

Introduction to Macroeconomics

Important Definitions

Material Standard of Living = the amount of goods and services consumed by the average person in the economy in a given period of time

Non-material Standard of Living = the qualitative aspects of welfare

Gross Domestic Product (GDP) = the value of all final goods and services produced within a given country during a given period of time

Real GDP = GDP whereby the effects of inflation are eliminated

Gross National Product = Value of all final goods and services produced by domestic factors of production during a given period

Consumer Price Index = Measures the change in the price of a fixed basket of goods and services commonly purchased by a typical household over a period of time

Economic Growth = Refers to actual growth and potential growth

Actual Growth = Increase in national output actually produced over a given period of time, measured by percentage growth in real GDP of a country

Potential Growth = Speed at which economy could grow if it were to use all its resources. Refers to increase in full employment national income

Inflation = A sustained increase in the general price level

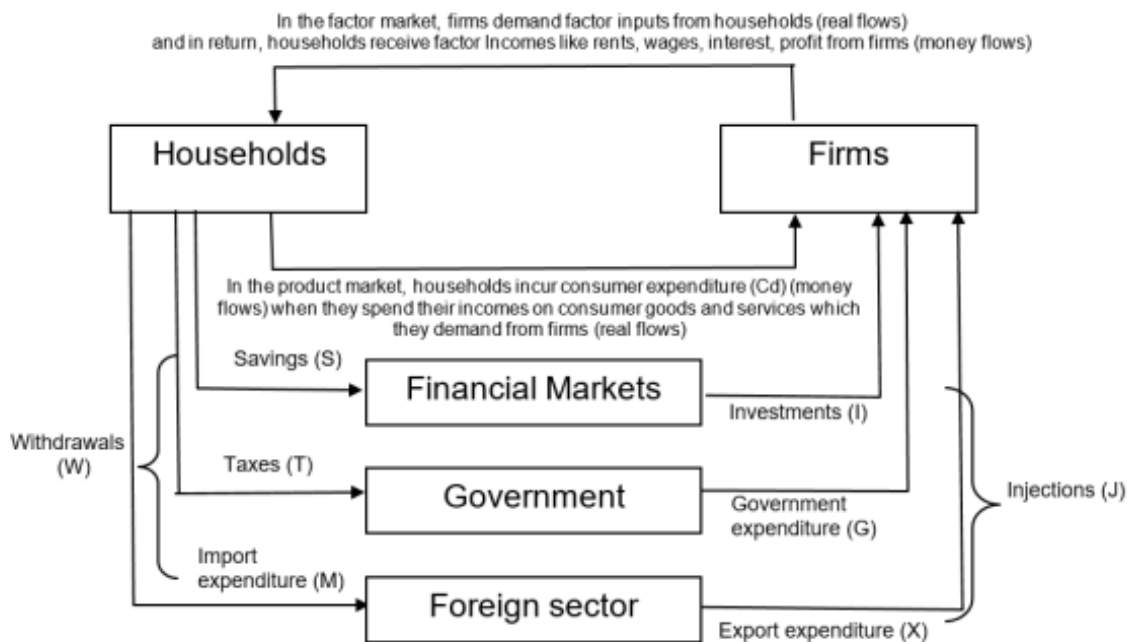
Unemployment = The situation where people who are available for work and are actively seeking work cannot find jobs

Balance of Payments = The record of a country's international transactions

Real GDP vs Nominal GDP

Real GDP growth is the percentage change in real output whereby the effects of price changes have been removed while nominal GDP growth includes changes in real output and prices.

Circular Flow of Income



- Circular flow of income describes the flow of income within an economy
- Comprises 4 sectors: Household, Firms, Government and the Foreign Sector
- Revenue earned by firms is paid out to households as wages, rent, interest and profits
- Households use the income received for Consumption, Savings, Taxes and Imports
- S, T and M are withdrawals from the economy
- Savings are channeled by banks to be made as loans to firms to fund Investments
- Taxes are collected by the government to be used to finance Government expenditure
- Import expenditure is earned by trade partners and are used to buy Exports
- I, G and X are known as Injections
- Eqm NY is achieved when $J=W$
- $W>J \Rightarrow$ Surplus of goods & services $\Rightarrow$ Firms $\downarrow$ production $\Rightarrow \downarrow NY$
- $W<J \Rightarrow$ Depletion of inventory $\Rightarrow$ Firms $\uparrow$ production $\Rightarrow \uparrow NY$

Multiplier effect using circular flow diagram

- One person's spending is another person's income and increase in income leads to an increase in induced consumption
- Initial $\uparrow NY$ due to $\uparrow J/\downarrow W \Rightarrow \uparrow$ household income $\Rightarrow \uparrow$ purchasing power $\Rightarrow \uparrow$ induced consumption $\Rightarrow$ Further $\uparrow NY$
- However, $\uparrow$ induced consumption less than initial $\uparrow NY$ due to leakages in the economy in the form of S, T and M $\Rightarrow$ Each round of induced consumption decreases
- Cycle of induced consumption continues until initial $\uparrow J/\downarrow W =$ Sum of $\uparrow$ in W

*Standard of Living

Material Standard of Living

Real GDP per capita in measuring SOL

SOL = mSOL + nmSOL

mSOL:

1. Definition of GDP = The value of all final goods and services produced within a given country during a given period of time
2. Definition of mSOL = The amount of goods and services consumed by the average person in the economy in a given period of time
3. How is it calculated + link to SOL
 - Income method: Sum of all incomes earned by households in the form of wages, profits, rent and interest
 - $\uparrow$ Income $\Rightarrow$ $\uparrow$ Purchasing power of society $\Rightarrow$ $\uparrow$ Availability of goods and services they can consume $\Rightarrow$ $\uparrow$ mSOL
 - Expenditure method: Sum of all expenditure on final goods and services
 - $\uparrow$ Expenditure $\Rightarrow$ $\uparrow$ Goods & services purchased by society $\Rightarrow$ $\uparrow$ mSOL
 - Product method: Sum of final value of all goods and services produced in the country during the year
 - $\uparrow$ Output $\Rightarrow$ $\uparrow$ Volume of goods & services available to the society $\Rightarrow$ $\uparrow$ mSOL
4. Importance of "Real"
 - By adjusting for inflation, the real GDP eliminates changes in price and hence only reflects changes in the quantity of goods and services produced. Thus, it indicates changes in the amount of goods and services available for consumption and is hence, a better measure of mSOL
5. Importance of "per capita"
 - By adjusting for changes in population size, real GDP per capita reflects changes in the availability of goods and services produced per person in the country
6. Real GDP per capita growth
 - More goods and services that each person in the country can enjoy $\Rightarrow$ $\uparrow$ mSOL

nmSOL:

- $\uparrow$ income $\Rightarrow$ $\uparrow$ purchasing power $\Rightarrow$ Average person has better access to quality healthcare and education $\Rightarrow$ $\uparrow$ nmSOL

Unemployment rate

- Government able to continue collection of high tax revenue which can be used by the government to spend on developmental projects to improve infrastructure e.g. more reliable and efficient rail network $\Rightarrow$ $\uparrow$ nmSOL

- Easier to get jobs $\Rightarrow$ $\downarrow$ stress from being unemployed $\Rightarrow$ $\uparrow$ nmSOL
- $\downarrow$ social tensions from high unemployment rates $\Rightarrow$ $\uparrow$ nmSOL

However, does not measure qualitative aspects of SOL i.e. nmSOL.

Limitations of using real GDP per capita to compare SOL over time

1. **Income inequality
 - Measured by Gini coefficient
 - GDP does not take into account the distribution of income in the country $\Rightarrow$ Does not account for who gets to enjoy the goods and services that are produced by the country
 - mSOL refers to the average person who is the median income earner in the economy
 - If there is great income inequality in the country, increased GDP may be concentrated in the hands of the minority while the median income earner may not necessarily be receiving more income
 - Hence, the average person may not necessarily be better off even if there is real GDP per capita growth.
 - $\downarrow$ Gini coefficient $\Rightarrow$ Improvement in income distribution $\Rightarrow$ Higher SOL for the average person
2. **nmSOL not captured by GDP figures
 - Real GDP per capita is only an effective indicator for mSOL. However, SOL also encompasses the qualitative aspects of welfare that is nmSOL
 - The overall welfare of a person includes aspects such as {education $\Rightarrow$ self-improvement $\Rightarrow$ $\uparrow$ nmSOL}, {healthcare $\Rightarrow$ more healthy $\Rightarrow$ $\uparrow$ nmSOL} and {work-life balance $\Rightarrow$ $\uparrow$ leisure time $\Rightarrow$ $\uparrow$ amount of time to pursue interests} all of which are not accurately reflected by real GDP per capita figures
 - Need for other indicators to shed light on nmSOL
 - Literacy rates
 - Access to education
 - Ability to enjoy intellectual pursuits essential for mental well being
 - Extent of social mobility
 - Life expectancy and infant mortality rate
 - Access to + Quality of healthcare
 - Hygiene levels
 - Crime rate
 - Safety
 - Political aspects e.g. freedom of speech, corruption, political transparency
 - Human development index (HDI) = Life expectancy + Mean and expected years of schooling + GNI per capita (PPP US\$)
 - However, difficult to compile such qualitative indicators
 - Differences in culture, social fabric, standards and expectations may lead to information being subjected to different interpretations $\Rightarrow$ Normative

3. GDP figures ignore negative externalities generated
 - Higher GDP due to higher economic activity which could be due to higher rate of resource utilisation and depletion $\Rightarrow$ Negative externalities e.g. pollution, road congestion, environmental degradation $\Rightarrow$ External costs e.g. increased healthcare costs and longer commuting time $\Rightarrow$ nmSOL

Limitations of using real GDP per capita to compare SOL between countries

1. GDP of different countries are calculated in different currencies
 - Conversion of GDP per capita figures of each country to a single currency in order to compare between different countries
 - However, using the market exchange rate does not always reflect the relative purchasing power of the respective currencies within their countries
 - Thus, expression of GDP per capita figures of each country using the purchasing power parity (PPP) exchange rate would be a more accurate indicator of comparing SOL between countries
 - PPP measures what the currency will be able to buy in terms of a standard basket of products in different countries
 - However, even then, the PPP conversion rates will still have limitations as it is difficult to construct a single basket of goods for all the different countries due to the different cultures in different countries.
2. GDP composition
 - GDP does not account for the composition of an economy's output
 - Production does not always equal consumption
 - $GDP = C + I + G + (X - M)$
 - If greater GDP is solely due to greater investment or exports, the current standard of living will remain the same as there is no change in current living standards
 - Also, if increase in GDP is due to government extravagant spending on defence goods, it is unlikely to produce any tangible improvements in mSOL or nmSOL
 - Higher real GDP per capita could be the result of longer average individual working hours $\Rightarrow$ Reduced leisure time $\Rightarrow$ Reduced nmSOL
 - However, difficult to use leisure hours as an indicator of nmSOL as leisure may be valued differently in different countries
3. Data accuracy problems when computing GDP figures
 - Large rural areas
 - May not have necessary access to collect information
 - May not be literate enough to provide the necessary information
 - Creates inaccuracies in computing GDP figures
 - Exclusion of non-market activities (esp developing countries)
 - Non-market items that are essential for the economy are ignored in the calculation of GDP
 - e.g. Housekeeping, child-rearing, volunteering services, subsistence farming
 - Underground economy

- Output from activities that are not declared are not captured
 - e.g. Self-employment such as private tuition, gardening, plumbing etc.
4. Income inequality
 - Measured by Gini coefficient
 - GDP does not take into account who gets to enjoy the goods and services that are produced by the country
 - mSOL is [definition] where the average person is the median income earner in the economy
 - Even if real GDP per capita in constant PPP\$ is the same, in countries with less income equality, income may be concentrated in the hands of the minority and hence median income earner will be worse off than the average person in a country with more equal income distribution
 - Difference in degree of welfare assistance provided to residents which help to narrow the income gap
 - e.g. Singapore vs Sweden
 5. GDP figures ignore negative externalities generated
 - Higher GDP due to higher economic activity which could be due to higher rate of resource utilisation and depletion ⇒ Negative externalities e.g. pollution, road congestion, environmental degradation ⇒ External costs e.g. increased healthcare costs and longer commuting time ⇒ nmSOL
 6. nmSOL
 - Need for other indicators to shed light on nmSOL
 - Life Expectancy; Infant mortality rates
 - Literacy rates
 - Crime rates
 - Not captured by GDP figures, requires other indicators to measure nmSOL
 - See above

Evaluation

- Traditional measures of economic success (real GDP per capita, unemployment rates, inflation rates and BOP position) are insufficient in shedding light on the entire picture of the health of the economy in terms of income inequality and nmSOL
- Need for more accurate indicators that capture more aspects of welfare like composite measures that include both traditional and updated measures of success e.g. HDI (PPP-adjusted real GNI per capita + life expectancy, mean years of schooling and expected years of compulsory schooling)
- Countries at different stages of development will have different needs and predominance of sectors which may not be reflected in GDP
- Countries with different cultures and economic structures will differ substantially in their income figures and comparison of welfare

Key Economic Indicators

Consumer Price Index (CPI)

Limitations of CPI

1. Substitution bias
 - Prices change at differing rates
 - Consumers respond to differing price changes by substituting goods that have become relatively more expensive for those that have become relatively less expensive
 - However, CPI is computed based on a fixed basket of goods and services $\Rightarrow$ Ignores the substitution effect $\Rightarrow$ Overstates the increase in cost of living from one year to the next
2. Quality adjustment
 - Changes in price could be due to changes in quality $\Rightarrow$ Less of the good is required to be consumed for the same period of time/purpose
 - However, it is difficult to measure the quality of a good and thus, it takes a while for the CPI to be adjusted for changes in quality
3. New products
 - New products are usually not added to the market basket until years after they are introduced so the decline in prices are not recorded

BOP

- Overall balance = Current account + Capital account + Financial account
- Terms:
 - BOP surplus/deficit
 - Improved BOP position
 - Credit/Debit
- Current Account
 - BOT = Goods Balance + Services Balance
 - Goods Balance = Exports - Imports of physical goods
 - Services Balance = Exports - Imports of services
 - $\therefore \uparrow(X-M) \Rightarrow$ BOT surplus $\Rightarrow$ Improved BOP position
 - Income Balance
 - Wages, interest and profits flowing into and out of the country
 - Current Transfers
 - Government contributions to and receipts from international organisations/private individuals/firms
- Capital Account
 - Flow of funds into and out of the country associated with the acquisition/disposal of fixed assets (e.g. land)
- Financial Account
 - Direct investment (Long-term capital)
 - Acquisition/sale of factories/firms/branches
 - Portfolio investment (Short-term capital/Hot money)
 - Purchase/sale of paper assets (e.g. shares/bonds)

