#### Private consumption spending + Government consumption spending + Total investment spending + (Exports - Imports) = GDP

#### GDP income-based

Calculating GDP from the income side includes adding up the income claims of owners of resource inputs so all of that value is accounted for. The value of production must equal the value of income claims. National income accountants distinguishes three main categories of income;

- Operating surplus
  - Net business incomes after payment has been made to hired labour and for material inputs but before direct taxes have been paid. Direct taxes are those levied on individuals or firms based on earnings income. Operating surpluses are mostly firms' profits but also inclusive of financial surplus of organisations other than companies. Some profits are paid out as dividends to owners within the firm, and the rest are reinvested in the company. Dividends are recalled as distributed profits and reinvestment in the company is recalled as undistributed profits/retained earnings. They are both included in the calculation of GDP.
- Mixed incomes
  - Covers the people who earns their living by selling their services or output but who are not employed by any organisation. Sole-trader business. Some partnerships are included in mixed incomes. The reason its referred to mixed incomes is because its not clear of what proportion of their earnings is equivalent to a wage or salary and what proportion is the profit or surplus of the business.
- Compensation of employees
  - Wages and salaries. Wages include take-home pay, taxes withheld, national insurance contributions, pension fund contributions and any other fringe benefit. Wages are beasured Taxes + production - subside Scale CO gross.

GDP at market price provides a measure of total butput produced if the domestic country and of the total income generated as a result of that production, however the total income received by the domestic population difference in the domestic CDP based on 2 reasons; 

- Some comestic production creates factor earnings for non-residents who either do some paid work for the domestic residents or have previously invested in the domestic country. Based on this, income received by the domestic residents will be less than the domestic GDP.
- Many residents in the domestic country earns income from work for overseas residents or on overseas investments. Based on this, income received by the domestic residents will be less than the domestic GDP.

While GDP measures the output, hence the income that is produced in the domestic country, the gross national income (GNI) measures the income that is received by the domestic country. To convert GDP into GNI, its necessary to add three things that combine to account for the difference between income received by the domestic country and income produced in the domestic country. The things are;

### Employees' compensation receipts from the rest of the world - payments to the rest of the world

### Net taxes (negative) on production paid to the rest of the world + subsidies received from the rest of the world

### Property and entrepreneurial receipts from the rest of the world - payments to the rest of the world

GDP and GNI are the most commonly used concepts of a nation's output and income.

may not be able of living in posh areas in another country, but they may not be 1/10 worse off than GDP measurement suggests.

### TOPIC 2

The central problem for macroeconomic policy makers is to decide how to manage the economy in order to keep the inflation under control yet have low unemployment.

Key assumptions (in a much simplified macroeconomic perspective);

- We regard the industrial structure of the economy as fixed, meaning that when national output expands or contracts, all sectors are assumed to expand or contract together. In this respect we don't take into consideration that firms produce different goods and services at different prices.
- We treat the government as only purchasing output produced by the private sector, and not as a producer of goods and services such as healthcare.
- We assume that there is only one output sold in the market (for simplification). We do this to develop consumption, investment and net export functions that explain the different motives that determine the various spending flows.
- The short-run refers to the period during which the economy maintains a deviation/fluctuation of actual output from potential output, or a GDP gap. This is the cause of either excess capacity and unemployment, unsustainable output, in a recession and/or inflation booms.
- The long-run is a period sufficient to allow time for the automatic adjustment mechanisms return economic activity to this model's assumed equilibrium after it has been deturbed by an exogenous shock. Equilibrium is reached when the economy tarms to producing the level of potential (or fully employed resources) output.
- We will assume that the price lavel bixed, and all inperturices to produce this one output is also fixed. Changes in more values must be corrected for changes in price levels so that they measure real charges, since if the price level's held constant, variations in the money value of all variables represent real charges in these variables.
- Initially well assume that the economy has excess capacity, making it not constraint from producing more output by shortages of capital stock or labour.
- We will assume that this is an closed economy, hence no exports or imports.
- Governments enters into macroeconomics in two ways;
  - Decisions relating to taxation and spending
  - Setting of interest rates or influencing the money supply
- The last assumption is that there is no government sector demanding goods nor raising money through taxes.

Total desired spending is the sum of the desired spending of households, firms, governments and foreign purchasers of domestic products. But since many of the commodities have important content and not 100% produced in the domestic country, we subtract spending on imports to arrive at the value of spending on domestic output. This gives us aggregate spending which is GDP.

Autonomous/exogenous spending are components of aggregate spending that doesn't depend on current domestic incomes.

Tax revenues may be thought of as negative transfer payments in regards of its effect on aggregate spending. Tax spending reduce disposable income relative to GDP. Net taxes is the total tax revenues received by the government minus total transfer payments made by the government;

## Total tax revenues received by the government - Total transfer payments = Net taxes

Since transfer payments are smaller than tax revenues, net taxes are positive and personal disposable income is less than GDP.

The budget balance is the difference between total government revenue and total government spending or net taxes minus government spending.

### Net taxes - total government spending = The budget balance

When net taxes are greater than government spending the government have a budget surplus, and the other way around means a budget deficit. When there is a surplus, the government decreases its national debt and increases it if it runs a deficit.

Government spending and tax rates are thought of as exogenous as they don't vary with the level of GDP. This makes tax revenue exogenous, as GDP rise the tax revenue will rise in tandem with it.

Exports is assumed to be determined by influences outside the home economy. This is autonomous or exogenous spending fro the point of view of the determination of domestic GDP. Imports however depends on the spending decisions of domestic residents. Desired netexports are negatively related to GDP because of the positive relationship between desired imports and GDP and the assumption that exports are exogenous. This negative relationship between net exports and GDP is called the net export function.

# Exports moots = Net export.

Net exports and GDP repeats the net export function, and assumes that everything that affects net exports besides constic GDP remain constant. The major variables that must be held constant are;

- Foreign GDP
- Relative international price levels
- Exchange rate

A change in any of these will affect the value of the net exports at each level of GDP, thus shifting the net exports function. Anything that affects domestic exports will change the values in exports, and will shift the net exports function parallel to itself. Upwards if exports increases and downwards if they decreases. Anything that affects the proportion of GDP that home consumers wish to spend on imports will change the values on imports, thus changing the slope of the net export function by making imports more or less responsive to changes in GDP.

As foreign GDP increases, domestic export increases and because the same additional amount is sold at each level of domestic GDP, the increase is in the constant of the domestic net export function, causing the net export function to shift upwards, and solely downwards in foreign GDP decreases.

Changes in the prices of domestically produced goods relative to those of foreign goods will cause both imports and exports to change, shifting the net exports function. If domestic prices increases, foreign exports will decrease thus domestic imports will increase, both having a downward effect on the net export function. If the domestic prices decrease, domestic exports will increase and domestic imports will decrease as foreign goods become more expensive for the domestic households, both having an upward shift on the net exports function. The Phillips curve has a negative slope, showing that the lower the level of unemployment, the higher is the rate of change of money wages. This is common sense since with excess demand for labour makes the employers desperate hence offering higher wages. According to the Phillips curve, wages rise more rapidly the higher the GDP.

Relating the increase in wages with the increase in labour productivity, we find what happens to unit cost of production. For simplification, we assume that labour productivity is the only variable component used by firms. This enables us to associate the labour costs of each unit of output with total variable costs per unit of output. The intersection of the Phillips curve and the labour productivity line (showing the rate at which labour productivity is growing year by year) divides the graph into an inflationary and a deflationary range described in the following points;

- At unemployment rates less than at the intersection point, wages are rising faster than
  productivity and thus unit costs of production are rising, and if unit costs are rising the SRAS
  curve must be shifted upwards
- At unemployment rates grater than at the intersection point, money wage rates are rising more slowly than productivity is rising, thus if unit costs are falling, the SRAS curve must be shifting downwards

The non-linearity of the transformed Phillip curve expresses the assumption that costs, hence prices, rise rapidly in the face of a positive GDP gap, but fall only slowly in the face of an equivalent negative GDP gap.

Given that the SRAS curve is shifted upwards and pushing equilibrium back along the aggregate demand curve until the positive GDP gap is eliminated as GDP returns to its potential level, caused my a rise in price levels. If the government wishes to upkeep this higher level GDP through its monetary policy tools, it must adopt a policy that shifts the aggregate demand curve upwards and to the right as fast as the SRAS curve is shifting upwards and towards the real money supply at the same rate which prices an field so that the real money supply stays constant. This can be done through buying burds, paying for them with new high powered money. This adds to the commercial banks reserves, enabling them to establish new loans. The LM curve doesn't shift backwards dispite the rise in price to the right as the nominal money supply increase choice the economy bisiter of and to the right as the nominal money supply increase choice the economy bisiter of a commodated.

The general expectation of a specific percentage increased inflation rate creates pressure for money wages to rise by the equal amount more than productivity, holding real wages constant while shifting the SRAS curve upwards by the same percentage. According to this theory, as banks seek to maintain the higher level of GDP and its surplus GDP gap, inflation rates will rise continually.

Inflations, short and long-term, are caused by a GDP gap, making inflation present until the GDP gap is removed.

The only level of GDP that is compatible with a constant, fully expected, and fully accommodated rate of inflation is potential GDP, indicated by the LRAS curve.

The expectations-augmented Phillips curve shows that the only level of GDP that is compatible with a stable inflation rate is potential GDP and its corresponding level of unemployment, the NAIRU.

Given that potential GDP is the sole level of GDP that is consistent with an inflation rate which doesn't become increasingly positive or negative over time, there will only be one unemployment rate that is consistent with the rate of change of wage costs not becoming increasingly positive or negative over time, being called the non-accelerating inflation rate of unemployment (NAIRU). The unemployment rate that is associated with potential GDP is also often referred to as the natural rate of unemployment.

making a negative GDP gap. This is called discretionary fiscal policy, because it requires conscious decisions made by the government to not under nor over-estimate the policies needed.

The government budget surplus increases as GDP increases, based on that when GDP rises tax revenues rise, transfer payments decrease and government consumption is generally unaffected by cyclical fluctuations. This also means that leakages increase with an increase in GDP, and decreases with a fall in GDP.

Automatic fiscal stabilisers are defined as when the marginal propensity to spend out of GDP decreases, reducing the size of the multiplier, and the lower the multiplier, the lower will equilibrium GDP tend to change for a given change in autonomous spending.

Pro-cyclical fiscal policy is when the government restricts its spending during a recession because its tax revenues are low, hence increases its spending when the economy is in recovery when tax revenue is rising, meaning that the fiscal policies in pro-cyclical follows the economy.

Information lag is the time between the statistical data is collected and analysed from the time of the collection, meaning that the GDP gap most likely have changed so the data is not 100% accurate, making it difficult to perform a discretionary fiscal policy implementation.

Decision lag is the time between the realisation of there being a GDP gap and the political law enforcements to make the changes in tax and government spending to reduce the GDP gap and return it to its potential level of GDP.

Execution lags are the time between the fiscal policy going to be implemented is determined, and when its actually performed, increase in government spending can take months incorpojects need to be carefully planned etc. Tax rate changes can be executed in the ended.

The current role of discretionary policy is to make the momentary policies more credible by keeping the budget and the public debt of managera it size. If this is done theres no need for serious concern about the government printing press finance to need a growing interest bill, hence no increase in inflation that printing press finance do none with.

Gross-turing refers to the occasional as of fiscal policies to remove large negative GDP gaps, large negative GDP gaps allow for time to overcome the pro-cyclical, information and decision lags otherwise present.

The link between the monetary and the real part of the economy is the basic channel by which monetary policy affects GDP and the price level. The monetary transmission mechanism (MTM). MTM can be defined as a change in the demand for or the supply of money leads to an attempt to buy or sell bonds, which changes the interest rate to change. This causes a change in investments, and all other interest rate sensitive spending. This changes the aggregated spending, and in the new equilibrium GDP, both interest rate and GDP have changed.

When the bank lowers the interest rate, more money will be demanded and the bank meets this increased demand by buying bonds and supplying new high-powered money. This affects all interest rate sensitive spending, affecting the aggregated demand. When GDP starts to rise, more money will be demanded and the bank must provide it, if its going to keep the lower interest rate. With foreigners seeing the domestic economy as less attractive to hold assets in that domestic currency, the funds flowing out of the domestic country raises the supply of that domestic currency in the foreign exchange market. This lowers the domestic country real exchange rate, which raises net exports from the domestic country. The MTM implies that a change in the quantity of money and rate of monetary expansion in a world of a fully expected and accommodated low inflation, have effects on real variables such as investment and GDP.

#### TOPIC 5

When all input costs begin to rise by a certain percentage, this will shift the horizontal portion of the aggregate supply curve upwards by the same percentage. If the bank maintains its current rate of monetary expansion, the aggregate demand curve will shift to the left, causing GDP to fall and thus opening up a negative GDP gap. The economy will experience a stagflation with GDP falling and inflation and unemployment increasing.

Temporary increases of inflation rate due to demand side hocks beyond the control of banks doesn't have to lead to further acceleration in the inflation rate as long as the bank and government is willing to have a lower GDP in order for inflation to return to target.

Temporary increases in inflation rate due to supply-side shocks cause stagflations, with GDP falling and the inflation rate rising. This can be returned to target by itself, or if the bank and government wants to hold income at or above potential in the face of recurring demand or supply shocks, it risk having the inflation rate accelerate and then having to induce a major recession to get the inflation rate back to target.

# TOPIC 8

Trade between nations require exchange of one currency to another. A rise of a currency in the exchange rate is called appreciation, and a fall depreciation. Meaning that since the currency exchange expresses one currency in another, when one appreciates the other most depreciate.

When a currency is exchanged for a foreign currency, it implies demand for the foreign currency, and when a foreign currency is exchanged for the domestic currency, it implies a demand for the domestic currency. There are some main reasons why demand for a domestic currency is present;

- Domestic exports, meaning that foreign importers create a demand for the comestic currency by acquiring the domestic exports.
- Income payments and transfers, meaning that if a domestic resident owns shares in Apple, getting dividends in dollars, meaning that this for sit resident will exchange the dollars to its domestic currency, creating a demand to 1
- Capital inflows, meaning that for e gives wishing to acquire domestic asset needs to exchange their foreign currency on the domestic in order or put suing with their inquiry.
- Reserve surrors, meaning that nations had reserves of some currencies, example dollars, and when a nation decides to lowel matrice for another currency, example pounds, the demand weakens for the dollar and increases for the pound.

The total demand fir a domestic currency is the sum of the demand described above.

The demand curve for a domestic currency, e.g. pounds, is negatively sloped because if the pound depreciates, the dollar price of UK exports will fall because holders of dollars require fewer dollars to buy UK pounds. As long as demand for exports is elastic, US citizens will buy more of the UK export products, thus requiring more pounds for this purpose (since the demand increased), meaning the demand for pounds increase.

The supply curve of pounds in positively sloped, because when the pound depreciates, they will need to acquire more pounds for the same amount of US dollars, given that demand is elastic, the demand for US dollars will decrease.

When the demand and supply curve of a currency in the exchange market intersects, they're in equilibrium.

Changes in the exchange rate depends mostly on supply and demand, if demand increases rates appreciate, and if supply increases, the currency depreciates.

A rise in domestic price of exports will make the domestic currency appreciate if the demand is inelastic, and depreciate if its elastic.