.
    - It is a price index that weighs the various goods and services according to their relative importance in consumer spending.
    - $\textbf{Price Index}_{\text{Current Year}} = [\textbf{Value}_{\text{Current Year}} \div \textbf{Value}_{\text{Base Year}}] \times 100$
- To construct a weighted price index,
    - **1)** Find the value of the basket in current prices for each year
    - **2)** Use the formula to find the price index number for each year

Example; Consumer Price Index

- **Example;** For a simple economy producing only three items we can create the consumer price index and calculate the rate of inflation. Assume that 2012 is the base year.

	2012			2013		2014	
Item	Quantity	Price	Value	Price	Value	Price	Value
Burgers	37	$3	$111	$4	$148	$5	$185
DVDs	25	$15	$375	$14	$350	$16	$400
Haircuts	15	$18	$270	$20	$300	$21	$315
Total Value			$756		$798		$900

- **Price Index**$_{2012}$ = (756 ÷ 756) × 100 = 100
- **Price Index**$_{2013}$ = (798 ÷ 756) × 100 = 105.5
- **Price Index**$_{2014}$ = (900 ÷ 756) × 100 = 119

Year	CPI
2012	100
2013	105.5
2014	119

Example; Calculating Inflation

- **Example;** Given the values for CPI we can calculate the inflation rate between any two years.

  - **Inflation Rate = %ΔCPI**

    $$= (CPI_{NEW} - CPI_{OLD}) \div CPI_{OLD}$$

Year	CPI	Inflation Rate	Description
2010	97.5	–	–
2011	100	2.6%	Inflation
2012	107.3	7.3%	Inflation
2013	109.7	2.2%	Disinflation
2014	107.8	−1.7%	Deflation

Taxation

- **Proportional taxation:** as income increases, the fraction of income paid as taxes remains constant; there is a constant tax rate.
- **Progressive taxation:** as income increases, the fraction of income paid as taxes increases, there is an increasing tax rate.
- **Regressive taxation:** as income increases, the fraction of income paid as taxes decreases, there is a decreasing tax rate.
- **Average tax rate (ART):** at a particular level of income is found by dividing the amount of tax paid (**Tax**) by the individual's gross income (**Y**)
  - $\mathbf{ART = (Tax \div Y) \times 100}$
- **Marginal rate of taxation (MRT):** is the tax rate paid on additional income. It is the change in tax (Δ**Tax**) divided by the change in gross income (Δ**Y**)
  - $\mathbf{MRT = (\Delta Tax \div \Delta Y) \times 100}$

Example; Taxation

- **Example;** The following table shows the annual income and marginal income tax rates for Australia. Calculate the annual tax paid, the average tax rate, and the marginal tax rate for an individual earning $59,000

Annual income ($)	Marginal income tax rate (%)
0 – $10,000	0%
$10,001 – $25,000	9%
$25,001 – $55,000	22%
$55,001 – $115,000	40%
$115,001+	55%

- **Total tax paid =** $(0.09 \times \$15{,}000) + (0.22 \times \$30{,}000) + (0.4 \times \$4000)$
  $= \$9{,}550$

- **Average tax rate = (Tax ÷ Y) × 100**
  $= (\$9{,}550 \div \$59{,}000) \times 100$
  $= 16.2\%$

Study Questions

- **1.** Using the data below construct a price index using 2011 as the base year.

		2010	2011	2012	2013
Item	Quantity	Price	Price	Price	Price
Pizzas	35	$7	$5	$7	$6
DVDs	9	$15	$17	$18	$18
Bus rides	47	$2	$4	$4	$3

- **A.** Identify the rates of inflation and deflation for consecutive years.