MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

FACULTY OF ENERGY, ECONOMICS AND MANAGEMENT SCIENCE

DEPARTMENT OF APPLIED ECONOMICS

Course: Introductory Macroeconomics

Topic 1& 2 of Macroeconomics: Introduction to Macroeconomics; National Income accounts; Economic Growth and Equilibrium in the Goods Market

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Introduction to Macroeconomics

Macroeconomics is concerned with the behaviour of the economy as a whole- with booms and recessions, the economy's aggregate output of goods and services and the growth of aggregate output, the rates of inflation and unemployment, the balance of payments and exchange rates. Macroeconomics mainly deals with long-run economic growth and with short-run fluctuations that constitutes the business cycle. Macroeconomics focuses on the economic behaviour and policies that affect consumption and investment, the determinants of changes in wages and prices, monetary and fiscal policies, the money stock, the government budget, interest rates and the national debt.

Major macroeconomic issues

Macroeconomics deals with three major economic issues;

1. How do we explain periods of high and persistent unemployment?

Macroeconomics focuses on persistent unemployment as a central question. There are many theories of why persistent high unemployment occurs. There is also the policy question of what should be done about unemployment. Some say not much and advocate a hands-off policy: the government should put in place appropriate unemployment compensation schemes but ought not otherwise undertake any special policies such as tax cuts to deal with unemployment. Others argue that government should pursue an active fiscal policy, for instance by cutting taxes and/or raising government spending when unemployment is so high so as to stimulate demand and hence jobs. Who is right?

Unemployment is a macroeconomic issue because:

- Less output is produced and thus the economy is less able to address the scarcity problem.
- The owners of unemployed resources receive less income and thus have lower living standards.

2. How do we explain inflation?

What causes fluctuations in the general price level? What cause hyper-inflation? The policy issues here are how to keep inflation low, and if it is high, how to reduce it without causing a recession. For some the answer lies in getting central bank monetary policy right, for others the issue is much broader. Who is right?

Inflation is a problem because:

- The purchasing power of financial assets such as money declines, which reduces financial wealth and lowers living standards.
- Greater uncertainty surrounds long-run planning, especially the purchase of durable and capital goods.
- Income and wealth can be haphazardly redistributed among sectors of the economy and among resource owners.

3. What determines economic growth?

Why does output vary across countries? For some, the answer to achieving higher growth is active government policies in the areas of infrastructure and technology, for others it is a minimum of government interference that sets the best framework for growth. Who is right?

Major macroeconomic goals

While there is some disagreement among economists about how to make the macro economy perform well, there is widespread agreement about the goals economies aim at achieving. There are three major macroeconomic goals;

a) Economic growth

Economic growth refers to the increase in an economy's aggregate output that occurs over long periods of time. Economic growth implies that an economy's society is able to consume much more in the current period- more food, clothing, and medical care, entertainment- than was the case 100 years ago, for instance. Economists monitor economic growth by tracking real gross domestic product (real GDP): the total quantity of goods and services produced in a country over a year. When real GDP rises faster than the population, output per person rises (real GDP per capita), and so does the average standard of living.

b) High employment (or low unemployment)

High employment or low unemployment is considered as a major macroeconomic goal because of two reasons. First, unemployment affects the distribution of economic well-being among an economy's citizens. People who cannot find jobs suffer a loss of income. Even in the presence of unemployment benefits and other assistance from the government, the unemployed typically have lower living standards as compared to the employed. Secondly, the impact of joblessness on the unemployed themselves affects the entire society. A high unemployment rate implies that the economy is not achieving its full economic potential: Many people who want to work and produce additional goods and services are not able to do so. With the same number of people, but fewer goods and services to distribute among that population, the average standard of living will be lower. One measure economists use to keep track of employment is the unemployment rate. The unemployment rate is the measure of the proportion of the laborforce that is actively seeking jobs but cannot find one.

c) Price stability (low inflation)

An economy aiming at price stability means that inflation should be kept as low as possible while avoiding a deflation at the same time. Inflation is usually defined as a persistent increase in the general price level. Inflation affects society's standards of living by eroding the value of money and purchasing power. The goal of price stability, therefore contributes to achieving high levels of economic activity and employment by; improving the transparency of the price mechanism which enables society to make well-informed consumption and investment decisions and to allocate resources more efficiently; reducing inflation reduces the risk associated with rising real interest rates and increase incentives to invest; avoiding unproductive activities associated with hedging against the negative impact of inflation or deflation; preventing an arbitrary redistribution of wealth and income as a result of unexpected inflation or deflation.

Major macroeconomic problems

When an economy falls short of achieving the macroeconomic goals, it is said to be facing a macroeconomic problem. Drawing from the macroeconomic issues and goals, we can

identify the problems as- stagnant growth, unemployment and inflation.

- ✓ Stagnant growth refers to the persistent decline in an economy's aggregate output over a long period of time.
- ✓ Unemployment refers to a situation where a proportion of an economy's labourforce who are actively seeking jobs cannot find jobs.
- ✓ Inflation refers to the persistent increase in an economy's general price level over a given period of time.

Major macroeconomic variables

Economists monitor the economic performance of an economy by paying attention to the following variables;

Aggregate Output; refers to the measure of the monetary value of all goods and services produced by an economy during a given period of time. The most preferred expression of aggregate output is GDP- Gross Domestic Product. We shall explore GDP in detail in Topic 2 of this course.

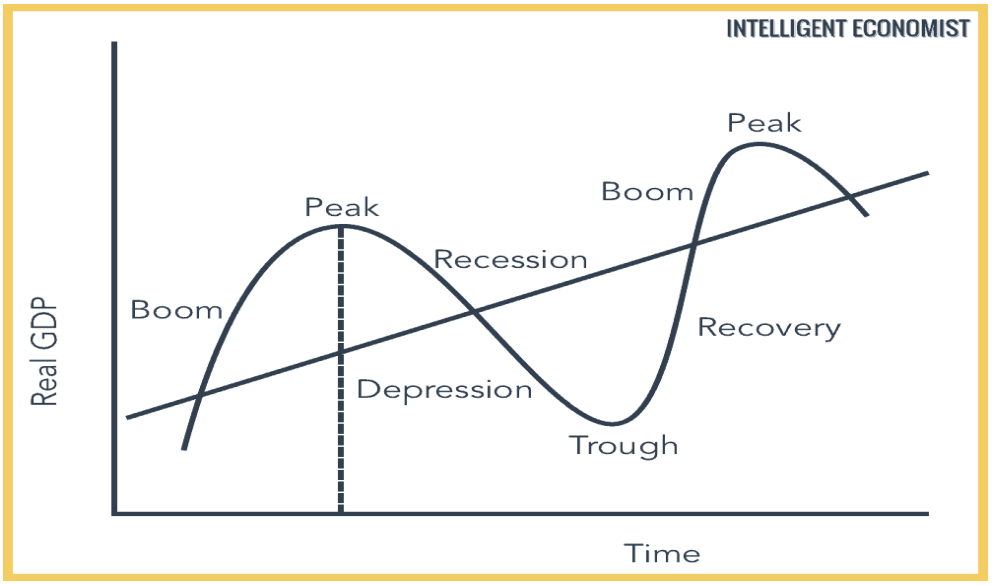
Unemployment rate; refers to the proportion of an economy's labourforce who are actively seeking jobs but cannot find the jobs.

Inflation rate; refers to the measure of the change in an economy's general price level over a given period of time. It is imperative to note that there are other macroeconomic goals and problems, the prior-mentioned ones are however the major ones.

Relationship between inflation, economic growth and unemployment;

Inflation, economic growth and unemployment are related through the business cycle. The business cycle is the regular pattern of expansion (recovery) and contraction (recession) in economic activity around the path of trend growth. At a cyclical peak, economic activity is at its highest in relation to trend growth, and at a cyclical trough, the lowest point in economic activity is reached. Inflation, economic growth and unemployment all have clear cyclical patterns, as shown by the cycle.

Illustration of business cycle (to be done in class)


INTELLIGENT ECONOMIST
Real GDP
Time
Boom
Peak
Recession
Depression
Trough
Recovery
Boom
Peak

The trend line shows the path of real GDP that is attainable by the economy if all its factors of production were fully employed. This also signifies potential growth (output growth at full employment). The business cycle shows that full employment of factors of production is an economic, not physical concept- aggregate output is not always at its potential growth level (trend path), but instead fluctuates around the trend line.

Deviations of aggregate output from trend growth are referred to as the output gaps. The output gap measures the gap between actual output and potential output. Output gap= Y-Yp. The output gap grows during a recession (more resources are unemployed, and the actual output falls below potential output). During expansion, the output gap declines and ultimately becomes negative (due to over employment, overtime for workers and more than the usual rate of use of capital).

Phase of Recovery and Peak (expansion)

The expansion phase is characterized by a rise in the aggregate output, rise in consumer and capital expenditure, rise in the price of raw materials and finished goods, and rise in the level of employment. Inventories of both input and output increase. In the later stages of expansion, however, inputs start falling short of their demand by firms. Additional workers are hard to find. Hence additional workers can be obtained, only at higher wages. The same trend prevails in other input markets. Consequently, input prices increase rapidly leading to an increase in output. Inflation increases. The cost of living increases at a rate relatively higher than the increase in household incomes. Hence consumers, particularly wage earners and fixed income earners, reduce their consumption expenditure. Aggregate Expenditure stagnates or declines. This marks the peak.

Phase of Recession and trough

Once the economy reaches the peak, increase in Aggregate Expenditure is halted. Producers, on the other hand, unaware of this fact continue to maintain their existing levels of production and investment. As a result, aggregate supply exceeds Aggregate Expenditure. The growth in the disequilibrium is however initially slow and insignificant. However, producers later notice that their inventories are piling up. Producers, then realize that they have undertaken over- production and over-investment. Consequently, future investment plans are abandoned and firms resort to selling their stock of inventories. Demand for labour reduces, temporary and casual workers are laid off-- unemployment rises. The firms also reduce their demand for other inputs (such as raw materials, machinery, etc).

The producers of consumer goods create a chain-reaction in the input market. This marks the beginning of the recession. Since the demand for inputs has declined, input prices also decline resulting into a reduction in incomes of wage earners and interest earners. Producers, on the other hand, are forced to lower their prices in order to reduce inventories and also to meet their financial obligations (such as payment of short-term and long-term debt). Inflation reduces, and in the extreme cases results in a deflation. Consumers, in turn, expect a further fall in prices and hence, postpone consumption. As a result the AD-AS gap increases further.

Investment continues to decline, leading to falls in income and consumption. Borrowing for investment deceases, bank credit shrinks, stock prices decline, unemployment increases even

though there is a fall in wage rates. When all economic activities reach their minimum, the economy reaches the phase of trough.

Phase of recovery

The process of reversal generally begins in the labour market. The widespread unemployment forces workers to work at wages less than the prevailing rates. The producers anticipating a better future try to maintain their capital stock and offer more jobs. Consumers on the other hand, expecting no further price cuts, begin to resume consumption and hence Aggregate Expenditure starts to increase gradually. Commercial banks, having accumulated excess reserves, begin to lower interest rate and also invest in stock markets. Private investors also increase their investments in stocks. Stock prices begin to rise, and the stock market picks up. Hence the optimism in the stock market trickles down to the commodity market. Producers start gradually increasing their investment. Employment gradually increases.

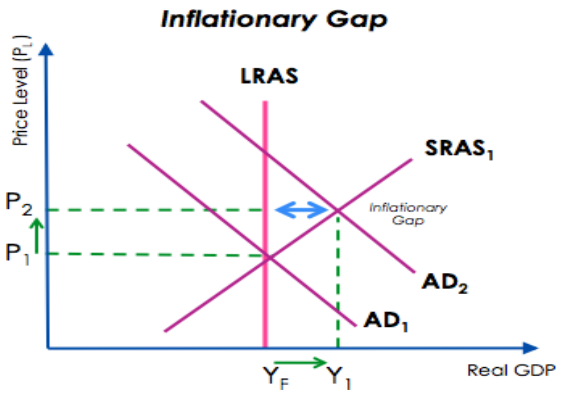
Due to this recovery in production, output and income, demand for both consumer and capital goods start increasing. Bank credit becomes easier to access (at lower interest rates). Due to the increase in incomes and consumption, the multiplier effect arises hence further vibrancy in economic activities. This marks the beginning of the recovery phase. Over the period of recovery, employment increases, input prices also increase. Prices of consumer goods also rise. Firms increase their inventories, and consumers buy more of both consumer goods and durable goods. The economy continues on a path of expansion. The cycle therefore comes to an end.

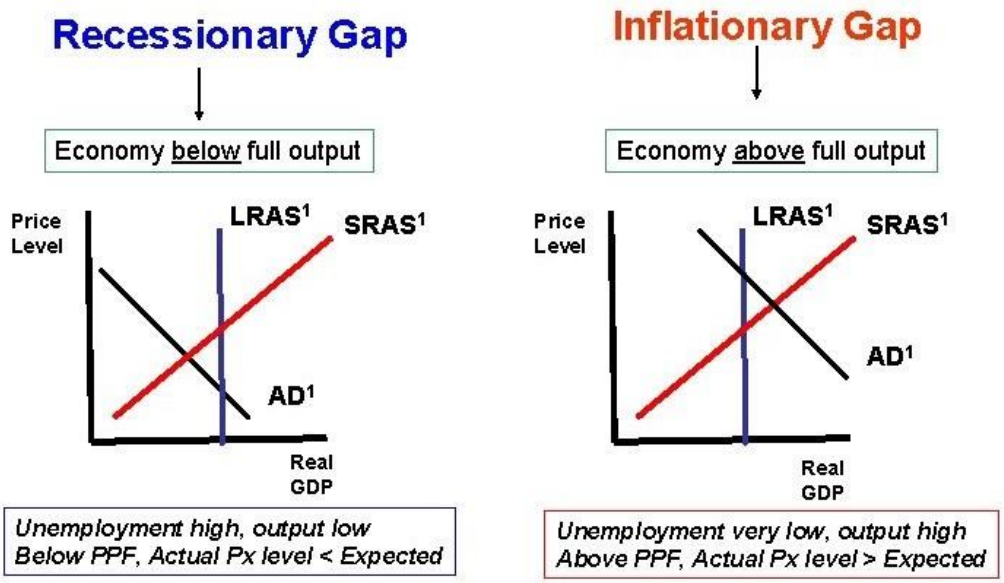
Note: It is important to note that the cycle, phases and their timing are not marked in stone. They vary across economies.

Output Gaps

Output gaps describe and measure the short-run economic conditions, and indicate the strength or weakness of the economy's performance. High growth rates in the boom phase of the cycle create positive output gaps, which are called ***inflationary gaps*** because they put upward pressure on costs and prices. Low or negative growth rates that result in negative output gaps and rising unemployment rate are called ***recessionary gaps***. They put downward pressure on costs and prices.

As economic conditions change over time, business cycle fluctuations move the economy through recessionary and inflationary gaps. Inflationary gap: a measure of the amount by which actual output is greater than potential output. Recessionary gap: a measure of the amount by which actual output is less than potential output. We can show output gaps in diagrams using the Aggregate Expenditure (AD) and aggregate supply (AS) curves and the potential output line. The diagram provides an example. Panel a) illustrates a recessionary gap. Panel b) shows an inflationary gap (Illustrations to be done in class)





Adjustments to output gaps

Potential output is real GDP when all markets are in equilibrium. Output gaps indicate disequilibrium in some markets. If we leave the short run and drop the assumption that factor prices are constant, we can ask: How does the economy react to persistent output gaps? The answer to this question depends in part on the flexibility of wage rates and prices and in part on how planned expenditure responds to the flexibility in wage rates and prices. When the labour market is one of the markets not in equilibrium, there is an output gap. We also know from national accounts that labour costs are the largest part of factor costs of production, and labour costs per unit of output are the largest part of prices. If the labour market is not in equilibrium—which means unemployment rates not equal to the natural rate— result in changes in money wage rates, persistent output gaps will change wage rates and other factor prices and costs. **Changes in costs will change prices, shifting the short-run AS curve.** The economy may have an adjustment mechanism that tries to eliminate output gaps over time.

The diagram illustrates the changes in real output as the economy adjusts over time to output gaps. In Panel (a), the high unemployment of a recessionary gap at Y0 lowers wage rates and other factor prices. A change in factor costs changes the entire AS curve. In this case it shifts down to AS′ (it increases). With lower costs, producers are willing to produce and sell at lower prices. The change in factor costs and AS conditions continues, moving the economy along the AD curve until the recessionary gap is eliminated and output is at YP. In panel (b), it is the reverse: **the low unemployment raises the wage rate and AS curve shifts inwards to AS' to eliminate the inflationary gap at output YP**.

(Illustration to be done in class)

Relationship between inflation and unemployment- Short run Phillips curve

The short-run Phillips curve is based on the assumption that there exists a stable inverse relationship between inflation and unemployment. It was postulated by William Phillips (1958) based on his empirical study on the UK economy. Samuelson and Solow (1960) interpreted the Phillips curve as a technical relationship and suggested its use as an instrument of economic policy. Each point along the short-run Phillips curve can be interpreted as a possible economic policy program. Policymakers could use aggregate demand management (fiscal and monetary policy) to try and influence the rate of economic growth and inflation. For example, if unemployment was high and inflation low, policymakers could stimulate aggregate demand. This would help to reduce unemployment, but cause a higher rate of inflation.

Between points A and B on the Phillips curve, there is a trade-off between the rates of inflation and unemployment; such that if an economy targets low inflation, the achievement of this goal is accompanied by high unemployment, or if it targets low unemployment, it should accept higher inflation.

For example, let us assume that for a long time, the economy experienced a lower inflation rate and a high unemployment rate, such that it is at Point A. The government considers the rate of unemployment to be excessively high and attempts to reduce it through an expansionary fiscal policy (such as increasing government expenditure) financed by an increase in money supply. The implication is that Aggregate Demand increases, and the rate

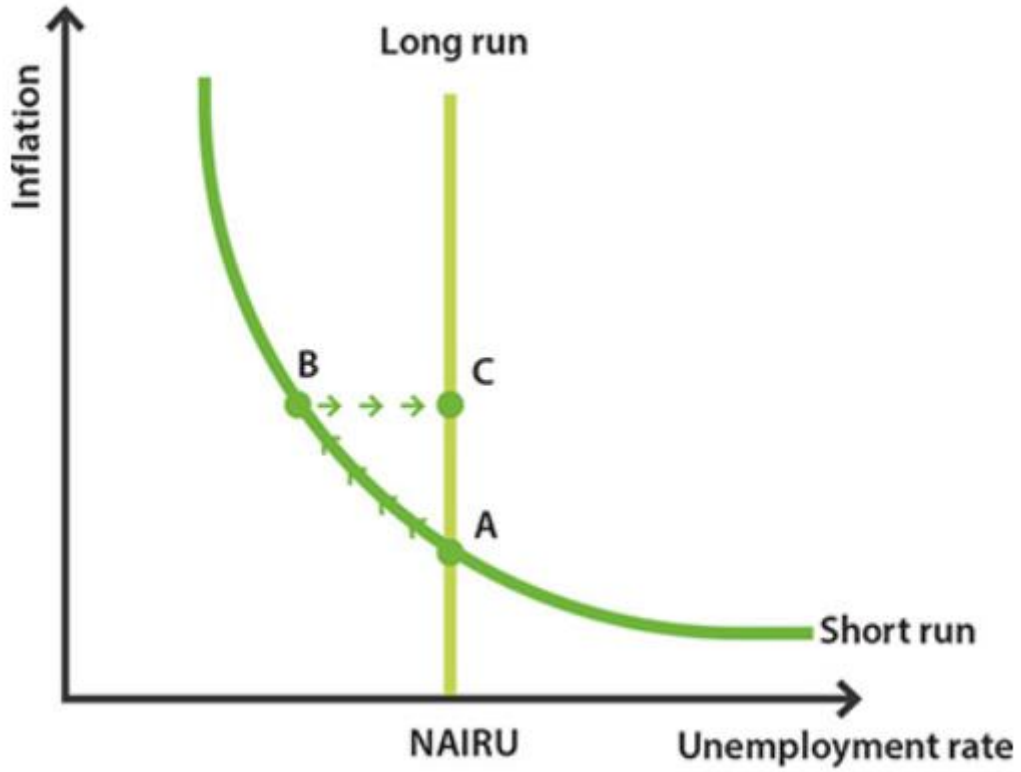
of unemployment reduces but also results in an increase in the rate of inflation. The economy moves along the short-run Phillips curve from A to B (along the same Short-run Phillips curve) and exhibits the inflation-unemployment trade-off.

Why does this trade-off exist?

These arguments are based on the Keynesian model/paradigm.

- An increase in aggregate demand causes higher real GDP (aggregate output). Therefore firms employ more workers and unemployment falls.
- However, as the economy gets closer to full capacity, we see an increase in inflationary pressures. With lower unemployment, workers can demand higher money wages, which causes wage inflation. Also, firms can put up prices due to rising demand.
- Therefore, in this situation, we see falling unemployment, but higher inflation.

Illustration of the Short-run and Long-run Phillips curve



Monetarist View of Phillips Curve

However, Monetarists have always been critical of this Phillips curve trade-off. They argue that in the long run there is no trade-off as Long-run Aggregate Supply is inelastic. In the **long run**, however, there is no trade-off between unemployment and inflation because households and businesses expect that a lower unemployment rate will cause higher inflation – that is, they have factored this into their 'inflation expectations'. Workers now demand increases in wages in anticipation of higher future inflation and as the cost of their labour increases, some businesses will reduce the number of people they employ. This continues until the unemployment rate equals the NAIRU again, and inflation stabilises at a higher level, as shown by point C. **Note:** The NAIRU is the lowest unemployment rate that can be sustained without causing wages growth and inflation to rise. It is a concept that helps us gauge how much 'spare capacity' there is in the economy. The NAIRU *cannot* be observed directly. However, we can infer things about the NAIRU from other variables that can be observed, and which give clues about the level of spare capacity in the economy. The unemployment rate will always return to the NAIRU in the long run, and any attempt to lower the unemployment rate to below the NAIRU will increase inflation. Therefore, the long-run Phillips Curve can be thought of as a straight, vertical line.

The implication of the short- and long-run Phillips Curves is that monetary policy can influence fluctuations in the unemployment rate around the NAIRU in the short run, but it cannot easily change the long-run level of the unemployment rate. To do this, policymakers must look beyond monetary policy to the government policies that more directly influence the NAIRU.

Relationship between economic growth and unemployment

Okun's Law, named after economist Arthur Melvin Okun (who proposed the relationship), is an empirically observed relationship between a country's unemployment and economic growth. **The law states that for every 1% decrease in unemployment rate, a country's GDP will be roughly and additional 2% more than its potential.** It may accurately be called "Okun's rule of thumb" because it is an approximation based on empirical evidence rather than a result derived from theory.

This is shown by the equation below; $\Delta U = -0.5\, y - 2.25$

Exercise; suppose the real GDP growth rate is 4.25%, what would the unemployment rate reduction be? Okun's law is a useful guide to policy makers because it allows us to ask how a particular economic growth target will affect the unemployment over time.

Macroeconomics schools of thought

1. Classical economics: This school of thought was dominant from the 18th century until the Great Depression of the 1930s. It is based on the idea that markets are self-regulating and that the economy will naturally tend towards full employment and

equilibrium. Famous scholars include Adam Smith, David Ricardo, and John Stuart Mill.

2. Keynesian economics: This school of thought emerged in the 1930s in response to the Great Depression. It emphasizes the role of government in managing the economy, particularly through fiscal policy, to maintain full employment and stabilize output. Famous scholars include John Maynard Keynes and Paul Samuelson.
3. Monetarism: This school of thought emerged in the 1960s and 1970s and emphasizes the role of the money supply in determining economic outcomes. It argues that inflation is caused by an excess of money in circulation, and that the central bank should control the money supply to stabilize the economy. Famous scholars include Milton Friedman and Anna Schwartz.
4. New Classical economics: This school of thought emerged in the 1970s and emphasizes the importance of rational expectations and market efficiency. It argues that government intervention in the economy is unnecessary and that markets will naturally tend towards equilibrium. Famous scholars include Robert Lucas and Thomas Sargent.
5. New Keynesian economics: This school of thought emerged in the 1980s and 1990s as a response to criticisms of traditional Keynesianism. It emphasizes the role of market imperfections and sticky prices in causing economic fluctuations, and argues that government intervention can be useful in mitigating these fluctuations. Famous scholars include N. Gregory Mankiw and Olivier Blanchard.
6. Post-Keynesian economics: This school of thought emerged in the 1970s and emphasizes the importance of distributional issues and power relations in determining economic outcomes. It argues that the economy is inherently unstable and that government intervention is necessary to maintain full employment and stabilize output. Famous scholars include Joan Robinson and Hyman Minsky.

TOPIC 2: AGGREGATE OUTPUT AND EQUILIBRIUM IN THE GOODS MARKET

To grasp how Aggregate Output is measured in National income accounts, we have to understand the concept of the circular flow of income first.

The circular flow of income

The circular flow of income and expenditure refers to the process whereby the national income and expenditure of an economy flow in a circular manner continuously through time. The various components of national income and expenditure such as saving, investment, taxation, government expenditure, exports, imports, etc. are shown on diagrams in the form of currents and cross-currents in such a manner that national income equals national expenditure. However, this flow of money does not always remain the same in volume, e.g. in a year of depression, it will contract i.e. money flow become less in volume while during the years of prosperity, it will expand. This is so because the flow of money is a measure of national income and therefore it changes with the changes in national income. The circular flow is made up of real flows (the flow of factors of production and the flow of goods and services) and the monetary flows (the flow of payment for factors of production and the flow of payment for goods and services).

Circular flow diagram (To be discussed in Class)

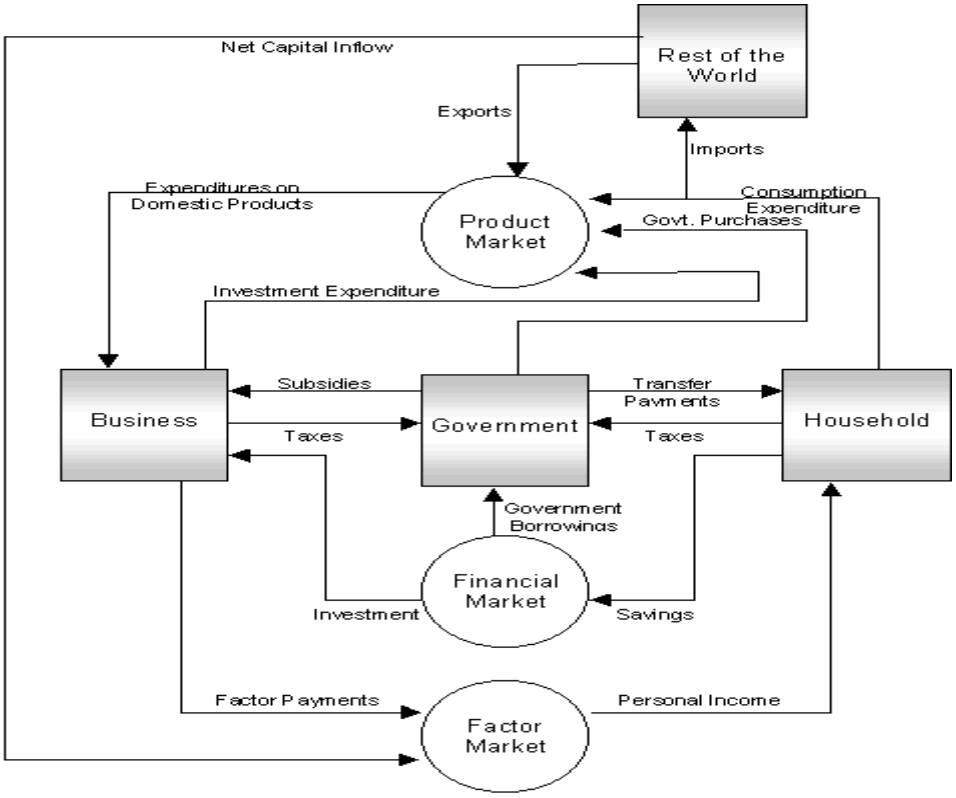


Figure 4 – Circular Flow of Income in a Four-Sector Economy

MACROECONOMIC MARKETS:

There are three sets of markets that make up the macro economy i.e. the product, financial, and resource market. The four macroeconomic sectors--household, business, government, and foreign interact through these three sets of markets.

1. **The Product Market/ Good market:** The product markets, also termed the goods or output market, exchange final goods and services, generally referred to as gross domestic product (GDP). The buyers of this production are the four macroeconomic sectors i.e. the household, business, government, and foreign sector. The seller of this production is primarily the business sector.

2. **The Financial Market:** In these markets legal claims are exchanged. Legal claims, or financial instruments, or financial assets are legal documents that have a monetary value and represent an agreement between parties regarding a right to payment. Those seeking to save income buy these financial assets and borrower sell them.

3. **The Resource Market/ Factor Market:** In these markets the services of the four factors of production (labor, capital, land, and entrepreneurship) are traded. Resource markets, also termed as factor markets, are used by the business sector to acquire

factor services needed for production. Payment for these factor services then generates income received by the household sector, which owns the resources.

THE MACROECONOMIC SECTORS

An open economy will have four macroeconomic sectors as discussed below:
The four aggregate sectors of the macroeconomy that form the foundation for macroeconomic analysis include the; household, business, government, and foreign sector.

1. **The Household Sector(C):** This sector includes the entire population of the economy that buys and consumes the produced output to satisfy wants and needs. It includes everyone, all consumers, all people, and every member of society. The macroeconomic function of the household is to provide factors of production and consume the produced goods and services. Income from selling factors of production is used to buy the goods and services from the business sector.
2. **The Business Sector (I):** This sector contains the private, profit-seeking firms in the economy that combine scarce resources into the production of goods and services. It includes proprietorships, partnerships, and corporations. The function of the business sector is to produce goods and services. This buys factors of production from the business sector and uses them to produce goods and services.
3. **The Government Sector (G):** This sector includes all government entities that impose decisions on the rest of the economy regarding the allocation of resources that might not otherwise be made, in order to maximize social welfare. Government is responsible for regulating all the economic activities in the economy to achieve maximum social welfare. It invests in public goods, imposes taxes on economic activities and provides subsidies and transfers.
4. **The Foreign Sector (X – M):** This sector comprises everyone and everything outside the domestic economy. It includes households, businesses, and governments in other countries. The foreign sector of the Ugandan economy includes the governments, businesses and households of all the other nations. The foreign sector is thus responsible for all the external activity. Economies sell to and buy from foreign countries.

In the circular flow, take note that:
What leaves the flow (total leakeages, i.e. saving (S) + taxes (T) + imports (M)
Will equal what enters the flow (total injections i.e. investment (I) +govt expend.(G) + exports (X). when this happens, a macroeconomic equilibrium is established.

For macroeconomic equilibrium to exist: total leakages = total injections

Total leakages = Total injection

S + T + M = I + G + X

Gross Domestic Product (GDP)/ Aggregate Output
It is the total monetary value of all final goods and services produced at home or in a country's boundaries in a given period of time usually a year.

The composition of GDP
GDP = C + I + G + (X –M)

Where;

C. is for consumption spending. It measures the value of final consumer goods and services produced in a year and consumed by the household.

I. this is gross private investment (by the business sector). It measures the value of new capital goods inventories (raw materials, unfinished goods and unsold goods), structures including new housing by the business sector.

G—this is government purchases of on goods and services by the government. It excludes transfer payments because they are not made in exchange for currently produced goods or services. **NOTE:** Government purchases are only a part of total government expenditure. Government expenditure = Government purchases plus transfer payments. The government is said to be running a **balanced budget if**—taxes equal government expenditure. If taxes are less than government expenditure, then it is said to be a **budget deficit.** If the taxes are greater than the government expenditure, then it is a **budget surplus.**

X – M- Net exports also known as **Trade balance**—expenditure by the foreign sector. Net exports can be positive or negative. If exports exceed imports, the country is said to run a **trade surplus**. If exports are less than imports, the country is said to run a **trade deficit**.

Gross National Product (GNP): This is the total monetary value of final goods and services produced by only nationals of a country irrespective of where they are located. It can be obtained as GDP plus net factor earnings from abroad.
GNP = C+I+G+X-M + **Net factor earnings/income from abroad**

GNP = GDP + Net factor earnings from abroad
Factor incomes include; salaries and wages, rent, interest, profit. Net factor income from abroad is the difference between factor income received from abroad by nationals of the domestic economy and the factor incomes paid to foreigners in that domestic economy.

Net National Product (NNP)
This refers to Gross National Product minus depreciation.
I.e. GNP – Depreciation. NNP is a better proxy for estimating national income.

Definitions of other Concepts
Personal income (PI)—income received by individuals of a given economy.
PI = earned + unearned income (transfer payments e.g. unemployment benefits, pension). It is therefore total income (Y) or Gross income

Disposable Income (Yd)
It is the amount of income available for an individual or household to spend after Tax plus Transfer payments, if available.
Yd = Y – T+ TR
Yd = Disposable income

Y = Gross income
T = Taxes
TR = Transfer payments

Measurement of GDP

A. Approaches

1. The Value- Added Approach/Product(ion) Approach/ Output Approach:

Using this approach, the value of national output is obtained as the sum of values added by different firms at successive stages of production. This means that the value added by the firm is equal to the value of the firm's sales minus the value of intermediate inputs. This difference is equal to its payment to its factors of production. So the Value added= output valued at basic prices- value of intermediate inputs+ product taxes- subsidies on products. If the total value of sales of all firms in the economy is added up, we would be committing the mistake of multiple counting, which overstates the value of national income. To avoid double counting, it is only the net values that are added and not the intermediate values.

2. The Expenditures Approach:

This approach gives GDP as the sum of aggregate expenditures on final domestic goods and services. There are four components of expenditures:
Consumption (C): expenditures on final goods & services intended for immediate use during the year.
Investment (I): expenditures on goods that are not for immediate consumption: It includes:

- Inventory of raw materials, unfinished goods, and finished but unsold goods. Inventories are recorded at their market value. Inventory is part of investment because it is not intended to meet immediate consumption and there is tied up capital in it. Thus, there is an opportunity cost to hold inventory. Inventory reduction is an act of

disinvestment.

- Plant and equipment: the economy's stock of capital is a major source of economic growth.
- Residential housing: is included because its services extend over many years

Government purchases of goods and services (G): This is expenditure on production of output by the government involving hiring factors of production. Government spends for example on schools, hospitals, roads, police and court services etc. This excludes all transfer payments since they do not involve any economy activity.

Net exports (X – M): Exports - Imports
Imports generate income to foreign producers. Thus, it must be deducted from national income. Exports generate income to residents of the domestic economy (from foreign buyers), so it must be added to our income.
Thus:
Aggregate Expenditures (AE) = GDP = (C+ I+ G+ (X-M))

3. The Income Approach (GDP from the Income Side):

It sums up the incomes to owners of factors of production, plus some other claims on the value of output e.g. commission on sales.

Factor Payments: are payments to the Owners of Factors of Production

i) Wages (W): Wages includes any income that is due to labor.
ii) Rent (R): income to land services or anything that is rented, including imputed rent on own -occupied houses.
iii) Interest (i): on bank deposits and other financial assets. Interest is income from lent capital (financial capital).
iv) Profit (Pr): income to business owners or entrepreneurs. For example Dividends (distributed profits) and retained earnings.

Non-Factor Payments:

- Indirect taxes (IT): are imposed on the production and sale of goods & services, for example, Sales tax. If the government doesn't collect indirect taxes it would remain a firms' profit. This has to be added to GDP figures.
- Subsidies (Sub): make income exceeds the market value of output. So, they have to be subtracted from National income figures. Subsidies are not an earned income, so, they have to be deducted.

Note the following; **<u>Included</u>**

- Imputed rent on self-occupied houses
- Income equal to the value of self-consumption should be imputed and included.
-

<u>Excluded</u>

- Transfer payments

- Illegal money.
- Windfall gains like lotteries, prizes won
- Death duties, gift tax, wealth tax, tax on lotteries
- Expenditure on second-hand goods.
- Corporate profit tax should not be added separately since it was part of the company profit.

Note: The three methods must yield the same results.
This is because: For an economy as a whole, the value of goods and services produced (O) must equal the income (Y)to those that produced it and that income must equal total expenditure (E), hence O=Y=E.

B. Nominal Vs Real GDP

Nominal GDP is the value of final goods produced at their current price. It is also known as GDP at current prices. This definition makes clear that nominal GDP increases over time for two reasons:
■ First, the production of most goods increases over time.
■ Second, the prices of most goods also increase over time.

Real GDP is the value of final goods at *constant* prices.

Example of calculation of Nominal and Real GDP: To be done in class

C. Real GDP: in Level vs Growth rate

GDP per capita: Ratio of Real GDP to Population of the country. It is a measure of standard of living of a country during a particular period.
GDP growth: To assess the performance of the economy from year to year, we look at the rate if growth of real GDP, i.e the GDP growth.

Example of calculation of GDP growth to be done in class.

Exercise:

1. What are the limitations of Using GDP as a measure of Standard of Living?

2. Why are statistics of Aggregate income important?

EQUILIBRIUM IN THE GOODS MARKET

The classical economists

According to the classicals, once leakages equal injections, equilibrium income is determined. They believe that interest rates, wages and prices are flexible. Since the market is self-regulating, there is no need for government to intervene and the market will reach full employment by itself. Excess income (savings) should be matched by an equal amount of investment by business hence leakages will equal injections. Once this happens, equilibrium is achieved.

Keynesian Economists

Keynesians disagree with this because to them, prices and wages are not flexible. They argue that in case of disequilibrium, for the level of output (national income) to adjust, government has to intervene through fiscal, monetary or other growth policies. For example increased government expenditure would result in extra Aggregate Expenditure and firms would employ more people. This would mean more income in the economy some of which would be spent and some saved (or paid in tax). The extra spending would prompt the firms in the economy to produce even more, which leads to even more employment and there even more income. This process would go on and on until it stops. It would finally stop because each time income increases; the level of leakages also increases. Once leakages and injections are equal again, equilibrium would be restored. This process is called the multiplier effect.

The Keynesian theory to Equilibrium in the Goods Market

According to Keynes, the goods market is said to be in equilibrium when Aggregate Expenditure (AE) equals Aggregate Supply (AS).
Aggregate supply refers to the total value of goods and services produced and supplied in the economy per period of time. Aggregate Expenditure refers to the total value of goods and services purchased in a given economy per period of time. If all that is produced is sold, then aggregate supply grows at a constant rate as the increase in aggregate output (Y).i.e.
AS ≈Y
Aggregate Supply Function (AS) Illustrate in class

Aggregate Expenditure Function (AE)
AE in Two-sector model
In a two-sector model, Aggregate Expenditure is composed of demand by the household sector and the business sector. I.e. it has two components.

i) Aggregate Expenditure for consumption goods (C) i.e. demand by the household.
ii) Aggregate Expenditure for capital goods (I) i.e. demand by the businesses Therefore, in the two sector model, AE = C + I

In Keynesian theory framework, consumption is a function of income i.e. C = f(Y) and is expressed as C = a + bY
Where ***a*** = Consumption at zero income i.e. autonomous consumption (Autonomous consumption)
b= the marginal propensity to consume

The Consumption Function (C)

Investment Function

According to Keynes, investment is said to be autonomous/exogenous. i.e, The level of investment doesn't depend upon the level of income. I = Io

Illustration of the investment function

The Aggregate Expenditure Function (AE) = C+I; this is vertical summation of the investment and investment functions as illustrated below:

The Keynesian equilibrium using (AE =AS) can be graphically illustrated as below

The quantitative approach At equilibrium,

AE = AS… i

2. The classical approach (leakages are matched with injections) S = I

The savings function

Illustration of the Savings Function

The Keynesian equilibrium using savings and investment approach (illustration)

Calculation of national income in a two, three and four sector model

Given that C=300+ 0.8Y, I=200 Determine

i. The equilibrium level of national income
ii. The level of consumption expenditure
iii. The level of investment.
iv. The level of savings
v. The level of autonomous expenditure

Three sector Model: AE function

Aggregate Expenditure, **AE = C+I+G**

Note: Here we introduce the government sector. Recall: It receives taxes as income and spends on goods and services (Government spending) and provides Transfer payments to the Household sector.

Illustration of the AE curve

Illustration of the Keynesian Equilibrium

Computation of Equilibrium in Class

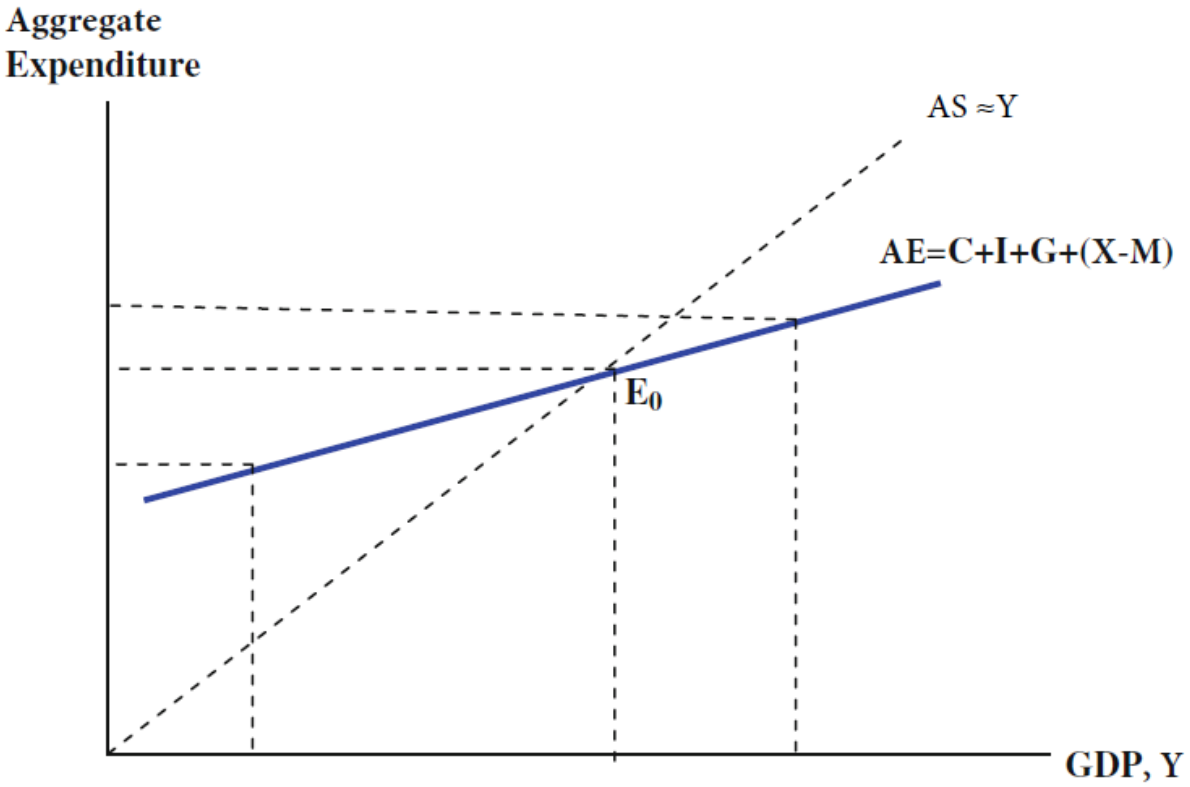
1. Determine the equilibrium in the goods market.
2. Compute autonomous spending
3. Compute Aggregate expenditure
4. Determine the private savings
5. Compute the government revenue and government expenditure
6. Calculate the government budget. Is it a balanced budget or otherwise?

The Four-Sector Model: AE Function

AE= C+I+G+X-M

Lastly; we add the foreign sector. **Note:** Exports are considered to be exogenous since they depend on the aggregate income of the destination country. Whereas Total Imports are endogenous.

Illustration of Equilibrium in the Goods Market



Note: Equilibrium output, *Y*, occurs at the intersection of the 45-degree line and the aggregate expenditure function. This is at point E_0. To the left of E_0, aggregate expenditure exceeds aggregate output; to the right of E_0, aggregate output aggregate exceeds expenditure.

Example in class:
Compute the size of the disequilibrium.

Exercise: with example in class

1. Determine the equilibrium in the goods market.
2. Compute autonomous spending
3. Determine the private savings
4. Compute the government revenue and government expenditure

5. Calculate the government budget. Is it a balanced budget or otherwise?
6. Determine the trade balance and comment about balance of trade of this economy.
7. Compute the Aggregate demand