

Key Economic Indicators for Non-Economists
A
Non-Technical Introduction

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FOREWORD

Given the rising influence of the increasingly volatile and uncertain economic environment (in developed and/or developing economies and the global economy) on business conditions, corporate growth strategies and profitability and financial, investment, managerial, strategic, marketing, sales, consumption and savings related decision-making, rising economic interdependence between economies and the inexorable march of global financial markets (with their escalating influence on the economic performance of economies across the globe), the ability to broadly track/monitor/analyze the overall economic performance/environment of an economy (developed and/or developing) and the global economy has now become a compelling imperative even for professionals, students and investors across the globe **who are not economists**.

Unfortunately, many in the aforesaid audience remain bewildered or perplexed when they attempt to ‘**make sense**’ of the overall economic environment (and rapid changes in the same) or try to broadly gauge the economic performance of an economy (developed and/or developing) and the global economy. Further, they often find it difficult to comprehend what economists, experts, policy makers and media have to say about key economic issues (such as GDP growth, inflation, unemployment, interest rates, exchange rates, recession etc.). This is largely because either they are not aware of a **set of economic indicators** that can be used for the aforesaid purposes or find that there are too many economic indicators to track (which in turn makes monitoring the economic environment/performance a formidable task) or come across literature on macroeconomics and economic indicators that is too technical or advanced for them.

To overcome these problems, we at Macroeconomics School have designed this course which contains only 21 key economic indicators (i.e. a set or framework of 21 key economic indicators), rather than too many economic indicators, and have deliberately avoided technical jargon and equations (i.e. the course has been written in a non-technical and reader-friendly manner and in a ‘story’ mode). **After completion of this course, you should be able to:**

- Broadly track/monitor/analyze the overall economic performance/environment of an economy (developed and/or developing) and the global economy in a more pragmatic or practical manner;
- Get a better understanding of what economists, policy makers and experts have to say about key economic issues (as stated above) and broadly interpret changes in these select (21) economic indicators;
- Use these economic indicators to make business/investment/commercial/financial decisions in a milieu of rising economic uncertainty;
- Gauge the likely short run or near term macroeconomic outlook (i.e. future direction) of an economy (developed and/or developing); and
- Analyze the macroeconomic stability of an economy (developed and/or developing).

Having stated the above, we at Macroeconomics School do sincerely hope that going through this course is an enriching experience for you.

1. Gross Domestic Product

Gross Domestic Product (GDP) is the primary and the most comprehensive or broadest measure of macroeconomic performance or the state of an economy and represents the market value of total output (i.e. all final goods and services) produced in an economy during a given or specific period of time (typically a quarter or a year) i.e. GDP is a comprehensive measure of the total output of final goods and services produced in an economy during a given or specified period of time. Further, it is usually the official measure of a country's economic output.

It might be pertinent to mention here that when we refer to GDP, **we mean real GDP i.e. GDP adjusted for inflation or what is called GDP at constant prices.** Further, GDP is also called aggregate output (Y). Another point worth mentioning at the outset is that when an economy is in a recession it means that GDP has contracted (usually at least for two consecutive quarters) and when an economy is recovering it means that GDP has started to grow again.

Essentially, GDP serves as a barometer of the state of an economy i.e. **the growth rate of GDP informs us of the pace at which an economy is growing, slowing down or contracting** and is also reflective of the soundness of macroeconomic management of an economy. Further, the growth rate of GDP signals the likely direction of overall economic activity in an economy in the coming quarters (i.e. in the short run).

Economists and analysts try to gauge the macroeconomic performance or state of an economy (i.e. is it expanding, slowing down or contracting) by usually comparing quarter (latest)-on-quarter (previous) growth (%) of GDP and year-on-year growth (%) of GDP (i.e. growth (%) of GDP in the latest quarter when compared to the same or corresponding quarter (period) of the previous year). The first comparison provides us with the quarterly growth rate (%) of GDP and the second comparison provides us with the annual growth rate (%) of GDP.

A sustained and high growth rate of GDP along with price stability is what policy makers' wish for in any economy and they mainly or usually use two macroeconomic policies (monetary policy and fiscal policy) to attain these key macroeconomic objectives. **Monetary policy involves changes in money supply or interest rates by the central bank of a country and fiscal policy involves changes in government expenditure and/or taxes.** It might be noted that these two policies affect or influence not only GDP and inflation, but also interest rates, exchange rates and a host of other macroeconomic variables.

A very important point worth mentioning here is that macroeconomic policy (i.e. monetary policy and fiscal policy) is primarily focused on aggregate demand management in the short run, as it takes time (over the long run) to enhance the productive capacity (i.e. aggregate supply side) of an economy, and such policy affects both GDP (i.e. aggregate output – Y) and inflation in the short run primarily through its influence on aggregate demand.

Next, the official estimate of growth rate (%) of GDP, which is published quarterly by most countries (a few countries release the official estimate of growth rate (%) of GDP on an annual, rather than on a quarterly basis) is the most sought after and awaited macroeconomic statistic by policy makers, corporate world and financial markets. This is because GDP data provides them with key information pertaining to the state of an economy and where it is likely to head in the near future (i.e. in the coming months or quarters).

Such information is very important for policy making, macroeconomic management, business/commercial/financial/strategic planning and decision-making by firms and financial investment decision-making by investors, due to the fact that growth rate (%) of GDP has a potent influence on four important variables in any economy - **interest rates, inflation rates, exchange rates and corporate profitability** – which influence overall economic activity, business confidence and investment activity, stock markets and bond yields.

Next, it's important to note that the first official estimate of growth of quarterly GDP for a given quarter, for example the latest quarter, is usually released in the following month in many countries. Though this estimate does provide us with a valuable insight into the current macroeconomic performance or the state of an economy and where it might be heading in the coming quarters, yet it's advisable not to always put undue weight on the same and one must also interpret it with care.

This is because the first official estimate of growth of quarterly GDP for a given quarter, for example the latest quarter, is usually subject to one or two subsequent revisions in the following months in most economies and if these revisions are large enough or substantial (which they sometimes can be, particularly in those economies where official data is not very reliable or of high quality) then it can sometimes significantly change one's outlook on the economy. This in turn would possibly require a reassessment of previous business/commercial/financial/strategic and investment related decisions taken soon after the release of the first official estimate of growth of quarterly GDP for a given quarter.

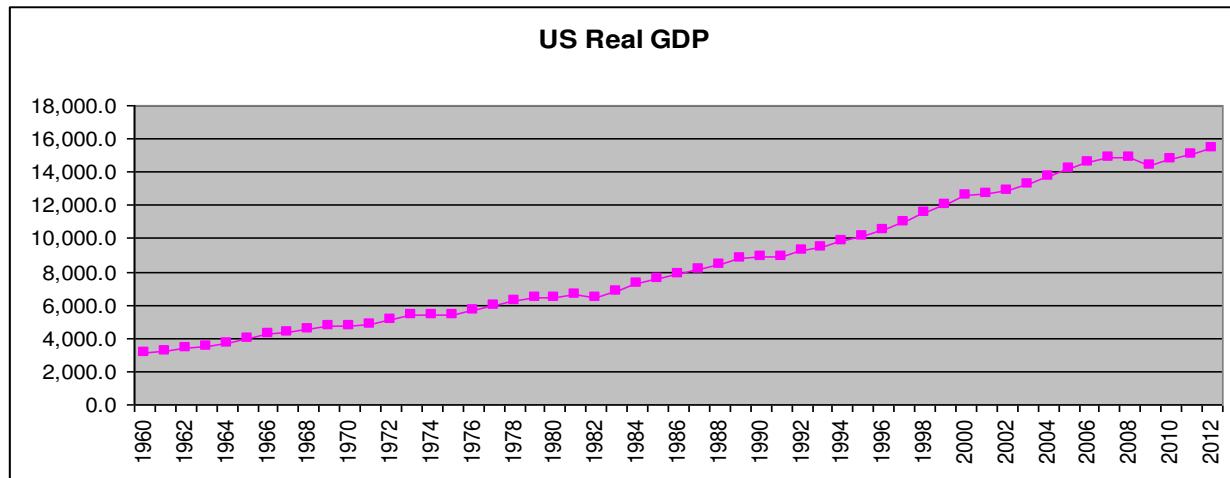
If official estimates of growth of quarterly GDP are often subject to large or substantial revisions in any economy, it leads to another major problem; policy makers find it hard or more challenging to assess the macroeconomic performance or state of the economy and the likely direction of the economy in the coming quarters - which makes the task of policy formulation and macroeconomic management particularly difficult for them.

What we have just stated is to emphasize that the quality of GDP data and other official statistics that are released in any country must be high and reliable.

If such data is often subject to large or substantial revisions in any country, then it's possible that the quality and reliability of official statistics leaves much to be desired and hence one must exercise tremendous caution when attempting to interpret the first official estimate of growth of quarterly GDP for any given quarter.

Note: Different economies have different names for the first official estimate of GDP and its subsequent revisions (for example, preliminary estimate, advance estimate, revised estimate etc.). Do find out the terms for these estimates in your economy or any other economy that you wish to monitor or are interested in.

Having stated the above, given below (next page) is an example of the GDP of a country (US economy).

Graph: US GDP (i.e. US real GDP) - 1960-2012 (in billions of chained 2009 US\$)

Source: US Bureau of Economic Analysis

Given above is a graphic representation (refer to the wavy pink line above) of time series data (1960-2012) on the US real GDP. This graph shows that in the long run aggregate output (Y) i.e. real GDP of the US economy has been increasing or trending upwards, reflecting an overall trend of economic expansion over time (i.e. in the long run). **However, note that the long run trend of US real GDP does not follow a straight line, as is evident from the graph.** This is because though the trend of US aggregate output (Y) is rising upwards, which indicates economic expansion over time, the US economy has faced alternating periods of economic expansions and contractions in economic activity in the short run (i.e. the US economy has faced cyclical fluctuations in economic activity in the short run - which are known as ‘**Business Cycles**’) due to which **economic growth has not followed (and doesn’t follow) a smooth and steady path over decades.**

A similar pattern of macroeconomic behavior is exhibited by other countries across the globe who have witnessed an overall trend of economic expansion over time (i.e. in the long run). **In the short run**, they too, like the US economy, have faced cyclical fluctuations in economic activity (where there are alternating periods of economic expansions and contractions in economic activity) and due to such fluctuations economic growth in these countries too has not followed a smooth and steady path over decades (consequently the long run trend of real GDP of these economies though trending upwards, does not follow a straight line).

A.1 GDP: Definition and Three Sides of GDP

Definition: GDP measures the market value of all final goods and services produced in a country or an economy in a given period of time (usually a quarter or a year) i.e. GDP is an aggregate measure of economic activity in an economy. As stated before, when we refer to GDP in this module and course we mean real GDP (which is measured in **constant prices** or prices during a reference or base year) i.e. **GDP adjusted for inflation.**

The purpose behind computation of real GDP is to isolate changes in output from changes in the price level, so that we know how much or how rapidly an economy has been growing as a result of an increase in the volume of output only – **which is what really matters. So the growth rate of real GDP reveals changes in total output after adjusting for inflation.**

On the other hand, nominal GDP, which is measured in current market prices, is not adjusted for inflation or price rises (i.e. it does not isolate changes in output from changes in the price level), so GDP will tend to appear higher than it actually is if we use this measure of GDP (i.e. nominal GDP).

Estimation of GDP

Having stated the definition of GDP, it's important to know that GDP is estimated in three ways or has three sides - GDP (Expenditure), GDP (Income) and GDP (Output) - which should ideally sum up to the same amount (where expenditure=income=output sides), but in practice or reality they don't due to various reasons and the difference is a statistical discrepancy.

The reason why the three sides of GDP of an economy should ideally add up is that the GDP - Output side measures economic activity in an economy in terms of the market value of goods and services produced in a given period - which is equal to the amount spent by all purchasers of the goods and services produced in the same given period (represented by the GDP - Expenditure side). Further, what is spent by someone on goods and services produced in a given period becomes the income of others i.e. what money sellers of goods and services receive by selling their output (i.e. total income – represented by GDP (income) side) has to equal what has been spent (total expenditure) by purchasers on these goods and services produced in the same given period.

In other words, output = expenditure = income (which are the three ways to estimate GDP).

Next, it might be noted at the outset that the focus in this course is on GDP - Expenditure side. Therefore, we have explained the same in a fairly elaborate manner below, when compared to GDP – Income and GDP – Output sides, **which we have mentioned only very briefly.**

1. GDP -Expenditure side

GDP -Expenditure side measures total final expenditure (i.e. the total of consumer spending (C), private investment (I), government expenditure (G) and net exports (X-M) i.e. exports (X) – imports (M)) incurred on the total or aggregate output (Y) produced in an economy during a given period of time (usually a quarter or a year) and **represents the aggregate demand side of the economy – where aggregate demand is equal to the sum of C, I, G and (X-M).**

(Note: C, I, G and (X-M) are the four components of aggregate demand).

GDP – Expenditure side can be written in the form of an equation:

$$Y = C + I + G + (X - M)$$

Constituents of GDP - Expenditure side (i.e. components of aggregate demand)

GDP - Expenditure side represents the aggregate demand side of the economy and the four components of aggregate demand are:

Consumer Spending (C) essentially means household consumption spending on durable and non-durable goods and services. It's typically or usually the dominant or largest component of aggregate demand and has a substantial effect on aggregate output of an economy. For example, consumer spending accounts for approximately 70% and 60% of aggregate demand or expenditure on aggregate output (Y) in the US and UK respectively.

An important point worth mentioning here is that trends in consumer spending in the US have important implications for global economic growth.

This is because the US economy is a very large importer of goods from other countries and if there is a sharp slowdown in consumer spending in the US, it has a substantial downside effect on demand for goods produced by other economies (i.e. demand for their exports), which in turn adversely affects overall economic activity, growth and the labour market in these economies.

Private Investment (I) refers to gross private domestic investment and includes business fixed investment, residential investment and inventory investment by firms. Private investment adds not only to aggregate demand but also to the productive capacity of an economy. Though the share of private investment (I) in aggregate demand or expenditure is typically or usually much smaller than consumer spending in most economies, however, it is the most volatile and unstable component of aggregate demand in the short run and varies considerably over the business cycle. Further, private investment (I) tends to be more volatile than the GDP over the business cycle. Moreover, private investment (I) tends to grow more rapidly than GDP during economic expansions and fall by more than GDP during economic downturns.

Government Expenditure (G) includes government final consumption expenditures plus government investment expenditure (i.e. gross capital formation expenditure by the government) and is another major component of aggregate demand.

Examples of government final consumption expenditures are expenditure on services such as defense, law and order, education, public health etc. wages and salaries of government employees and purchases of goods and services, in order to provide services to the people. Such spending affects the economy right away.

Examples of government investment expenditures are construction of new roads, bridges, airports and other forms of infrastructure spending. Such spending promotes future growth.

If an economy needs a short run demand stimulus, in order to kick start economic recovery or boost growth, then the government can either enhance its final consumption expenditures or investment expenditures or even use a combination of these two types of expenditures.

Net Exports (X-M) is simply the value of exports (X) of goods and services minus the value of imports (M) of goods and services (**Note:** Net exports is also known as ‘Trade Balance’). Exports(X) arise when residents of other countries (i.e. foreign residents) spend on the output of the domestic economy. Such spending adds to the demand for domestically produced output. At the same time, domestic residents spend on the output of other countries, which is termed as imports. Such spending by domestic residents on imports has to be subtracted from exports to arrive at the figure for net exports (X-M).

If net exports are continually negative for a long number of years, it usually reflects a high level of imports and that the country is not exporting enough to pay for its imports, which can have serious repercussions for domestic macroeconomic stability and inflation and exchange rate stability.

A point worth mentioning is that in the case of imports, domestic spending is incurred on foreign output, rather than domestic output. This goes to reduce domestic expenditure on output produced within the borders of the country and has downside implications for domestic output, income and employment growth.

Having briefly mentioned about the four components of aggregate demand (i.e. the four constituents of the Expenditure side of GDP), **it's important to note** that while an increase in aggregate demand generally leads to more output and employment in an economy, however, if aggregate demand rises too fast relative to the aggregate supply or the productive capacity of an economy, the result will be sharply rising or accelerating inflation, rather than an increase in aggregate output (and employment). Therefore, policy makers desire that growth in aggregate demand should be high, yet sustainable.

Having stated the above, provided below is a hypothetical example of the break up of GDP - Expenditure side of an economy for a particular quarter (for example, the fourth quarter of 2013) in billions of US\$.

Fourth Quarter 2013	Billions of US\$ (Level Value)	Share of GDP (%)
GDP	10,000	100
C	6,500	65
I	1,700	17
G	1,500	15
(X-M)	300	3

From this table you can gather that consumer spending (C), private investment (I), government expenditure (G) and net exports (X-M) accounted for 65%, 17%, 15% and 3% of GDP respectively in the fourth quarter of 2013 in a particular economy. We have provided you with this example just to enhance your understanding of the four constituents of GDP - Expenditure side (i.e. the four components of aggregate demand).

An important point worth noting here is that net exports (X-M) can either be positive or negative. When exports exceed imports, net exports are positive and when exports are lower than imports, net exports are negative. An increase in a country's exports increases aggregate or total final expenditure on domestically produced output. **On the other hand**, when domestic residents import goods from other countries, rather than purchasing the same from domestic suppliers, they are spending money or incurring expenditure on foreign output rather than domestic output, which reduces the aggregate or total final expenditure on domestically produced output.

2. GDP - Income side

GDP - Income side measures the sum of total factor incomes (wages, salaries, interest rent, profits etc.) earned by individuals and corporations in the production of total or aggregate output in an economy during a given period of time (usually a quarter or a year). These incomes are returns to labor and the capital employed for production of output in an economy.

A very important point to note with reference to the share of factor incomes among labor and capital is that, on the average, typically about two thirds of such incomes (gross) go to labor and the rest to capital. Since a very large percentage (%) of factor incomes usually go to labor, the state of the labor market has important implications for the pace of growth of an economy.

GDP - Income side is used to calculate the per capita income of a country.

3. GDP - Output side

GDP - Output side measures the total or aggregate output produced by each sector (i.e. broadly categorized into agriculture (and allied activities), industry and services sectors) of an economy during a given period of time (usually a quarter or a year).

It might be noted that GDP - Output side represents the aggregate supply side of the economy and informs us about the relative size or importance of each sector in terms of their share (%) in the domestically produced output.

Having stated the three different ways in which GDP of a country is estimated, it's important to note that GDP - Expenditure side is usually the preferred or 'headline' macroeconomic indicator to assess the state of the economy in most economies. However, in some economies (such as India) official data on GDP - Expenditure side is unreliable and consequently GDP - Output side is the **preferred or 'headline' macroeconomic indicator to assess the state of the economy.**

Essentially, policy makers and analysts in most economies focus on GDP growth (%) – Expenditure side (along with growth (%) in each of its constituents – consumer spending, private investment, government expenditure and net exports) to gauge the state of the economy.

Having stated the above, as already mentioned before, the focus here is on GDP - Expenditure side. This is because macroeconomic policy focuses predominantly on the expenditure side of GDP (i.e. aggregate demand side of the economy) in the short run.

In other words, macroeconomic policy focuses predominantly on management of aggregate demand in the short run for sound macroeconomic management. **Consequently,** it is the aggregate demand side of the economy that is of importance in the short run, rather than the aggregate supply side of the economy. This is because it takes time (over the long run) to enhance the productive (i.e. aggregate supply) capacity of an economy

Having stated the above, it might be noted that macroeconomics for the short run (and related analysis) focuses on business cycles (i.e. short run fluctuations in economic activity in an economy - **which are primarily or usually due to fluctuations in aggregate demand** rather than aggregate supply), and macroeconomic stabilization policies (monetary and fiscal policies) that are used for short run aggregate demand management (in order to smoothen short run fluctuations in economic activity and achieve high, yet sustainable growth of GDP (along with price stability) in an economy).

It might be noted that macroeconomics for the short run focuses on the aggregate demand side of the economy, while macroeconomics for the long run focuses on the aggregate supply side of the economy.

Having stated the above, let us now turn to a few important points with reference to GDP which are worth keeping in mind:

- $C + I + G + (X - M)$ represents aggregate or total expenditure on domestically produced output i.e. aggregate demand for domestically produced output. **Having stated this,** an important point worth mentioning is that domestic households, firms and the government (i.e. domestic residents) do not spend only on domestically produced output, but also spend on output produced in other countries (i.e. imports (M)).

Therefore, M is subtracted from the equation $Y = C + I + G + (X - M)$. Further, X (exports) is added to this equation, as foreign residents also spend on domestically produced output – **adding to the demand for or expenditure on domestically produced output.**

- Only final goods, not intermediate goods (i.e. goods used in the production of final goods), are included in the computation of GDP of a country.
- Only goods produced and services offered during a given or specific time period (typically a quarter or a year) are included in the computation of GDP for that particular period.
- Transfer incomes such as unemployment benefits, pensions, etc. are not included in the computations of GDP as they represent monetary transfers to individuals with no corresponding receipt of goods or services. Moreover, income from capital gains and loans taken for consumption purposes are not included in the computation of GDP.
- When countries are structurally different, for example, US and China, and one wishes to compare their overall macroeconomic performance, then the appropriate measure for such comparison is the growth rate of their respective GDP's.
- It must be noted that the output of goods and services produced only by the factors of production located within an economy (irrespective of the nationality of the labour employed in the production process and the organization) will be included in the GDP of that economy. For example, if Japanese companies produce cars in the US or a foreign worker is employed in the US and is producing output there, then such output will be included in the US GDP as production is taking place within the boundaries of the US economy.
- How powerful is the impact of the global economic environment on the rate of growth of GDP of an economy and fluctuations or volatility in the same depends on the degree of 'openness' of that economy and its integration with the global economy.
- The trend of rapidly accelerating economic integration and interdependence between countries, due to marked increase in cross-border trade, investments and capital flows (i.e. more 'openness'), is making economies more vulnerable to external shocks and to increases and decreases in spending or demand levels in other countries, which in turn is leading to greater fluctuations and volatility in their respective GDP's in the short run. Consequently, monitoring the economic performance of major economies (such as the US, Eurozone, China, Japan, Germany and UK) has become an imperative (as these economies drive the world economy) and also monitoring the economic performance of a country's trading partners is of paramount importance or significance.
- **Financial globalization is exacerbating or increasing fluctuations or volatility in the rate of growth of GDP of many economies across the globe.**
- Impact of changes in the GDP of an economy on its stock market and the bond market can be significant.
- The nominal GDP can be a misleading indicator of the state of an economy or its macroeconomic performance, as unlike real GDP, it does not account for inflation. When inflation is not accounted for in the GDP statistics, then GDP will appear higher than what it actually is – giving an erroneous or misleading picture about the state of an economy.

- The GDP of a country represents the value of all final output (of goods and services) produced in a country during a given or specific period of time (typically a quarter or a year). However, what is produced is not always sold. The part of output that is produced, yet not sold, is a part of inventory and is therefore classified as additions to inventory (**which is a part of private investment (I)**).

It might be noted that additions to inventory during a given or specified period of time are also counted as a part of GDP for that period. In other words, additions to inventory during any given or specific time period must be added to the actual output of goods and services sold to domestic residents and foreign residents to calculate or arrive at the GDP for that particular period.

In essence, both final output sold and not sold (= final output produced) are counted as part of GDP.

- There is a difference between GDP (gross domestic product) and gross national product (GNP). **GNP = GDP + Net Factor Income from Abroad** (i.e. factor income received from abroad – factor payments made abroad). Examples of factor incomes and payments are wages, salaries, rent, dividend, interest and profits.
- The three main sources of economic growth in a country over time (i.e. in the long run) are increases in labour supply and capital, rise in the productivity of these two factors of production (labour and capital) and technological advances.

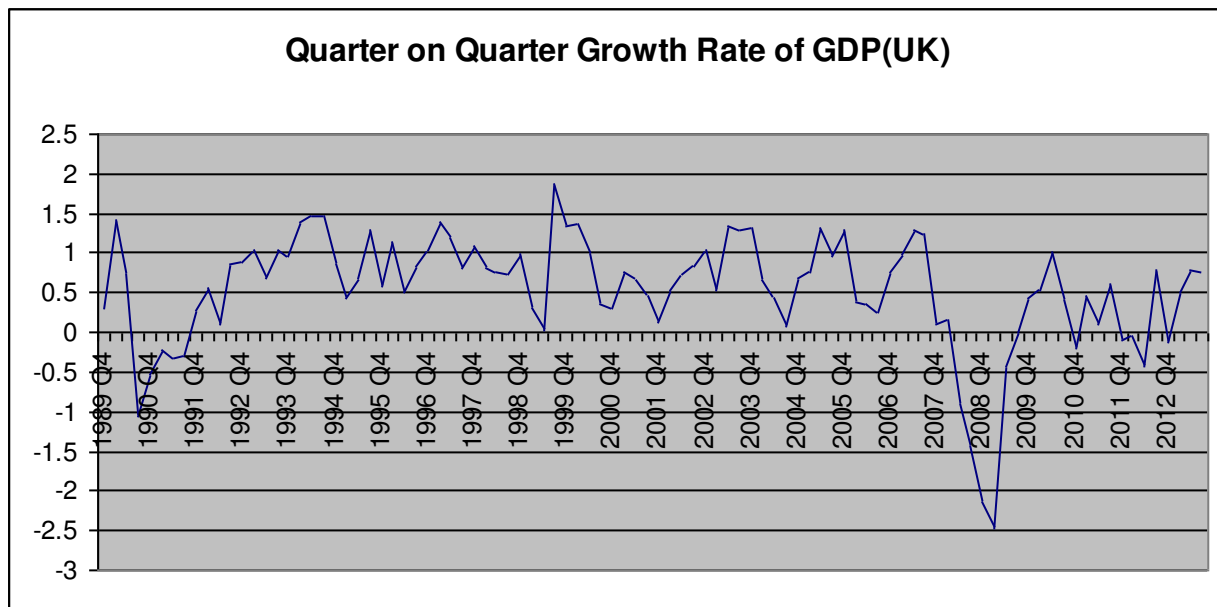
Having stated the above, let us now turn to a practical example of GDP growth (i.e. real GDP growth) of an economy.

A.2 Example of GDP growth (i.e. real GDP growth)

Provided below is an example of quarter-on-quarter growth rate (%) of GDP and year-on-year growth rate (%) of quarterly GDP along with formulas to compute these growth rates and certain important points with reference to these growth rates.

1. Quarter-on-quarter growth (%) of GDP

Provided below (next page) is a graph of quarter-on-quarter growth rate (%) of GDP (UK economy) for every quarter from 1989Q4 to 2013Q3 (**Note: Q refers to ‘Quarter’**)



Source: Office for National Statistics, UK

Computation of quarter-on-quarter growth rate (%) of GDP

Formula

$$\frac{(\text{GDP (2013 Quarter } t) - \text{GDP (2013 Quarter } t-1))}{\text{GDP (2013 Quarter } t-1)} \times 100$$

For example, if you want to compute quarter-on-quarter growth rate (%) of GDP of an economy for the 4th quarter of 2013, then the formula is:

$$\frac{(\text{GDP (2013 4}^{\text{th}} \text{ Quarter)} - \text{GDP (2013 3}^{\text{rd}} \text{ Quarter}))}{\text{GDP (2013 3}^{\text{rd}} \text{ Quarter)}} \times 100$$

Or

If you want to compute quarter-on-quarter growth rate (%) of GDP of an economy for the 3rd quarter of 2013, then the formula is:

$$\frac{(\text{GDP (2013 3}^{\text{rd}} \text{ Quarter)} - \text{GDP (2013 2}^{\text{nd}} \text{ Quarter}))}{\text{GDP (2013 2}^{\text{nd}} \text{ Quarter)}} \times 100$$

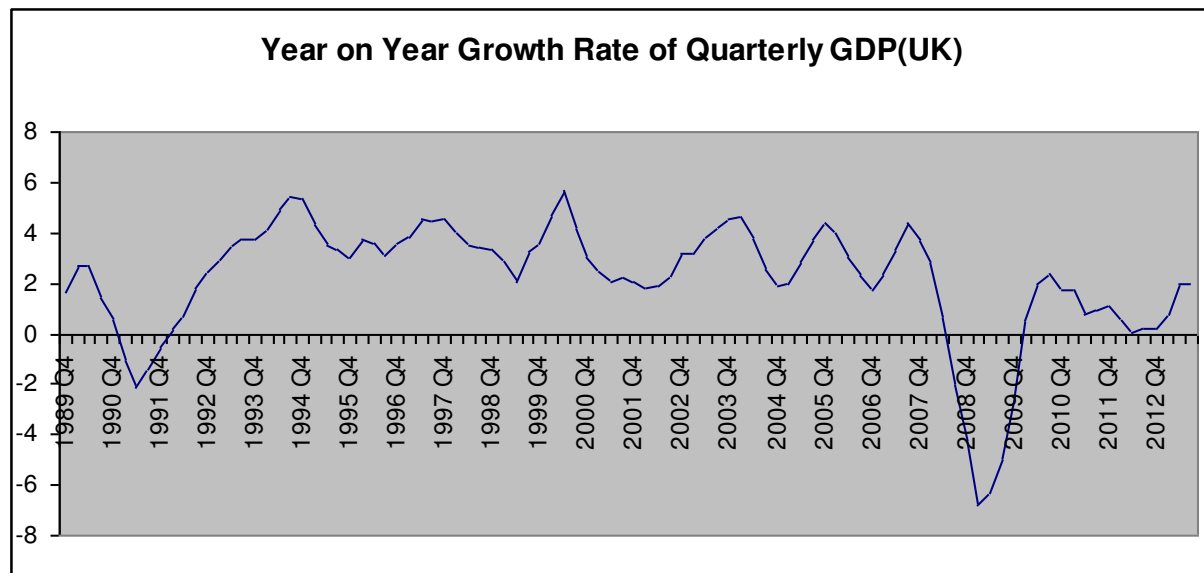
Similarly, we can obtain the quarter-on quarter-growth rate (%) of GDP for any quarter or for as many quarters as we like. You can easily use the Excel spreadsheet to perform such computations.

Key points with reference to quarter-on-quarter growth rate (%) of GDP

- Quarter-on-quarter growth rates of GDP are crucial to track and monitor the quarterly changes or evolution of an economy and help to provide a snapshot or a summary view of the current and very recent macroeconomic performance of an economy i.e. quarter-on-quarter growth rates of GDP are very useful to monitor and track short term macroeconomic developments in an economy and its growth momentum.
- The main advantage of quarter-on-quarter growth rates of GDP is that they can be used for relatively quick or early detection or identification of turning points in economic activity (i.e. economic expansions and downturns) in an economy. In comparison, year-on-year growth rates of quarterly GDP are slower in the detection or identification of turning points in economic activity in an economy.
- For computation of quarter-on-quarter growth rates of GDP, the GDP data must be seasonally adjusted, in order to eliminate the effect of seasonality on such data. The presence of seasonal fluctuations in the GDP data can obscure the underlying trend in such time series data and consequently lead to erroneous conclusions about the current and very recent macroeconomic performance of an economy.
- Quarter-on-quarter growth rates of GDP can be quite or highly volatile from quarter to quarter. Therefore, robust growth of GDP in one quarter does not always imply that the economy will continue to grow rapidly in the subsequent quarter. It's very important to keep this in mind.
- The occurrence of irregular events in any given quarter or quarters, for example, wars, droughts, surge in oil prices, strikes, natural disasters, financial crisis etc. can cause a substantial plunge in output in an economy and result in quarter-on-quarter growth rates of GDP being highly variable, which in turn can obscure the underlying trend in such time series data. Therefore, when you analyze quarter-on-quarter growth rates of GDP for a given period (for example, for 3-4 quarters) or the quarter-on-quarter growth rate of GDP for the most recent quarter (i.e. the latest quarter for which official estimate of quarter-on-quarter growth rate of GDP is available) do **investigate** if there has been an occurrence of an irregular event or events in the same period (i.e. quarter or quarters) and how severely has it affected output.
- A major disadvantage of quarter-on-quarter growth rates of GDP is that they are subject to more frequent or larger revisions, when compared to year-on-year growth rates of quarterly GDP.

2. Year-on-year growth(%) of quarterly GDP

Provided below (next page) is a graph of year-on-year growth rate (%) of quarterly GDP (UK economy) for every quarter from 1989Q4 to 2013Q3 (**Note: Q refers to 'Quarter'**)



Source: Office for National Statistics, UK

Computation of year-on-year growth rate (%) of quarterly GDP

Formula

$$\frac{(\text{GDP (2013 Quarter t)} - \text{GDP (2012 Quarter t)})}{\text{GDP (2012 Quarter t)}} \times 100$$

For example, if you want to compute year-on-year growth rate (%) of quarterly GDP of an economy for the 4th quarter of 2013, then the formula is:

$$\frac{(\text{GDP (2013 4th Quarter)} - \text{GDP (2012 4th Quarter)})}{\text{GDP (2012 4th Quarter)}} \times 100$$

Or

If you want to compute year-on-year growth rate (%) of quarterly GDP of an economy for the 3rd quarter of 2013, then the formula is:

$$\frac{(\text{GDP (2013 3rd Quarter)} - \text{GDP (2012 3rd Quarter)})}{\text{GDP (2012 3rd Quarter)}} \times 100$$

Similarly, we can obtain the year-on-year growth rate (%) of quarterly GDP for any quarter or for as many quarters as we like. You can easily use the Excel spreadsheet to perform such computations.

Key points with reference to year-on- year growth rate (%) of quarterly GDP

- Year-on-year growth rates of quarterly GDP for several quarters provides us with a more sound or reliable underlying picture of short run fluctuations in economic activity (known as 'Business Cycles') in an economy than quarter-on-quarter growth rates of GDP.
- If we wish to gauge the macroeconomic performance of an economy over the last four quarters (including the latest quarter for which official estimate of GDP has been released) i.e. how rapidly or slowly has the economy actually grown in the last four quarters, it's preferable to use year-on-year growth rates of quarterly GDP rather than quarter-on-quarter growth rates of GDP, as year-on-year growth rates of quarterly GDP are a more reliable or sound measure of the underlying pace of growth of an economy over a longer period.
- An important reason why economists and analysts prefer to rely on year-on-year growth rates of quarterly GDP over quarter-on-quarter growth rates of GDP is that the former are subject to smaller revisions than the latter.
- Year-on-year growth rates of quarterly GDP are more useful in detection of underlying trends in the pace of economic activity in an economy (as they display an underlying trend) than quarter-on-quarter growth rates of GDP. **In other words**, year-on-year growth rates of quarterly GDP give a better or sounder picture of the underlying growth rate of an economy over a longer period than quarter-on-quarter growth rates of GDP.
- Generally, when an economy is on a steady growth path (rather than growth being highly volatile or subject to considerable volatility) focusing only on year-on-year growth rates of quarterly GDP would be adequate for most purposes. However, when growth in an economy is highly volatile or subject to considerably volatility in the short run, then one also needs to pay attention to quarter-on-quarter growth rates of GDP.
- Many countries have adopted year-on-year growth of quarterly GDP as the primary measure of economic activity.
- Year-on-year growth rates of quarterly GDP are also sensitive to occurrence of irregular events. **For example**, if there was an occurrence of an irregular event that caused a substantial plunge in output in a particular quarter this year, then the corresponding quarter of the next year (assuming that there is no occurrence of any irregular event) could show an exceptionally strong year-on-year growth in quarterly GDP – **which can be very misleading**.
- Analysis of year-on-year growth rates of quarterly GDP of the previous 3 to 5 years is more than adequate (for most situations) if one wants to obtain or gain a sound insight of the underlying short run macroeconomic trends in an economy and changes in the same.

A.3 GDP Data – Important things to look for

1. GDP Expenditure side – Important things to look for

Though GDP is measured in three different ways, in reality, when official data is reliable, the growth rate of GDP - Expenditure side (which represents the aggregate demand side of an economy) is usually the preferred or principal macroeconomic variable used to measure the macroeconomic performance of an economy.

Consequently, quarter-on-quarter change i.e. quarter-on-quarter growth rate (%) in its four components (i.e. consumer spending (C), private investment (I), government expenditure (G) and net exports (X-M)) should be analyzed after official estimate of quarter-on-quarter growth rate (%) of GDP - Expenditure side for the latest quarter is released, in order to know which component (or components) is **currently** driving overall growth (i.e. growth in GDP - Expenditure side) or making a very strong contribution to it and which component (or components) is pulling down overall growth. **Such analysis is also very important**, as it is changes in aggregate demand that primarily determine changes or fluctuations in economic activity in an economy in the short run.

For such analysis, what one needs to do is to **compare** the overall quarter-on-quarter growth rate (%) of GDP - Expenditure side of an economy with the quarter-on-quarter growth rate (%) of each of its components (i.e. C, I, G, (X-M)) for the same period (as stated above). The component (or components) that registers a higher growth rate than the overall growth rate of GDP - Expenditure side is obviously making a very strong contribution to overall growth and driving it. While the component (or components) whose growth rate is less rapid or lower than the overall growth rate of GDP - Expenditure side is obviously pulling down overall growth.

For example, if, according to latest official data, the overall growth rate (quarter-on-quarter) of GDP - Expenditure side is 0.9% and growth rate of consumer spending (quarter-on-quarter) is 1.2%, then robust consumer spending is currently propelling or driving overall growth (i.e. making a very strong contribution to overall growth). **In other words**, since consumer spending is growing faster than GDP, overall growth is currently consumer driven. **On the other hand**, if the growth rate of private investment (quarter-on-quarter), for example, is only 0.6% (which is less than the overall growth rate (quarter-on-quarter) of GDP - Expenditure side), then weak growth in private investment is currently pulling down overall growth.

Similarly, you can compare the overall growth rate (quarter-on-quarter) of GDP - Expenditure side with the quarter-on-quarter growth rate of the other two components – **government expenditure and net exports** – to find out whether they are growing faster or slower than GDP and hence contributing strongly to overall growth or pulling it down.

Such analysis will enable you to determine whether current overall growth is being driven or pulled down by consumer spending, private investment, government expenditure or the external sector or some combination of these components of aggregate demand.

Having stated the above, let us now turn to the next point.

If you are interested in knowing which component (or components) of GDP - Expenditure side has **recently** (i.e. **in the past 4 quarters**, including the latest quarter for which official GDP data has been released) been driving overall growth in an economy and which component (or components) has been pulling it down, then it's preferable to use year-on-year growth rates of quarterly GDP - Expenditure side and compare it with year-on-year quarterly growth rates of each of its components (i.e. C, I, G, (X-M)) for all the 4 quarters.

The component (or components) that has **usually or on the average** been growing more rapidly than GDP - Expenditure side over the past 4 quarters has obviously been driving overall growth or making a strong contribution to it over this period.

On the other hand, the component (or components) that has usually or on the average been growing more slowly than GDP - Expenditure side over the past 4 quarters has obviously been pulling down overall growth over this period.

Having stated the above, it might be pertinent to mention that when you perform the aforesaid types of analysis (either for the latest quarter or for the past 4 quarters – as stated above) do find out the percentage (%) share of each component in GDP - Expenditure side (i.e. share of each component as a percentage (%) of GDP - Expenditure side). **This is because of two reasons.**

First, for example, if private investment (I) and consumer spending account for around 50% and 20% respectively of GDP - Expenditure side in an economy (though typically it is the other way around) and both private investment and consumer spending register the same rate of growth (for example, 0.7%), then private investment will boost GDP more than consumer spending as it accounts for a much larger percentage (%) share (around 50%) of GDP - Expenditure side than consumer spending (around 20%).

Second, larger the percentage (%) share of any particular component in GDP - Expenditure side more pronounced or amplified will its effect (positive or negative) be on overall growth.

For example, if consumer spending accounts for around 70% of GDP - Expenditure side in an economy, then a collapse in consumer demand can plunge the economy into a recession or a protracted economic slowdown. Whereas, if net exports account for only 3% of GDP - Expenditure side in an economy, then a collapse in export demand (i.e. collapse in demand by foreign residents for domestically produced output) will dampen aggregate demand and economic activity in this economy, yet the downside effect on this economy is likely to be much less pronounced or severe when compared to a collapse in consumer demand, as the economy is not heavily dependent on export revenues and consequently the adverse impact of external shocks on its GDP growth is likely to be much less severe or pronounced.

Having stated the above, let us now mention something worth noting:

If one is interested in gaining an insight into the demand structure of an economy and how it is changing over time, then it's advisable to take at least 10 years (and ideally 30 years) of annual (yearly) data on all the components of GDP - Expenditure side and obtain their percentage share (%) for each year.

Analyzing such data will reveal whether the demand structure of an economy is balanced or not and whether any gradual 'rebalancing' of the economy has been taking place (if the share of any component as a percentage (%) of GDP - Expenditure side is unduly high).

This kind of analysis will also reveal:

1. Importance of government expenditure in an economy.
2. 'Openness' of an economy to international trade.
3. Whether an economy has been investing enough or not over a decade (or more) to increase its productive capacity (which enhances supply of output in the future and leads to higher economic growth).
4. Whether an economy has been investing excessively (leading to a supply glut).

5. Whether there has been excessive consumer spending and insufficient investment spending (i.e. insufficient private investment) in an economy (which invariably leads to higher domestic inflation and interest rates).

Having stated the above, mentioned below are few important points with reference to GDP - Expenditure side, as they are important from the point of ‘real world’ macroeconomic analysis.

While GDP is usually the primary and the most comprehensive or broadest measure of macroeconomic performance of a country or the state of an economy, its important to know that one should not only rely on the overall GDP figure to make an assessment of the state of an economy for any particular time period (say for a quarter or a year) and its short run economic outlook. This is because the overall GDP figure for any particular time period (say for a quarter or a year) can sometimes distort the underlying reality about the true state of an economy, as it includes investment in inventories (or what is commonly called **changes in business inventories**) by firms. **Read on and this point should become very clear to you.**

A. Total Final Sales

If you wish to obtain a **‘true’ picture** of the actual amount of domestically produced output that was sold to domestic and foreign residents in a particular time period (for example, in a quarter or a year) i.e. obtain a ‘true’ picture of the underlying strength or weakness of domestic and foreign demand (i.e. total demand) for domestically produced output during a specific period of time, then one should subtract investment in inventories (or what is commonly called **changes in business inventories**) undertaken by firms (which is a part of private investment (I)) in that particular time period from the overall GDP figure for that particular time period – **to arrive at what is called or termed as ‘Total Final Sales’ (termed as Z here).**

Inclusion of investment in inventories i.e. **changes in business inventories** in the overall GDP figure distorts the true picture of the underlying strength or weakness of domestic and foreign demand for domestically produced output and consequently could result in an incorrect assessment of the state of an economy and its short run economic outlook.

‘Total Final Sales’ (termed as Z here) of domestically produced output can be calculated by using the following equation:

$$Z = C + I - \text{Inventory Investment (i.e. Changes in Business Inventories)} + G + (X - M) \quad (1)$$

(Basically this formula gives us ‘Total Final Sales’ i.e. GDP – changes in business inventories).

If you recollect, the formula for GDP - Expenditure side is:

$$Y = C + I + G + X - M$$

(Note: private investment includes investment in inventories i.e. **changes in business inventories**, which has been excluded in equation 1, to arrive at **‘Total Final Sales’**)

Having stated the above, one should compare the year-on-year quarterly growth rate (%) of total final sales with that of year-on-year growth rate (%) of quarterly GDP for the **latest quarter for which official GDP data is available**. If total final sales are growing slower than GDP, it may be signaling an economic slowdown in the coming quarters due to slowing demand (domestic and foreign) for domestically produced output, which could result in an unintended rise or build-up of business inventories (i.e. goods unsold) and consequent cut back in production by firms.

On the other hand, if total final sales are growing faster than GDP, it may be signaling strong economic expansion in the coming quarters due to growing demand (domestic and foreign) for domestically produced output, which could result in an unexpected depletion in business inventories and an increase in production by firms to cater to increasing demand.

Next, one should also compare the year-on-year quarterly growth rate (%) of total final sales with that of year-on-year growth rate (%) of quarterly GDP for the previous 4 quarters (including the latest quarter for which official GDP data is available), in order to obtain a more accurate assessment of the **recent and current** underlying strength or weakness of total demand (domestic and foreign) for domestically produced output.

Such analysis, as stated above, should provide you with a more accurate assessment of the underlying reality about the true state of an economy.

B. Domestic Final Sales

If you are interested in gauging only the ‘true’ underlying strength or weakness of **domestic demand for output produced both domestically and in other countries** (i.e. demand for imports) in any particular time period (for example, in a quarter or a year) - as reflected by actual expenditure on output incurred (i.e. goods and services actually bought) by domestic residents in that particular time period regardless of whether the output was produced domestically or abroad – **then one should focus on ‘Domestic Final Sales’ (termed as L here), which can be calculated by using the following equation:**

$$L = C + I - \text{Inventory Investment (i.e. Changes in Business Inventories)} + G \quad (2)$$

Where L represents ‘Domestic Final Sales’ of output produced both domestically and abroad (i.e. output that is actually sold) to domestic residents in any particular time period (for example, in a quarter or a year). **Note, investment in inventories i.e. changes in business inventories, and net exports (X-M) have been excluded from equation 2.**

It might be noted that **‘Domestic Final Sales’** is an excellent measure of the underlying strength or weakness of actual domestic demand for both domestic and foreign output in any particular time period.

A strong year-on-year quarterly growth (%) in domestic final sales usually implies robust domestic demand for both domestic and foreign output, while a weak year-on-year quarterly growth (%) in the same implies weak domestic demand for both domestic and foreign output.

2. GDP Output Side – Important things to look for

In some economies, where official data on GDP - Expenditure side is unreliable, the focus is on GDP growth (%) - Output side.

This measure of GDP represents the aggregate supply side of an economy and informs us about the relative size or importance of each sector (broadly categorized into agriculture (and allied activities), industry and services sectors) in an economy in terms of its percentage (%) share in aggregate output (i.e. as a percentage (%) of GDP - Output side) and how the percentage (%) share of each sector is changing over time.

If one is interested in knowing which sector (or sectors) of the economy is currently driving overall growth and which sector(or sectors) is pulling it down, then compare the overall quarter-on-quarter growth rate (%) of GDP - Output side with quarter-on-quarter growth rate (%) of each of the sectors (broadly categorized into agriculture (and allied activities), industry and services sectors) after official quarter-on-quarter growth rate (%) of GDP - Output side for the latest quarter is released.

The sector (or sectors) that registers a higher growth rate (%) than the growth rate (%) of GDP - Output side is obviously making a very strong contribution to overall growth and driving it. While the sector (or sectors) whose growth rate is less rapid or lower than the growth rate of GDP - Output side is obviously pulling down overall growth.

For example, if, according to latest official data, growth rate (%) of GDP (quarter-on-quarter) - Output side is 0.8% and the services sector growth (quarter-on-quarter) is 1.2%, then the services sector is currently propelling or driving overall growth (i.e. making a very strong contribution to overall growth).

On the other hand, if the agriculture sector or the industrial sector or both grow less rapidly (quarter-on-quarter) than the growth rate (%) of GDP (quarter-on-quarter) - Output side, then either of them or both are **currently** pulling down overall growth.

Next, if you are interested in knowing which sector (or sectors) of the economy has **recently** (i.e. in the past 4 quarters, including the latest quarter for which official GDP data has been released) been driving overall growth and which sector (or sectors) has been pulling it down, then it's preferable to use year-on-year growth rates of quarterly GDP - Output side and compare it with year-on-year quarterly growth rates of each of the sectors for all the 4 quarters.

The sector (or sectors) that has **usually or on the average** been growing more rapidly than GDP - Output side over the past 4 quarters has obviously been driving overall growth or making a very strong contribution to it over this period. **On the other hand**, the sector (sectors) that has **usually or on the average** been growing more slowly than GDP - Output side over the past 4 quarters has obviously been pulling down overall growth over this period.

Having stated the above, it might be pertinent to mention that when you perform the aforesaid types of analysis (either for the latest quarter or for the past 4 quarters – as stated above) do find out which is the most important sector of the economy (in terms of its share as a percentage (%) of GDP - Output side). This is because if two sectors register the same rate of growth, the sector that has a much higher share in aggregate output (i.e. higher share as a percentage (%) of GDP - Output side) will boost GDP more as it accounts for a much larger share of economic activity in the economy.

For example, if the share of the services sector (i.e. as a percentage (%) of GDP - Output side) is 75% or more in an economy (which is the case in some developed economies) and the share of the industrial sector or the agriculture sector is only 10-12% in that economy, then a 1% growth in the services sector will boost GDP more than a 1% growth in the industrial sector or the agriculture sector.

Next, one should be aware of the sectoral composition of aggregate output in an economy i.e. the relative size or importance of each sector (broadly categorized as agriculture (and allied activities), industry and services sectors) in an economy in terms of its percentage (%) share in GDP - Output side. **This is due to two reasons.**

First, because the sectoral composition of aggregate output is used to assess the level of development of an economy. Greater the share of the services sector (as a percentage (%) of GDP - Output side) in an economy, higher is the level of development of that economy.

It might be noted that the share of services sector (as a percentage (%) of GDP - Output side) is more than 70% in many developed economies (and in some developed economies the share of the services sector is above 75% - as stated before). Emerging/developing economies (such as China, India, South Africa, Brazil etc.) too are trying to increase the share of the services sector in their respective economies - **through various economic reforms.**

Second, the sectoral composition of aggregate output influences the demand structure of an economy.

For example, in an economy where the percentage (%) share of the services sector in GDP - Output side is large or dominant or is increasing rapidly, the demand for consumer durables, luxury goods etc. will be considerably higher or expanding more rapidly (due to higher or increasing incomes) than in an economy where the share of the agriculture sector or the industrial sector is large or dominant, or where the share of the services sector is stagnant or growing very slowly.

Having stated the above, we would like to suggest something important; it's advisable to analyze both GDP growth (%) – Expenditure side (along with growth in each of its components) and GDP growth (%) - Output side (along with growth in each sector), **as the former represents the aggregate demand side of the economy and the latter represents the aggregate supply side of the economy.**

To understand how an economy really functions and how aggregate output (i.e. GDP) and the general price level (P) are determined in an economy it's important to understand both sides (i.e. aggregate demand and aggregate supply sides) of an economy, **even if GDP - Expenditure side is the preferred or 'headline' macroeconomic indicator to assess the state of the economy in most economies.**

2. Consumer Spending

Consumer Spending (C) essentially means household consumption spending on durable and non-durable goods and services. It's typically or usually the dominant or largest component of aggregate demand and has a substantial effect on the aggregate output of an economy. To give you a perspective of its importance in driving economic activity, consumer spending accounts for around 45-70% of **GDP - Expenditure side** in most economies.

For example, in the US economy, consumer spending accounts for around 70% of aggregate demand or expenditure on aggregate output (Y), which underscores the fact that it drives growth across most economic sectors of this economy – i.e. consumer spending is the cornerstone of the US economy. Further, given that the share of consumer spending in GDP is disconcertingly high in the US economy and that it drives more than two thirds of economic activity there, this economy is particularly vulnerable to a slow down in consumer spending.

In economies where the percentage (%) share of consumer spending in GDP is significantly high (i.e. approximately around or over 60%), a downturn in consumer spending (resulting from shocks to the money and goods markets, financial crisis, oil price shocks, collapse of consumer confidence, changes in fiscal and monetary policy etc.) plays a very significant role in economic downturns/slowdowns or deceleration in economic activity.

Having stated the above, it might be worth noting that though consumer spending is usually about three times as large as private investment ((I) - the second component of aggregate demand), yet it is much less volatile than private investment over the business cycle.

A.1 Consumer Spending - Categories

Consumer spending is usually divided into three categories:

Consumer spending is divided into three categories: consumer durable goods (items expected to last more than three years), consumer nondurable goods, and services.

Some examples:

Consumer Durable Goods – cars, furniture, appliances, washing machine, consumer electronics and jewelry

Consumer durables tend to be much more expensive than consumer non-durables and typically involve borrowing by consumers from banks to finance purchases of the same.

Consumer Non Durable Goods – fast moving consumer goods such as food and drink, alcohol and tobacco, detergents, cosmetics, clothing and footwear

Services – recreation and culture, communications, health, transport and education

A.2 Consumer Spending: Key Aspects

Consumer spending on nondurable goods and services, which together usually account for a very substantial percentage (around 85% or slightly more) of overall or total consumer spending (C), is much more stable than consumer spending on durable goods and tends to fluctuate less or is less volatile than GDP over the business cycle. Whereas, consumer spending on durable goods, which usually accounts for around 12-15% of overall or total consumer spending (C), is much more volatile in comparison to consumer spending on nondurable goods and services and tends to fluctuate more or is more volatile than GDP over the business cycle.

However, overall or total consumer spending (C) is less volatile or fluctuates less than GDP over the business cycle.

Consumer spending on durables is the most volatile or least stable component of overall consumer spending (C), due to several reasons:

First, the cyclical pattern in consumer spending on durables often reflects the fact that households' postpone purchases of consumer durable goods in response to fall in incomes (due to an economic downturn, recession, unemployment or other reasons), as these are discretionary items of spending (as opposed to spending on nondurable goods such as food, clothing and other necessities and spending on certain services such as education, medical services etc.) and typically involve borrowing (i.e. consumer credit) because purchasing such goods involves a substantial outlay of income.

Second, an uncertain economic outlook precipitated by shocks to the money and goods markets, financial crisis (such as the recent global financial crisis), oil price shocks, collapse of consumer confidence, changes in fiscal and monetary policy etc. typically discourages households' to purchase consumer durables, until the economic outlook improves (which leads to a more optimistic outlook with reference to expected future incomes, employment and ability to repay debt and consequently encourages higher spending on consumer durable goods by households).

Third, cost and availability of credit and changes (increase or decrease) in financial and non-financial wealth of the household sector have a substantial influence on household decisions to purchase consumer durable goods, thereby making purchases of consumer durable goods more volatile than purchases of non-durable goods and services.

Fourth, since consumers spending on durable goods are non-essential expenditures and **more income elastic than non-durable goods**, they can be reduced or drastically pruned from a household's budget in an economic downturn or recession, given the downside pressures on household disposable incomes in a parlous economic scenario. Similarly, such spending can increase substantially or markedly when there is rapid economic expansion, as household disposable incomes tend to rise during economic expansions.

Next, it might be noted that consumer spending on durable goods is an indicator of future expected incomes in the short run. When there is a sharp slowdown or contraction in the growth of consumer spending on durable goods, it suggests that households' are increasingly pessimistic about their future expected incomes and when there is rapid growth in the same, it suggests that households' are increasingly optimistic about their future expected incomes. Further, a marked slowdown or contraction in the growth of consumer spending on durable goods tends to be an advance warning signal of a marked slowdown or contraction in economic activity or growth in the near future (i.e. over several months or coming quarters) and a surge or rapid growth in the same tends to be an advance signal of increasing or rapid economic expansion of economic activity or growth in the near future.

The key factors that can cause a sharp slowdown or contraction in household demand for consumer durable goods are sluggish growth or fall in real incomes of households, subdued growth in earnings from employment, rapidly accelerating inflation, fall or plunge in consumer confidence, lack of availability of credit, high interest rates, increasing pessimism about future expected incomes, marked fall in house prices, rising unemployment, negative shocks to the economy (such as a financial crisis) and an uncertain economic outlook.

On the other hand, positive changes or developments in the aforesaid variables can cause a marked rise or increase in household demand for consumer durable goods.

Having stated the above, a point worth mentioning is that household demand for consumer durable goods tends to get particularly affected, if a negative shock is transmitted to the economy from financial markets (such as the recent global financial crisis).

A negative shock transmitted from financial markets (such as the recent global financial crisis) to an economy tends to make households' delay purchases of consumer durables mainly due to three reasons: **first**, sharp rise in the cost of capital and more stringent terms of lending for consumption purposes or curtailment of such credit by lenders (banks/financial institutions); **second**, fall in asset prices (mainly stock prices and house prices) which makes households' feel poorer and adversely impacts their confidence to spend on consumer durables - leading to delayed purchases of the same; **third**, rising unemployment and economic uncertainty, as a result of the negative shock transmitted from financial markets to an economy, makes households more pessimistic about their job prospects and future expected incomes.

A.3 Determinants of Consumer Spending

The five key economic determinants of consumer spending are current disposable income, future expected disposable income, cost and availability of credit, consumer confidence and consumer wealth.

Current disposable income: is the primary or main determinant of consumer spending. Households receive disposable income, which is gross income (total income from all sources) less personal or income taxes and non-tax payments. **It might be noted** that when we refer to current disposable income, we are referring to **real** current disposable income (i.e. disposable income adjusted for inflation). **For more details**, please refer to the economic indicator - 'Real Household Disposable Income' (**pages 119-125**).

Future Expected Disposable Income: consumers base their decisions to spend not only on the basis of current disposable income, wealth etc. but also on the basis of future expected disposable income. **In other words**, expectations play an important role in decisions pertaining to consumption spending.

If future expected disposable income is expected to be higher (lower) than current disposable income, then consumers will consume more (less) today for a given level of current disposable income. Consequently, consumer spending will rise (slowdown)

Cost and availability of credit: in an era of increasing financial liberalization and deregulation with reference to **borrowing and interest rates**, sole reliance on changes in current disposable income to explain changes in consumer spending in the short run, particularly in the very short run is inadequate, as **changes in the cost and availability of credit** have an important effect on consumer spending and changes in the same.

Lower (higher) interest rates and easier (lower) availability of credit tend to make borrowing more (less) attractive, which in turn tends to lead to higher (lower) consumer spending, particularly on consumer durables.

Consumer Confidence: consumer spending thrives in an economy when households are confident (as captured by the Consumer Confidence Index or Indices of any economy) and optimistic about their job prospects, economic outlook (predicated on sustained economic expansion in the recent past), growth in current and expected real disposable incomes (disposable incomes adjusted for inflation) and personal finances and when there is low and stable inflation, and low cost and easy availability of credit. Further, if consumer confidence is robust, it's likely that households' will continue to spend in the near future and make major spending commitments on 'big-ticket' items such as cars and other consumer durables, luxuries etc. and consequently will tend to borrow more from banks to purchase the same.

On the other hand, a dramatic unfavorable change in any of the aforesaid factors, such a high and volatile inflation or soaring unemployment or high cost of credit or an highly adverse change in any combination of such factors is likely to lead to a marked fall in consumer confidence, which in turn could result in a sharp retrenchment or fall in consumer spending. Falling consumer spending in turn could lead to production cut-backs, rising unemployment, sharp fall in private investment and a protracted economic slowdown or downturn, or even a recession.

Consumer confidence is measured through the **Consumer Confidence Index (CCI)**, which is a monthly index (based on survey of households by one or more organizations in most economies) and is a very valuable leading indicator of the likely direction of consumer spending (especially on purchase of 'big ticket' items such as consumer durables) and the economy in the near future (i.e. over several months or coming quarters).

Consumer Wealth: refers to financial assets (stocks, bonds and other financial assets) and real assets (residential property or housing, gold etc.) of households in an economy.

If the value of financial and real assets are rising (falling) in an economy, due to buoyant (falling or depressed) financial markets and rising (falling or depressed) prices of real assets, then households are likely to feel richer (poorer) and they can also borrow more (less) against the value of their financial and/or real assets, which in turn usually results in higher (lower) consumer spending, particularly on consumer durables.

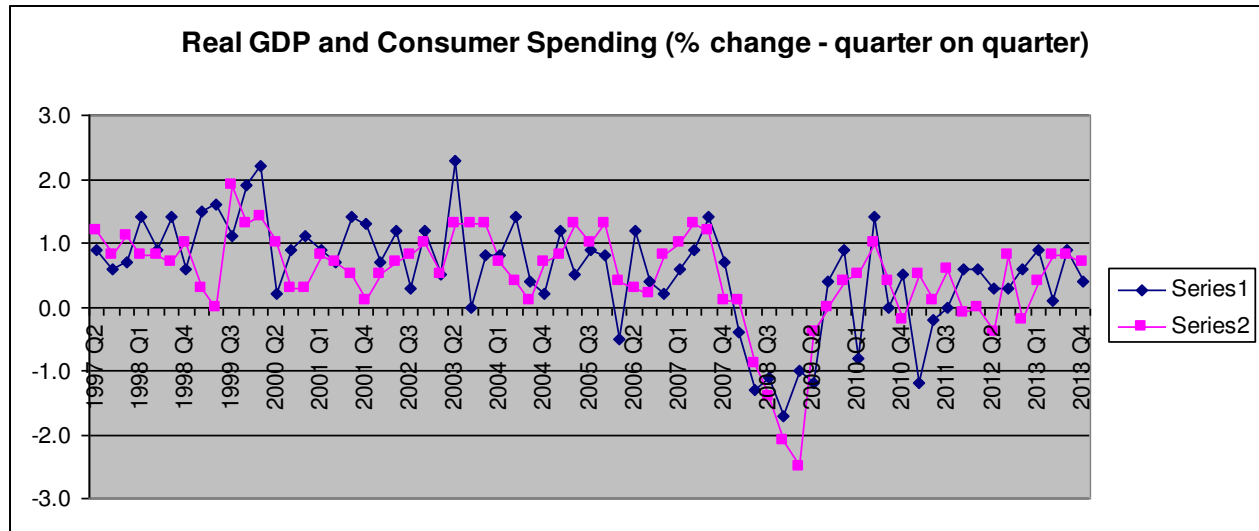
A.4 Consumer Spending and GDP

Consumer spending tends to be strongly positively correlated with GDP - Expenditure side, given that it is typically the dominant or largest component of aggregate demand. Higher the share of consumer spending in GDP in an economy, higher the correlation one would expect between the two macroeconomic variables. A positive correlation indicates that consumer spending tends to rise and fall with GDP and that changes in GDP and changes in consumer spending are closely related. **Given below is an example of this strong positive correlation.**

Example

Given below (next page) is a graph of the percentage (%) change (quarter-on-quarter) in real GDP and consumer spending (UK economy) – 1997Q2 to 2013Q4, with Series 1 representing percentage (%) change (quarter-on-quarter) in consumer spending and Series 2 representing percentage (%) change (quarter-on-quarter) in GDP.

Graph: Real GDP and Consumer Spending (% change – quarter on quarter) - UK Economy



Source: Office for National Statistics, UK

From this graph, three things are evident:

1. The strong positive relation between GDP and consumer spending is evident.
2. Changes in GDP and changes in consumer spending are closely related.
3. Consumer spending is less volatile or fluctuates less than GDP.

Next, it might be noted that official data on consumer spending is usually released quarterly along with official GDP data. However, in some economies, such as the US, official data on consumer spending is released monthly.

It might be noted that when we refer to consumer spending here, we mean ‘real consumer spending’ (or ‘real consumer expenditure’ i.e. nominal consumer spending adjusted for inflation.

For example, if nominal consumer spending increases by 3% and inflation (on the Consumer Price Index measure) rises by 2%, then consumer spending (i.e. ‘real consumer spending’) has increased by 1%.

A.5 Consumer Spending - Data

While analyzing the official consumer spending data of an economy, try to focus on quarter-on-quarter growth rate (%) (month-on-month growth rate (%) - where data is available monthly) and quarterly (monthly) year-on-year growth rates (%) for the previous 4 quarters (12 months), in order to obtain valuable insights into recent changes in consumer spending in an economy **i.e. to gauge how strong or weak has consumer spending been in an economy recently**. Also, try to obtain quarterly (monthly) growth data on consumer spending for the previous 12 quarters (36 months) at least, **in order to discern the underlying trend (downward or upward) in consumer spending in an economy**.

3. Private Investment

Private Investment (I), usually known as Gross Private Domestic Investment (GPDI) or generally called business spending, is another key component of aggregate demand and includes business fixed investment, residential investment and inventory investment by firms in an economy. It might be noted that private investment adds not only to aggregate demand but also to the productive capacity of an economy (i.e. private investment affects both the demand and supply side of an economy).

It's important to know that the share of private investment (i.e. GPDI) in aggregate demand or expenditure is typically or usually much smaller than consumer spending i.e. private investment typically or usually accounts for around 10-25% of GDP (though in countries such as China, Japan, India and a few others it accounts for a much higher percentage (%) of GDP). Further, even though the share of private investment is usually or typically much smaller than the share of consumer spending in GDP, yet private investment tends to be much more volatile over the business cycle relative to consumer spending (i.e. private investment is generally subject to greater fluctuations compared to consumer spending). **In terms of annual growth rates (%)**, the annual growth rate (%) of private investment tends to be much more volatile than the annual growth rate (%) of consumer spending.

Having stated the above, it might be noted that private investment (I) plays a pivotal role in macroeconomic activity, as it is a major source of demand for output and an important driving force behind short run fluctuations in economic activity in an economy. Further, it is also one of the main determinants of long run economic growth in an economy. An increase in investment spending by firms boosts GDP in the short run (as it affects aggregate demand) and also adds to the productive capacity (i.e. supply side) of the economy – **which enhances long run economic growth, increases employment or job growth and helps keep inflation in check (through an increased supply of output to meet demand for the same) in an economy.**

Increasing share of private investment in GDP (i.e. private investment as a percentage (%) of GDP) in a growing economy enhances the productive capacity of that economy, which is expected to lead to a more sustained expansion of output in the long run. **Therefore, macroeconomic policies in an economy should be designed to encourage more investment spending by the private sector.**

Next, before briefly explaining the broad categories (3) of private investment (I) and its varied facets, it should be known that private investment, though typically much smaller than consumer expenditure as a percentage (%) of GDP, is the most volatile and unstable component of aggregate demand in the short run and varies considerably over the business cycle.

In other words, usually during economic booms (i.e. periods of very strong GDP growth) private investment tends to rise sharply and grow more rapidly than GDP. **On the other hand**, in economic downturns (i.e. periods of falling GDP growth) private investment tends to decline rapidly and fall more sharply than GDP. **Essentially, private investment fluctuates sharply over the business cycle, making it the most volatile component of aggregate demand.**

It might be noted that **most recessions originate as a result of a plunge or collapse in private investment.**

The reason why private investment is so volatile, leading to investment booms and busts, is because investment decisions are largely or primarily based on expectations regarding:

- Future macroeconomic scenario or outlook of a country i.e. prospects of future economic growth, inflation, employment and stability (i.e. macroeconomic stability – comprising expectations of stability of economic growth, industrial performance, inflation rates, interest rates and exchange rates) and certainty/clarity about the direction of economic policy. Macroeconomic instability, characterized by marked or wide fluctuations in economic growth and in the aforesaid variables, and lack of clarity in the direction of economic policy engenders uncertainty that tends to hinder or dampen private investment in an economy.
- Profitability of new investment relative to its cost.
- Real interest rates (i.e. real interest rate = nominal interest rate – expected rate of inflation).

Firms can alter their investment decisions, if their expectations or sentiments regarding the aforesaid variables change. Unfortunately, firms do change their investment decisions - **often in unpredictable ways** - based on such expectations (that also includes their assessment of shifts in current demand and expectations about future demand) which can be very subjective and tend to change suddenly – making private investment the most unstable or volatile component of aggregate demand over the business cycle. It might be noted here that altering of investment decisions by firms substantially influences economic growth (i.e. either slows it down or stimulates it).

A.1 Private Investment - Categories

Having stated the above, let us be aware that private investment (I) - usually termed as Gross Private Domestic Investment (GPDI) - is **broadly divided into three categories:**

- Investment in new building (factory), plant and machinery, equipment and software (i.e. non - residential fixed investment or what is commonly known as ‘business’ investment).
- Residential construction or investment (i.e. residential fixed investment).
- Changes in business inventories i.e. investment in inventories.

The first two categories of private investment are known as ‘fixed’ **investment (or Gross Domestic ‘Fixed’ Capital Formation (GDFCF))** and are undertaken by firms for either adding to the existing stock of fixed assets or replacement of worn out capital goods in an economy and represent spending on physical (not financial) assets.

The first category of private investment (i.e. non-residential fixed investment) enhances the capacity of an economy to produce more goods and services in the future as the economy grows. This is because investment in building (factory), plant and machinery, equipment and software increases the capacity of firms to produce goods and services (i.e. increases aggregate supply of output). Further, an increase in non-residential fixed investment indicates the willingness of firms to enhance the productive capacity of the economy - and, therefore, serves as a barometer of confidence (of firms) in the future economic growth of the economy and is demonstrative of the economy being on the path of economic expansion. **On the other hand,** a decrease in or stalling of such investment expenditure is demonstrative of a lack of confidence in the future growth prospects of the economy and results in economic activity slowing down or decelerating in the economy. Moreover, such investment expenditure tends to be very cyclical in nature.

Essentially, this category of investment expenditure, by showing us how much firms spend on building (factory), plant and machinery, equipment and software in any particular or given period (say a quarter or a year), enables us to predict the course of future economic activity or growth in an economy in the short run.

Next, if an economy has been witnessing strong, yet sustainable growth of GDP for a period of time, it tends to lead to higher non-residential fixed investment - due to expectations (of firms) of higher future profitability and more optimistic economic outlook. Higher non-residential investment, by increasing the productive capacity of an economy, enables firms to meet higher or increasing demand as the economy grows. Further, it leads to more demand for labour **and most importantly helps to keep inflation in check by minimizing the demand-supply imbalance.**

Further, non-residential fixed investment is accorded utmost importance by economists, as changes in the same are a sound reflection of firms' assessment about future economic conditions of the economy.

The second category of private investment (i.e. residential fixed investment) relates to the investment expenditure on the actual construction of new houses in any particular or given period (say a quarter or a year) and is counted in that period's GDP.

The third category of private investment (i.e. changes in business inventories) relates to spending on inventories - which are unsold final goods produced by firms that they are not able to sell as no one wants to purchase them and stock of raw materials and intermediate or semi-finished goods. It might be noted that inventory spending is the smallest component of total private investment spending and GDP and is largely a function of the overall level of economic activity in an economy. Further, a change in business inventories is included as a part of total private investment spending (and therefore included in GDP) because even if some final goods produced have not been sold, yet economic activity and incomes have been generated to produce these goods.

An important point worth mentioning about change in business inventories is that though it is the smallest component of total private investment and GDP, it is a crucial component of changes in GDP over the business cycle as it can be very volatile. This is because if aggregate demand exceeds aggregate production, then inventories fall and if aggregate demand is lower than aggregate production, inventories rise and **since aggregate demand can rise or fall unexpectedly, it can result in an unplanned or unanticipated depletion or addition of inventories respectively.**

Next, having stated the three broad categories of private investment (I) i.e. GPDI, its important to note that 'fixed' investment (i.e. non-residential and residential fixed investment) accounts for an overwhelming share (%) of private investment, with inventory spending accounting for a miniscule share (%) of private investment in comparison (the exact share of 'fixed' investment and change in business inventories (i.e. investment in inventories) in private investment varies from economy to economy). For example, in the US, 'fixed' investment (i.e. non-residential and residential fixed investment) generally accounts for 95-97% of private investment, whereas change in business inventories accounts for the remaining percentage (%) of private investment (I).

In the 'fixed' investment category, economists tend to accord utmost importance to non-residential fixed investment, rather than residential fixed investment.

This is because non-residential fixed investment accounts for a much larger or majority share (%) of ‘fixed’ investment when compared to residential fixed investment and, most importantly, because it is spending on the former that enhances the productive capacity of an economy (leading to more output in the future). Further, a high rate of non-residential fixed investment means that the capital stock of an economy is growing quickly – which in turn is likely to lead to higher output and employment over time.

A.2 Determinants of Private Investment (I)

Given that private investment is the most volatile and unstable component of aggregate demand and is highly correlated with GDP, and that it is a major source of business cycle instability or short run fluctuations in economic activity in an economy, a clear understanding of the key factors/determinants or underlying forces that influence or drive private investment is essential in order to understand changes in the macroeconomic environment in the short run and such macroeconomic fluctuations.

There are a variety of factors that influence or drive private investment (i.e. GPDI). However, there are **four key factors** - Current Output, Real Interest Rate, Expectations and Cash Flows - that usually influence or are the driving forces behind changes in private investment (i.e. GPDI) in an economy.

Current Output (i.e. current GDP): private investment tends to be highly positively correlated with current GDP (i.e. current aggregate output). An increase in the growth rate of GDP tends to or is expected to result in a greater amount of investment spending by firms in an economy, as higher growth means that firms can produce and sell more (due to higher incomes and consequently higher consumer demand) and earn higher profits. **Such an increase in investment is an ‘induced’ one as higher economic activity** (leading to higher output and incomes) induces firms to increase investment spending. **On the other hand**, a deceleration in the growth rate of GDP has the opposite effect on production, sales and profitability and consequently tends to dampen investment spending by firms.

In essence, investment spending by firms (particularly ‘non-residential’ investment spending) is strongly related to the level of output and income in an economy.

Real Interest Rate: private investment (I) is negatively or inversely related to the real interest rate. The real interest rate reflects the real cost of borrowing for a firm and can be defined as:

Real Interest Rate (r) = Nominal Interest Rate (i) – Expected Rate of Inflation (Π_e)

Note: it must be noted at the outset that the relevant interest rate for the purpose of investments is the **long term (expected) real interest rate (termed as ‘r’ here)**, which is a key determinant **of private investment (I)**. Further, the nominal interest rate (i) here refers to current long term nominal interest rate on debt of different durations (typically ranging between 5 to 30 years). **For example**, the yield on a corporate bond with a maturity of 5 years is an example of a long term nominal interest rate. Another example of a long term nominal interest rate is the yield on government bonds with a maturity of 5 or 10 years.

The expected rate of inflation (Π_e) here refers to **the expected rate of inflation over the duration of borrowing by firms.**

For example, if the nominal yield on a corporate bond (which is an example of a long term nominal interest rate) with a maturity of 5 years is 10% and the expected rate of inflation is 6%, then the (long term) real interest rate (r) = 10% - 6% = 4%. **On the other hand**, if the nominal yield on a corporate bond with a maturity of 5 years is 6% and expected rate of inflation is 4%, then the (long term) real interest rate (r) = 6% - 4% = 2%. Further, if the nominal yield on a corporate bond with a maturity of 5 years is 7% and expected rate of inflation is 4%, then the (long term) real interest rate (r) = 7% - 4% = 3%.

Having stated the above, the key point to note is that higher real interest rate essentially means higher real cost of borrowing – which makes firms much less eager to borrow for investment purposes. When firms take decisions pertaining to investments, they take into account the expected rate of return and compare it with the real cost of borrowing (i.e. real interest rate) to evaluate whether the investment is worthwhile or not.

For example, if the expected rate of return (say 4%) on an investment is higher than the expected real interest rate (say 2%) i.e. expected real cost of borrowing, then a firm can consider undertaking that investment. However, if the expected rate of return on an investment (say 4%) is lower than the expected real interest rate (6%), then it's not worth undertaking that investment.

Higher the expected real interest rate (r), more discouraged will firms be to undertake fresh capital investments, particularly in interest sensitive sectors (such as housing, automobile and other consumer durable sectors and other interest-sensitive sectors of an economy), and consequently there will be lower investment spending in the economy. **On the other hand**, a fall in the expected real interest rate (r) tends to encourage fresh capital investment by firms and consequently results in higher investment spending in the economy.

Having stated the above, one should be aware of an important fact; the impact of a change in expected real interest rates on private investment (I) depends crucially on the interest sensitivity of investment. More (less) sensitive investments are to a change in expected real interest rates, more (less) profoundly and rapidly will changes in expected real interest rates affect private investment, aggregate demand and consequently aggregate output in an economy.

Next, investments in sectors or industries such as housing, automobile and other consumer durables are particularly sensitive to changes in interest rates.

For example, consequent upon a rise in nominal interest rates (and hence a rise in expected real interest rates) in an economy, residential investment tends to witness the most rapid or sharpest fall/drop, followed by a sharp fall in investment spending by firms in the automobile and other consumer durables sectors.

In sectors that are not that interest sensitive, investment spending by firms tends to decline or witness a drop consequent upon a rise in interest rates, yet after a lag (i.e. investments in such sectors take comparatively more time to drop or decline, when compared to the interest sensitive sectors mentioned above - with the drop in investments not as marked or sharp as in the interest sensitive sectors).

Expectations (or Confidence): expectations of firms regarding future growth of aggregate demand and output (GDP), macroeconomic outlook (1-5 years ahead) of the economy, expected rate of capacity utilization, expected growth in the volume of sales (relative to current rate of growth in volume of sales), expected real interest rates, corporate earnings or profitability and business taxes (corporate income tax, investment tax credit etc.) is a very important determinants of private investment.

Investment spending by firms tends to pick up or rise, in order to expand production capacity, if the economy is expected to grow in a **sustained** manner in the future and firms are positive about the macroeconomic outlook (1-5 years ahead) of the economy. If firms expect continued or sustained economic growth in the future, it makes them more bullish or optimistic about achieving the expected growth in the volume of sales and consequently more positive about the profitability of new or fresh investments – **which in turn results in rising capital investment by firms. On the other hand**, pessimistic or negative expectations with reference to the aforesaid variables could lead to a sharp drop or fall in capital investment.

Cash Flows: firms can raise funds for investment through various channels (bank loans, retained earnings (internal funds), issuing bonds and issuing equity (shares)).

In the major economies across the globe, greater or larger part of investment by firms is financed through retained earnings (internal funds) and for the part of investment that cannot be met by retained earnings, firms take recourse to issuing equity and/or bonds or take bank loans.

Due to the importance of internal funds (to finance investment), **investment spending by firms is likely to be sensitive to current cash flows** (which is a function of current sales of a firm). It might be noted that when firms use internal funds to finance investment expenditure, then the availability of funds is related to the cash flow.

Also, when firms (particularly small and mid-sized companies) are not able to raise funds from the financial markets (equity or bond financing) or are unable to borrow money from banks, or are not able to raise sufficient or enough funds required to finance their investments from these external sources, then the only way they can finance their investments is through the **amount of internal funds** that is available to them. Therefore, when firms are credit constrained i.e. find it difficult to raise funds for business investment from the aforesaid external sources (due to any reason), **one can expect cash flow to be a very important determinant of investment.**

Having stated the above, an important point needs to be kept in mind with reference to profits and cash flows (**Note:** cash flows are very closely related to profits of a firm). Both cash flows and profits are very sensitive to the pace of economic growth and therefore, investment expenditure on new plant and machinery and equipment (to expand production capacity) is also very sensitive to the pace of economic growth.

For example, if the growth rate of GDP starts to slow down, due to tapering or weakening of demand, the drop in investment expenditure by firms can be very sharp or abrupt, as firms which are confronted with falling sales, come to expect a fall in profits and cash flows – which makes them reluctant to undertake fresh investments to expand productive capacity. Further, the expectation of a fall in profits and cash flows and the resultant reduction or drop in investment expenditure by firms tends to play a powerful role in exacerbating the economic downturn, which may turn into a protracted economic slowdown or a recession – leading to increased unemployment.

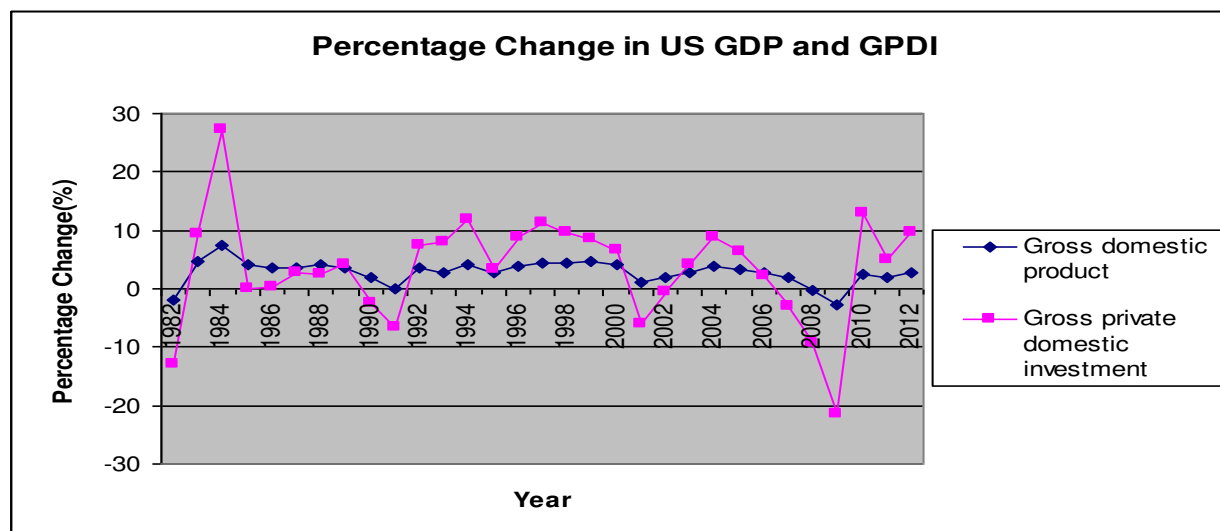
On the other hand, if the growth rate of GDP is indicative of buoyant demand which is expected to increase in the future, firms witnessing rising sales, come to expect a rise in profits and cash flows – which provides the incentive to firms to undertake fresh investments in order to expand productive capacity. Further, the expectation of a rise in profits and cash flows and the resultant increase in investment expenditure by firms tends to further strengthen the pace of economic activity and growth - with beneficial effects for the labour market (i.e. lower unemployment). From this example you can possibly discern the importance of cash flows in influencing investment expenditure by firms and hence the future direction of an economy. Further, since cash flows are volatile as they are very sensitive to the pace of economic growth, investment expenditure by firms also tends to be volatile, particularly when the larger part of investment is financed through internal funds.

A.3 Private Investment – Cyclical Fluctuations and Data

Private investment, as mentioned before, fluctuates significantly more than cyclical fluctuations in GDP over the business cycle – i.e. private investment usually tends to grow by more than GDP in economic booms and tends to fall by more than GDP in recessions and **also tends to be three to four times more volatile than GDP**. Therefore, private investment is a major source of business cycle instability or short run fluctuations in economic activity in an economy and possibly plays the most important role in these macroeconomic fluctuations and therefore in the analysis of business cycles.

If one were to take time series quarterly data and annual data on change (%) in GDP and change (%) in private investment (i.e. change in GDPI) for an economy and plot them together, one can easily discern that both in the short run (use quarterly data) and in the long run (use annual data) change (%) in private investment is much more volatile than change (%) in GDP.

To demonstrate that private investment (i.e. GDPI) tends to be much more volatile than GDP, we have taken the example of the US economy (using only annual data) – **please refer to the graph below.**



Source: Bureau of Economic Analysis

From the graph above you can clearly view that the fluctuations in annual percentage change (%) in GPDI (i.e. private investment) are much greater than the fluctuations in annual percentage change (%) in GDP in the US – i.e. private investment (GPDI) is much more volatile than GDP in the US.

Next, an important point worth noting is that private investment tends to be strongly positively correlated with current GDP (i.e. both variables move in the same direction and the co-movement of both series is more systematic). **Technically speaking**, private investment varies procyclically with the cyclical component of GDP (i.e. it tends to rise and fall or move up and down with GDP), but as mentioned above, it is much more volatile than GDP.

Further, private investment tends to fluctuate considerably or even dramatically from year to year (unlike consumer spending, which is usually far more stable year to year as consumers are reluctant or unlikely to radically change their consumption patterns on an annual basis - **in other words**, if we compare the annual percentage change (%) in private investment with consumer spending, swings in the former will be much more pronounced than the latter) and contributes in a major way or very substantially to economic expansions and contractions in an economy in the short run.

Next, as private investment tends to fluctuate considerably (i.e. it is subject to booms and even negative growth), it is an important or major factor accounting for fluctuations in aggregate demand in the short run. This is why one should carefully monitor the growth rate of private investment (GPDI) in an economy or lack of it - for volatility in this component of aggregate demand is an important or major source of fluctuations in economic activity in the short run.

More specifically, focus on the growth rate (%) of ‘fixed’ investment (i.e. residential and non-residential fixed investment) or what is usually termed as Gross Domestic ‘Fixed’ Capital Formation (GDFCF) - which is GPDI minus investment in business inventories or changes in business inventories) - in order to monitor or track the underlying strength or weakness of business ‘fixed’ spending in an economy.

The official estimate of GDFCF is usually released in the first month following a quarter and is released together with the official estimate of GDP for the same quarter. Look at quarter-on-quarter growth rates (%) of GDFCF and year-on-year growth rates (%) of quarterly GDFCF for the preceding 4 quarters (including the quarter for which such data has just been released) to assess the underlying strength or weakness of business ‘fixed’ spending in an economy and volatility in the same. While analyzing such data be careful that official estimates are subject to frequent revisions (which sometimes can be substantial).

When you look at the growth rates (%) of GDFCF after obtaining data on the same for the aforesaid mentioned periods, you will notice that business ‘fixed’ spending is very volatile, as much depends on the future economic prospects or outlook of an economy. **Further, if you find upon analysis that the growth rate (%) of GDFCF is picking up or rising in the preceding 3-4 quarters (including the quarter for which such data has just been released)**, it possibly indicates that the economy is on an expansion path, consumers are spending on goods and services, unemployment is falling, economic policy is conducive to growth and firms expect the economy to grow in a sustained manner in the future.

On the other hand, if the growth rate (%) of GDFCF is decelerating or weakening in the past 3-4 quarters (including the quarter for which such data has just been released), it possibly signals that consumers are not spending enough (i.e. weakness in consumer demand), economic activity in the economy is weakening or faltering and that the economy may witness a prolonged economic slowdown. Further, decelerating or weakening growth in GDFCF possibly indicates that firms are not too optimistic or are increasingly pessimistic about the economic outlook of the economy and consequently are reluctant to undertake fresh investments. **As a result of this**, unemployment tends to rise, which in turn further contributes to the pessimism about the economic outlook of the economy.

Having stated the above, a crucial point needs to be mentioned here.

When you focus on the growth rate (%) of 'fixed' investment (i.e. residential and non-residential fixed investment) i.e. GDFCF in an economy, also be aware of the kind of 'fixed' investment that is taking place in the economy.

If most of the 'fixed' investment is taking place in the category of non-residential investment, then that is the most productive form of investment and enhances the productive capacity of an economy and its long run growth potential.

However, if a large or substantial part of 'fixed' investment is being made under the residential investment category (i.e. construction of houses for people), rather than on non-residential investment category, then this will hinder the capacity of the economy to grow at a rapid rate and expand its productive capacity at a sufficient pace to meet rising demand - **which could prove to be inflationary**.

Next, private investment is the primary channel through which monetary policy (which works largely through its impact on domestic interest rates) influences or affects an economy in the short run i.e. its rate of growth in the short run.

However, it must be noted that how much or how big (i.e. what magnitude) is the change in private investment, consequent upon a change in domestic interest rates, depends on the interest sensitivity of private investment (which varies from economy to economy).

Larger (lesser or lower) the sensitivity of private investment to a change in domestic interest rates, greater (lower) will be the magnitude of change in private investment consequent upon a small change in domestic interest rates and stronger (weaker) will be the ability of monetary policy to influence or change aggregate demand, economic activity and ultimately inflation in the short run in an economy – **in the direction desired by the central bank of the country**.

Lastly, having stated the above, it might be noted that when we refer to the growth rate (%) of private spending (I) or growth rate (%) of 'fixed' investment in an economy, **we mean growth in real terms** i.e. growth in real private spending or growth in real 'fixed' investment respectively.

4. Inflation (as measured by the Consumer Price Index i.e. CPI)

Inflation can be defined as a sustained increase in the overall general level of prices of goods and services in an economy over time. **More specifically**, inflation in an economy is measured as an annual percentage (%) increase (i.e. % increase on a year earlier) in some price index – such as the Consumer Price Index (CPI), GDP deflator etc. – **which adequately reflects the overall inflation in an economy.**

The CPI, which is the most widely used measure of inflation and is usually referred to as the ‘headline’ inflation indicator for an economy, is a weighted average of prices of a ‘fixed’ representative basket of goods and services purchased by an average household or consumer in an economy and reflects their spending patterns.

Other widely known measures of inflation are Producer Price Index (PPI), Wholesale Price Index (WPI), ‘Core’ inflation and the GDP deflator. Further, there are also other narrower measures of inflation which are used to measure changes in prices of a particular set of goods, services or assets – such as the oil price index, commodity price index, house price index etc.

Having stated the above, the primary focus here is on the CPI measure of Inflation.

Consumer Price Index

Consumer Price Index (CPI): is a weighted average of prices of a ‘fixed’ representative basket of goods and services purchased by an average household or consumer in an economy and reflects their spending patterns. Each item (goods and services) is weighted in proportion to its importance in the ‘fixed’ representative basket and these weights are usually based on surveys of family expenditure in an economy. Further, these weights are usually updated or changed once in every 5-10 years in most economies to reflect changed importance of various goods and services – bought or purchased by households or consumers in an economy.

The change (i.e. % change) in the CPI provides a sound measure of the rate of consumer price inflation in an economy and indicates or shows how much inflation has risen or fallen for the average household or consumer in an economy - **in terms of the change in the cost of a basket of goods and services purchased by them every month.** It might be noted that official data on inflation on the CPI measure is usually released monthly in most economies (i.e. official data on changes in CPI for a particular month are released in the following month - usually in the middle of the following month) , though in some economies such data is released quarterly.

It might be noted that when we refer to price of a basket of goods and services here, we mean retail or consumer prices, rather than wholesale prices, of goods and services purchased by an average household or consumer in an economy.

Next, in many countries the CPI measure of inflation is used for inflation targeting purposes by the central bank (i.e. the inflation target of the central bank, say for example 2%, is defined in terms of the CPI measure of inflation) and for judging the effectiveness of monetary policy in keeping inflation in check. Further, inflation (as measured by percentage (%) changes in the CPI) is a very important economic indicator for policy makers, financial markets and corporates/firms. A marked or unexpected rise (fall) in this measure of inflation in an economy usually leads to rising (falling) interest rates, drop (rise) in private investment, slowdown (rise) in consumer spending (particularly on consumer durables) and falling (rising) bond prices and stock prices.

Example: Calculation of Inflation using the CPI

For example, if in country A the CPI is 130 for 2013 and 120 for 2012, then the annual inflation rate (%) in terms of the CPI is calculated as:

$$\frac{(130 - 120)}{120} \times 100 = 8.33\%$$

Essentially, the formula used to calculate the aforesaid annual inflation rate (%) is:

$$\frac{(\text{2013 CPI} - \text{2012 CPI})}{\text{2012 CPI}} \times 100$$

Basically, from the aforesaid calculation we know that the average household or consumer in country A had to pay 8.33% more in 2013 than in 2012 for the same ‘fixed’ representative basket of goods and services (purchased by them).

Formula for calculation of inflation rate (%) in terms of the CPI

$$\text{Inflation Rate (t)} = \frac{(\text{CPI (t)} - \text{CPI (t-1)})}{\text{CPI (t-1)}} \times 100$$

Next, though the primary focus here is on the CPI measure of inflation, it is important to be aware of other widely known measures of inflation. **Given below is a very brief mention of these measures of inflation:**

Wholesale Price Index (WPI): this index measures the change in the price of a representative basket of wholesale goods in an economy. **It covers only goods and not services, therefore, prices of services are excluded.** Some countries such as India use the WPI measure of inflation. The WPI focuses on the price movements of goods that are bought by corporations/businesses, rather than consumers, and reflects the inflation that the industrial sector of an economy faces. It might be noted that majority of the developed countries use the Producer Price Index (PPI), instead of the WPI, as a measure of inflation, due to its broader coverage and various other issues.

Producer Price Index (PPI): this index captures the price movements of goods and services at the wholesale level in an economy and measures average change in selling prices received by domestic producers for their output. **Countries such as the US and many other developed countries use the PPI, instead of the WPI.** It's used as an indicator of future price changes at the retail level and is useful in predicting changes in the CPI. When the cost of inputs rises for producers, they tend to pass it on to the consumers after a lag, so consumer prices rise (i.e. there is a rise in the CPI) after sometime. Therefore, the rise in inflation on the CPI measure tends to lag the rise in inflation on the PPI measure.

GDP Deflator: is an indicator of the overall inflation in an economy, as it reflects changes in prices of all goods and services included in the GDP of a country (i.e. changes in prices of domestically produced output). It does not reflect import prices unlike the CPI. Basically, the GDP deflator is a broader measure of inflation than CPI. Unfortunately, this measure of inflation is not of much use for policy making, as it's available only after a very substantial lag. This undermines its usefulness.

The GDP deflator is defined as the ratio of nominal GDP to real GDP i.e. $\text{Nominal GDP} / \text{Real GDP}$. It might be noted that changes in nominal GDP reflect changes in both output and prices, **whereas changes in real GDP reflect changes in output only (which is what truly or really matters).**

Core Inflation: is calculated by excluding temporary volatile factors, such as prices of food and energy prices, from a relevant price index, such as the CPI. This is done because food and energy prices are subject to extreme volatility, due to changes in supply and demand conditions in these markets.

Inclusion of food and energy prices in a relevant price index, such as the CPI, can often prevent us from knowing the 'real' price increase in an economy and lead to an inaccurate assessment of the underlying inflationary pressures. Further, inclusion of food and energy prices in a relevant price index, such as the CPI, distorts the true underlying picture of the long run trend of inflation in an economy. Moreover, it's really 'core' inflation that can be managed, controlled or reduced by the central bank of a country through suitable monetary policies, as food and energy prices are really seen to be beyond the control of the domestic monetary authority i.e. the central bank of a country.

It might be noted that 'core' inflation is used to gauge the inflationary impact of monetary policy in an economy. Further, 'core' inflation tends to be much more stable than 'headline' inflation (as measured by a relevant or suitable price index, such as the CPI).

A.1 Major Theories or Types of Inflation

The main theories or types of inflation in brief are:

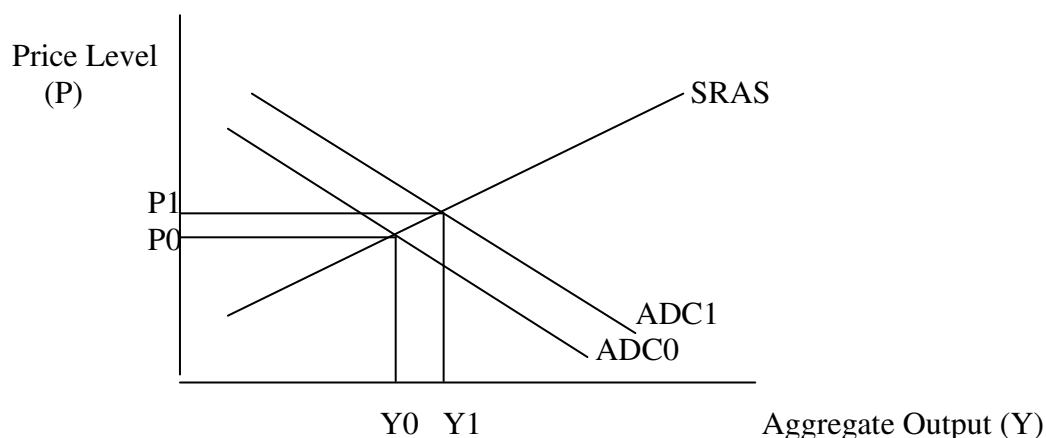
Monetarism: according to this theory, excessive growth in money supply is the only or sole cause of inflation in an economy i.e. the sole cause of inflation in an economy is a more rapid growth in the quantity of money than output.

In reality, excessive growth of money supply in an economy is not the sole or only cause of inflation. There are other causes of inflation too (as stated below). **However, it must be noted that very high rates of inflation in an economy are invariably associated with excessive rates of growth in money supply. Further, in the long run inflation tends to be closely related to growth of money supply.**

Demand Pull Inflation: occurs in an economy when aggregate demand for goods and services exceeds aggregate supply at the prevailing prices, due to factors such as rapid wage growth, increase in government expenditure (which adds directly to aggregate demand), reduction in tax rates that increase household disposable income, high fiscal deficit, increase in money supply, wealth effect of rising stock and house prices (which tend to propel consumer confidence and spending), increased private investment due to high business confidence and low interest rates, surge in consumer borrowing due to easy availability of credit, low interest rates and buoyant consumer confidence, higher exports (due to rise in foreign GDP and/or depreciation of the domestic currency) etc. that tend to boost aggregate demand for output in excess of what the economy is capable of producing.

Essentially, demand pull inflation occurs when aggregate demand increases at a faster rate than aggregate supply (due to one or more of the aforesaid reasons mentioned above) i.e. when aggregate demand rises too rapidly or is excessive compared to what the supply side of the economy can handle – which ultimately results in firms pushing up prices of goods and services. Further, an increase in aggregate demand, due to any of the aforesaid factors, will result in an outward (rightward) shift of the aggregate demand curve (from ADC0 to ADC1) as can be seen from the graph below and normally cause an increase in both aggregate output (Y) and the general price level (P) in an economy.

Graph: Demand Pull Inflation

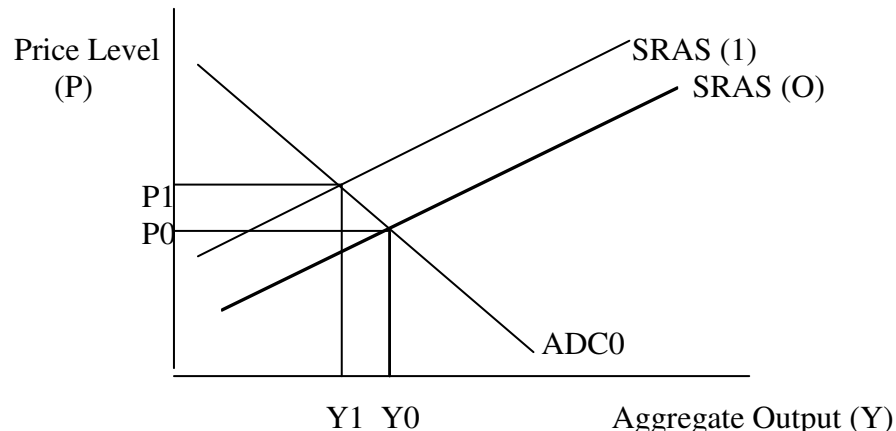


Demand Pull Inflation, as can be viewed from the graph above, increases both aggregate output (from Y0 to Y1) and inflation (i.e. results in an increase in the general price level from P0 to P1).

Cost Push Inflation: occurs in an economy when costs of production for firms rise throughout the economy, due to factors such as a sharp jump in the prices of oil and/or other commodity prices, a depreciation of the domestic currency vis-à-vis foreign currencies (which makes imports more expensive), increase in money wages faster than rise in productivity (leading to higher unit labour costs), increase in raw material costs, shortage of skilled labour (leading to excessive wage demand pressures) etc. Firms tend to pass on higher costs of production to consumers in the form of higher prices for goods and services, leading to an increase in the overall price level.

The problem with cost push inflation is that it reduces the level of aggregate output, but leads to an increase in the price level i.e. aggregate output falls, but inflation rises. This is because an increase in the unit costs of production for firms reduces their profitability, which in turn leads to a lower supply of output by firms at the existing price level. And, lower supply of output by firms (relative to demand for the same) tends to increase the price level, as firms tend to pass on higher costs of production to consumers in the form of higher prices for goods and services.

Essentially, cost push inflation results in a leftward (i.e. upward) shift of the short run aggregate supply curve (SRAS) – as can be seen from the graph below, which implies an increase in the general price level (P) and a fall in aggregate output (Y). **Graphically, this is displayed below (next page).**

Graph: Cost Push Inflation

Cost Push Inflation, as can be viewed from the graph above, results in lower aggregate output (from Y_0 to Y_1) and higher inflation (i.e. as the general price level increases from P_0 to P_1) – due to a leftward (i.e. upward) shift of the SRAS.

A.2 Ways to Reduce High Inflation

Some of the most important ways by which policy makers can attempt to reduce high inflation in an economy are:

Tighten Monetary Policy - the central bank of a country can raise the cost of borrowing for firms and households in an economy by raising its official ‘policy’ rate, which in turn will tend to dampen private investment and consumer spending and consequently lead to a leftward shift of the aggregate demand curve (ADC). When the aggregate demand curve shifts to the left, both aggregate output and the price level decrease.

Explicit Inflation Targeting - by the central bank of a country to keep inflation expectations in check. The central bank can adopt an explicit inflation target (for example, an inflation target of 2% or 3% on the CPI measure of inflation), as such inflation targets play a very important role in keeping inflation expectations and consequently inflation in check.

Tighten Fiscal Policy – the government can reduce government expenditure and/or increase taxes, which will shift the aggregate demand curve to the left, as reduction in government expenditure will directly reduce aggregate demand and an increase in taxes reduces household disposable income, which in turn will tend to lead to lower consumer spending. Further, the government should take steps to keep the fiscal deficit (as a % of GDP) at prudent levels.

Essentially, such fiscal policy measures, by dampening aggregate demand, help to reduce high inflation and keep it in check.

Currency Appreciation – if the central bank of a country raises its official ‘policy’ rate, it results in higher domestic interest rates, which in turn is likely to lead to an appreciation of the domestic currency vis-à-vis foreign currencies. Currency appreciation in turn will lower the price of imports which will put downward pressure on domestic inflation, particularly if the country is a large importer of commodities such as oil.

Supply Side Reforms – the government can undertake structural reforms and policy measures to enhance the supply side of the economy, in order to lower inflation. Structural reforms and policy measures aimed at augmenting food supply, energy security, infrastructure and skilled labour (through education and vocational training), liberalizing labour and product markets, encouraging high levels of capital investment, inviting foreign direct investment in various sectors of the economy such as power, transport, insurance etc. deepening of capital markets, privatization, improving productivity to control unit labour costs etc. can go a long way in enhancing the productive capacity of the economy(i.e. the supply side of the economy) - which in turn should help reduce inflation significantly.

Labour Market Reforms – the government can seriously attempt to increase flexibility in the labour market (that will enable firms to have greater control over their labour costs) which in turn may help to reduce cost push inflation in the economy.

Essentially, the government can undertake labour market reforms which allows firms to hire and fire workers more easily, curb trade unionism and encourage firms to hire more part-time and temporary workers, so that wage inflation is kept subdued or in check (such labour market reforms lower the power of employees to bargain for higher wages and consequently help to keep wage inflation subdued or in check) when the economy is expanding or growing rapidly.

A.3 Key Points: Inflation

Stated below are key points with reference to inflation that need to be kept in mind.

First, price stability or keeping inflation low and stable is accorded considerable importance by policy makers for the sake of **macroeconomic stability** - which is thought of as a pre-condition for higher investments, productivity, corporate profitability and employment and for higher and more stable rate of output (GDP) growth (that in turn attracts higher foreign direct investment and capital inflows - which further enhance economic growth).

Second, the real cost of high and volatile inflation is that it usually leads to higher unemployment, lower rate of growth of GDP and hinders long run economic growth, resulting in lower per capita incomes and standard of living in a country. It might be noted that the number of people employed is a key determinant of how much output can be produced in an economy and high and volatile inflation, which results in higher unemployment, leads to lower rate of growth of GDP (i.e. high and volatile inflation is associated with poor macroeconomic performance). Moreover, it has been observed that at higher rates of inflation, the volatility of inflation increases.

Third, an economy that has higher inflation relative to its trading partners faces loss of export competitiveness in international markets, as domestically produced output becomes more expensive for foreign residents (i.e. exports become more expensive), which in turn lowers foreign demand for the same. Loss of export competitiveness in turn can lead to a higher current account deficit, which if persistent, can endanger the exchange rate and macroeconomic stability of the country.

Fourth, countries with persistently higher inflation rates than their trading partners tend to have depreciating currencies, which in turn makes imported goods more expensive and higher import prices tend to feed into domestic inflation as it usually results in higher producer and consumer prices.

Further, countries that have depreciating currencies tend to witness significant capital outflows, as foreign institutional investors (i.e. foreign investors who investment in domestic financial assets) don't want to be holding assets which loose significant value - due to currency depreciation. Consequently, they try to sell such assets and exit and then tend to reinvest the proceeds in other countries where there is more stability of exchange rates. Moreover, countries with persistently higher rates of inflation tend to attract lower foreign direct investment.

Fifth, high rates of inflation tend to be associated with more volatile inflation and economic inefficiency. When inflation becomes more volatile, it makes inflation indexation more widely prevalent resulting in reduced economic efficiency – i.e. high and volatile inflation obstructs the market price mechanism in coordinating economic activity and efficiently transmitting information that is required to take decisions with reference to production of goods and services and the most prudent employment of resources for such production. High and more volatile inflation basically reduces the capacity of the price mechanism to efficiently coordinate and guide economic activity and consequently leads to inefficient allocation of resources.

Sixth, rapidly rising or high inflation tends to particularly hinder or dampen private investment, as it engenders more uncertainty about the macroeconomic outlook and profitability of investments. Further, firms face higher costs of production (due to rapidly rising or high inflation) which they find difficult to pass on to consumers in the form of higher prices, particularly when consumer demand is weak, and this leads to lower profit margins. Moreover, creditors (banks/financial institutions), due to heightened risk aversion and fear of higher bad debts, tend to reduce the length or duration of loans they offer to firms to undertake capital investment and also demand a 'risk premium' on such loans - which increases the cost of borrowing for firms and consequently lowers profitability of investments. **This in turn leads to lower investment activity in the economy.**

Lower investment activity in an economy in turn leads to higher unemployment and lower economic growth in the long run. Further, rapidly rising or high inflation, which leads to higher domestic interest rates, tends to increase the debt-servicing burden of firms.

Seventh, rapidly rising or persistently high inflation tends to lead to higher inflation expectations (i.e. expectations of higher inflation in the future) in an economy, which then get incorporated in wage demands as workers demand higher nominal wages to prevent an erosion in their real wages. This results in higher unit labour costs for firms. To offset the rise in unit labour costs and protect their profits, firms, after a lag, tend to raise prices of goods and services, which results in a further increase in inflation (and inflation expectations) and higher wage demands from workers. **In essence,** an upward movement in inflation expectations, due to rapidly rising or high inflation, can lead to a **wage-price spiral** (and consequently to spiraling inflation which can be difficult to control) if it is not checked in time by the central bank of the country.

Unfortunately, when the central bank of a country attempts to curb or control rapidly rising or high inflation, for example, by raising its official 'policy' rate (which leads to a rise in domestic interest rates) in order to curb aggregate demand and consequently lower inflation (and inflation expectations), it results in lower aggregate output (GDP) and higher unemployment.

This is because a rise in domestic interest rates tends to dampen private investment and consumer spending (as the cost of borrowing for firms and households goes up), which in turn reduces aggregate output and demand for labour by firms.

Eighth, countries with a high fiscal deficit and current account deficit tend to have high inflation.

Ninth, high inflation results in high domestic interest rates, which in turn tends to dampen or lower private investment and consumer spending.

Tenth, when attempting to assess inflation, it's advisable not to focus too much on the monthly changes (i.e. month-on-month changes) or movement in the 'headline' inflation measure such as the CPI. Instead, it's recommended to focus on quarterly or monthly year-on-year percentage (%) change in the CPI, in order to obtain a better perspective about inflation in an economy, as various factors, such as volatility in food prices due to seasonal factors, volatility in oil prices, festival seasons (such as Christmas etc.), sales promotions, tax changes, etc. tend to distort inflation figures for a given month or months (i.e. several months) – and do not allow us to draw appropriate conclusions about the underlying inflation scenario or pressures in an economy and changes in trends. Such factors can often lead to the CPI moving up or down sharply, when compared to the previous month or months.

In other words, interpreting monthly changes in the CPI can be quite tricky. Therefore, focus on quarterly or monthly year-on-year percentage (%) change in the CPI.

Having stated the above, it might be noted that food and energy prices tend to be volatile and consequently, 'core' inflation, which excludes food and energy prices, tends to provide a better assessment of the enduring aspects of inflation in an economy and how they are changing than the CPI measure of inflation.

Eleventh, watch out if the growth rate of money supply in an economy is growing faster than the rate of economic growth (i.e. there is excessive growth rate of money supply), as this tends to be inflationary. If excessive growth of money supply is not controlled in due time, it is likely to result in surging inflation - **which usually proves difficult to control.**

Twelfth, if households are heavily indebted (i.e. household debt as a percentage (%) of household disposable income is very high) in an economy and inflation is rising rapidly or is high, then debt servicing burden of households is likely to increase due to higher domestic interest rates. Further, higher debt servicing burden will reduce the disposable income of households, which could lead to lower consumer spending (particularly on consumer durables) and consequently to lower aggregate output (GDP).

Thirteenth, it might be noted that it is unanticipated inflation, rather than anticipated inflation, that really hurts households, firms, workers and investors. For example, if everyone is expecting the inflation rate to be 2% per year in an economy, but it actually turns out to be 4% per year, then workers whose salaries are set in advance face erosion in real earnings more than expected. Further, households and investors get a lower than expected real rate of interest or return on their deposits and financial investments. Moreover, unanticipated inflation tends to dampen investment activity in an economy, as it leads to higher cost of borrowing for firms and consequently lowers profitability of investments.

Fourteenth, low inflation and inflationary expectations in the near term tend to keep wage pressures subdued, which has the beneficial effect of keeping inflationary pressures in check and avoiding a ‘wage-price’ spiral in an economy.

Fifteenth, the CPI measure of inflation is used in many countries to provide cost of living wage adjustments for workers (i.e. labour wages demands or contracts are often adjusted using the CPI measure of inflation) and to adjust income payments such as social security payments, pension payments etc. Essentially, wages and income payments (such as social security and other welfare payments, pension payments etc.) are increased or raised periodically in an economy to keep pace with changes in the CPI.

Sixteenth, inflation tends to vary from country to country and often exhibits wide variation between countries. Generally developing/emerging economies tend to experience higher inflation than developed countries. Inflation on the CPI measure ranges between 1-3% in developed economies, while the range is much higher in developing countries – even some of them recording double digit inflation (i.e. >10%).

5. Unemployment

Rising unemployment is a paramount concern for policy makers across the globe as it has a tendency to persist with serious political, economic and social consequences and exacts a heavy cost on an economy in terms of loss of potential output (**Note:** potential output is the maximum or the highest level of output (GDP) that an economy can produce when all its resources (such as workforce, technology, natural resources and equipment) are fully employed without igniting inflation) and strain on public finances (i.e. usually results in higher fiscal/budget deficit).

Rapid reduction in unemployment, particularly after the global financial crisis of 2008, has been at the centre stage of policy debates, particularly in OECD countries such as the US, Eurozone and the UK, due to the disastrous consequences of this crisis for labour markets in these countries.

It might be noted that higher or increasing unemployment tends to reflect a weakening economy characterized by slowing down of aggregate demand, while lower or falling unemployment is reflective of a growing or expanding economy characterized by rising or buoyant aggregate demand. Further, if an economy experiences a period of robust (weak) economic growth, firms tend to enhance (reduce) production of output (to cater to increasing (lower) consumer demand) and investment spending, **which in turn results in lower (higher) unemployment in an economy.**

Next, governments usually measure unemployment in their respective countries either through surveys of a representative sample of the population comprising households or by counting the number of people claiming unemployment benefits. **To give an example;** the US measures unemployment in the former way and in UK both methods are used to calculate/measure unemployment. **Generally survey based measures of unemployment are preferable and thought to be more reliable.**

Before defining the concept of unemployment rate, it's important to know that there are mainly three causes or types of unemployment (**Frictional, Cyclical and Structural**) in an economy.

A.1 Causes of Unemployment

Frictional Unemployment: this type of unemployment lasts for a short duration. For example, when a job is advertised, it takes time for someone unemployed to find out about such a vacancy, apply and get hired or workers who are in the midst of changing jobs are temporarily unemployed or employers who want to employ workers may not find the most suitable candidates to fill those jobs are all examples of frictional unemployment. In all these cases, unemployment is for a short duration, which is usually up to six months and associated with a search period. **Some amount of frictional unemployment always exists in an economy.**

Cyclical Unemployment: this type of unemployment is associated with the business cycle (i.e. short run fluctuations in economic activity in an economy) and occurs when actual output (i.e. actual GDP) is below the potential output (i.e. potential GDP) of an economy - which reflects deficiency of aggregate demand for goods and services. Cyclical unemployment increases as actual output falls below potential output. Greater the gap (negative gap) between actual output and potential output, higher is the cyclical unemployment. Further, as actual output increases and the negative gap between it and the potential output narrows or decreases, cyclical unemployment also decreases.

The major cause of cyclical unemployment is deficiency of aggregate demand for goods and services, which leads to production cut backs by firms and consequently results in the layoff of workers and lower demand for labour. **For example**, if an economy falls into a recession, then it is operating at well below potential output – which is a reflection of an acute deficiency of aggregate demand for goods and services, which in turn tends to lead to cut back in production by firms and lay-off of workers - consequently unemployment tends to rise in the economy. **In other words, in a recession, unemployment usually tends to rise (rapidly or rise significantly).**

An important point worth mentioning here is that unemployment tends to have a clear cyclical pattern – it tends to rise rapidly in a recession and fall markedly in periods of sustained economic growth (as firms hire more labour to produce more output -in order to cater to increasing demand for the same).

Policy makers attempt to counter (i.e. lower) cyclical unemployment (associated with short run fluctuations in economic activity in an economy) through macroeconomic policies (mainly monetary policy and fiscal policy) that try to stimulate aggregate demand and enhance aggregate output (which increases demand for labour and lowers unemployment).

Structural Unemployment: this type of unemployment is of a longer duration, more serious in nature and exists because of a mismatch of skills (i.e. when skills of those seeking employment do not match the skills required by employers or expanding industries) or due to occupational and geographical immobility of labour. Structural unemployment can be lowered by reducing such labor market imperfections through government policy measures, reforms and incentives that encourage labor to acquire new skills that match the requirements of employers or expanding industries and improve the occupational and geographical mobility of labor.

Another example of structural unemployment: when there is a permanent reduction in demand for the output of any particular industry or sector due to changes in tastes and preferences of consumers or due to technological change, workers in that industry or sector face layoffs and find it difficult to find employment elsewhere. Unless such workers acquire new skills required by employers in expanding industries and sectors, they will remain unemployed for a longer duration. This type of unemployment is much tougher to overcome and usually requires considerable effort on part of workers to acquire new skills, which is not always easy or affordable.

There are also other causes of unemployment; for example, high minimum wages and strong trade unions can make hiring labour expensive in an economy, which in turn results in prevalence of higher unemployment. **Another example** is seasonal unemployment, which is also a cause of unemployment; for example, farms produce agricultural output during certain times of the year and consequently workers or labourers in such sectors tend to face seasonal unemployment during off-season periods.

Governments often attempt to reduce unemployment in an economy through macroeconomic policies (for example, fiscal policy i.e. government spending and tax policies) that tend to raise aggregate demand, stimulate economic growth and result in job creation.

They also try to design policies to promote labour market flexibility (which in turn tends to lower the cost of hiring labour by firms and consequently helps to reduce unemployment) and retraining of workers who have been made redundant or have been unemployed for a long time and other labour-market friendly policies, which in turn helps to reduce unemployment in an economy.

A.2 Unemployment – Key Definitions

Having stated the above, let us now understand what the term ‘**Unemployment Rate**’ (which is the best known measure of unemployment) means. In order to understand this key economic indicator, we must first be aware of the concept of ‘**Labour Force**.’

The **labour force** (out of the entire population) in an economy consists of the sum of those people who are employed and unemployed. To be a part of the labor force one must be of working age, which is usually 16-64 and be fit and currently available for work.

For those who are unemployed – they must be actively searching for employment. Those who are not actively seeking or looking for work are not usually counted as a part of the labour force.

Now the **Unemployment Rate (%)** is simply the ratio of the total number of people unemployed to the total number of people in the labor force multiplied by 100 (i.e. the percentage of the labor force that is unemployed).

Unemployment Rate (%) = (Total Number of Unemployed/Labour Force)* 100

The unemployment rate (%) is one of the three most important indicators (the other two being GDP growth rate (%) and inflation rate (%) (on the CPI measure)) of the state of an economy. Further, the unemployment rate (%) generally tends to be higher in a recession and lower when the economy is expanding rapidly or booming. Moreover, the unemployment rate (%) informs us about the state of the labour market in an economy i.e. labour market conditions.

It might be noted here that while the unemployment rate (%) is the best known measure of unemployment and one of the three most important indicators of the state of an economy, yet there are some exceptions such as the US economy which lays more emphasis on non-farm employment figures or what is commonly referred to as non-farm payroll employment (data of which is released monthly), rather than the unemployment rate (%).

Data on US non-farm payroll employment is used by policy makers, analysts, economists and financial markets to determine the current state of the US economy and predict future levels of economic activity, given that non-farm payroll employment has a direct impact or influence on consumer spending in the US – which accounts for around 70% of aggregate demand in this economy.

Having stated the above, stated below are certain key points with reference to the unemployment rate (%), which one must be aware of:

First, if in an economy the unemployment rate (%) remains high for a considerable period of time, it usually suggests the existence of significant excess capacity across various sectors of the economy (due to actual output being much lower than the potential output). In such an economic scenario, inflation tends to decelerate and remain low for an extended period of time due to considerable deficiency of aggregate demand.

On the other hand, if in an economy the unemployment rate (%) is falling rapidly, it is indicative of an economy that has been growing rapidly for an extended period of time. Such an economic scenario is usually accompanied by rising inflation, as a result of buoyant and increasing aggregate demand.

Second, compared to other macroeconomic indicators, such as private investment, exports and imports, unemployment is much less volatile over the business cycle and also fluctuates less than cyclical fluctuations in GDP.

Third, a very important concept that one needs to be aware of is the **Natural Rate of Unemployment**.

The **Natural Rate of Unemployment** can be explained as the lowest unemployment rate (%) in an economy that can be sustained without fuelling inflation or it is the level of unemployment rate at which there is no tendency for inflation to accelerate. Further, when one refers to **full employment** in an economy, it does not mean zero unemployment. Instead it implies the **Natural Rate of Unemployment**. **Further, the level of output when the economy is at full employment is known as 'potential output**. In other words, when an economy produces at its potential output, it operates at its **Natural Rate of Unemployment**.

It might be noted that when actual output is equal to potential output in an economy, then the actual unemployment rate equals the Natural Rate of Unemployment.

Now, when the unemployment rate (%) is significantly higher (for example, 7%) than the **Natural Rate of Unemployment** (for example, 4%) in an economy, a rise or increase in consumer demand for goods and services is not very likely to be inflationary as the economy is operating well below its potential. However, if the unemployment rate (%) is close to (for example, 4.2%) or below (for example, 3.9%) the Natural Rate of Unemployment (for example, 4%), then rising or buoyant consumer demand is more likely to spill over or lead to rapidly rising inflation, as the economy is **operating close to or above its potential respectively** and therefore is unable to increase its production of goods and services sufficiently to meet the increase in demand.

Essentially, if the unemployment rate (%) falls below the Natural Rate of Unemployment, it is indicative of an economy that is 'overheating' (i.e. expanding at a torrid pace with accelerating or rapidly rising inflation). **In other words**, the economy is expanding at an **unsustainable rate** - due to excessive aggregate demand relative to the supply capacity of the economy. This is a situation where actual output exceeds potential output (which is possible only in the short run). **In such an economic scenario**, the central bank tends to undertake policy measures (such as raising the official 'policy' rate) to dampen aggregate demand, in order to lower inflation and bring it down to desired (or targeted) levels.

Finally, it might be noted that the Natural Rate of Unemployment varies from economy to economy and over the course of time. Further, it is dependent on factors such as the level of minimum wages, age structure of the population or the labor force, benefit rates etc.

Fourth, the unemployment rate (%) is a lagging indicator (i.e. it does not change direction until a few quarters (usually 2-3 quarters) after the economy does). For example, the unemployment rate tends to rise for 2-3 quarters (before falling) after the economy has started to improve or recover.

This is because employers need to be absolutely sure that their sales, revenues and profits and the economy are and will keep on growing and they need such evidence over several months before they decide to start hiring new workers full time.

Consequently, even if the economy starts to improve, the unemployment rate (%) tends to rise for 2-3 quarters before falling. Therefore, don't be bewildered or surprised if an economy starts to improve or recover after a prolonged economic slowdown or a recession and you find that the unemployment rate (%) rises for 2-3 quarters (before falling).

Essentially, the reason why the unemployment rate (%) is a lagging indicator is that firms need to be sure that economic recovery is well established and consequently their sales, revenues and profits and the economy are and will keep on growing before they start hiring new workers. So they tend to wait over several months to obtain such evidence, before commencing hiring of new workers full time.

Fifth, when unemployment is high or rising, earnings growth (%) of those employed tends to witness a marked slowdown or deceleration, which gives rise to increased pessimism about future expected earnings from employment and consequently adversely affects consumer spending (particularly on consumer durables) now and in the near future.

Essentially, when unemployment is high or rising in an economy and job security is under threat, consumers are likely to retrench on spending on goods and services, particularly on consumer durables (which typically involves borrowing), even if inflation and interest rates are low (i.e. cost of borrowing is low). A sharp retrenchment in consumer spending in turn is likely to have a substantial downside effect on aggregate output (GDP), given that it is typically or usually the largest component of aggregate demand.

Sixth, earnings from employment tends to be the primary determinant of consumer spending in an economy, as it is usually the predominant part of household disposable income. This is one of the major reasons why changes in the unemployment rate (%) is of considerable interest to policy makers, firms and financial markets.

Seventh, labour market indicators, such as the unemployment rate (%), provide vital insights into the state of consumer confidence and consumer spending in an economy. **For example,** a rise in unemployment i.e. a rise in the unemployment rate (which is a forerunner of tougher times ahead) tends to usually result in subdued earnings growth of those employed and loss of income for those who lose their jobs. This makes households more pessimistic about future expected incomes and job prospects, which in turn has a downside impact on consumer confidence. Falling or lower consumer confidence in turn results in lower consumer spending, particularly on consumer durables, and leads to lower demand for consumer credit.

It's important to note that households' take into account not only their current disposable incomes, but also their expected future disposable incomes while making purchase decisions (especially the large ones). Rising pessimism about expected future disposable incomes makes people feel less prosperous and tends to make them spend less, with adverse consequences for economic growth and employment in the short and medium term. The worst possible scenario is when unemployment mounts (with attendant loss of incomes), housing wealth falls sharply (as a result of a marked fall in house prices and/or stock prices) and the burden of accumulated debt (expressed as household debt as a percentage (%) of household disposable income) proves to be onerous.

In such a situation, the balance sheet of households gets severely weakened, which in turn tends to lead to a sharp rise in household savings and protracted curtailment of consumer spending on goods and services.

On the contrary, if in an economy unemployment is falling i.e. the unemployment rate is falling, earned incomes tend to grow more rapidly (due to rising demand for labour by firms, in order to expand production). This makes households more optimistic about expected future disposable incomes and job prospects. Further, more people receive incomes.

As a result, consumer confidence rises, which in turn propels or spurs consumer spending, particularly on consumer durables, and leads to higher demand for consumer credit. It might be noted that households usually spend and borrow more on the strength of rising earnings and employment and save less with a rise in economic wellbeing. Further, given the substantial bearing of borrowing by households' on consumption, a rise in borrowing (consumer credit) tends to have a marked upside (positive) impact on the purchase of high income elastic and interest sensitive goods such as consumer durables.

Eighth, in addition to the unemployment rate (%), there are two other labour market indicators that you should be aware of:

Labour Force Participation Rate (%): is the ratio of the total number of people in the labor force to working age population(which is usually or typically between 16-64) multiplied by 100 (**Note**: the labour force participation rate is expressed in percentage, for example 56%, 65%, 74% etc.).

Labour Force Participation Rate (%) = (Labour Force/Working Age Population)*100

The labour force participation rate is an important indicator of supply of labour in an economy as it refers to the number of people who are either employed or actively seeking work. During a recession or a protracted economic slowdown the labour force participation rate falls or decreases, as more workers tend to get discouraged and consequently stop looking for work i.e. stop searching for jobs or employment.

Employment/Population Ratio: is the ratio of total number of people in the labour force who are employed to working age population multiplied by 100 (**Note**: employment/population ratio is expressed in percentage, for example, 70%, 75%, 80% etc.).

Employment/Population Ratio = (Total Number of Employed/Working Age population)*100

The employment/population ratio is an excellent measure of labour market conditions in an economy and should be used along with the unemployment rate and the labour force participation rate for a general evaluation of the state of the labour market of an economy. Further, an increase in the employment/population ratio in an economy means that more people are in employment and involved in production of output and there are lesser or fewer dependents not working and consequently the burden on each employed person is less. **Moreover, an increase in this ratio will generally lead to higher GDP per capita in an economy.**

Ninth, official data on the unemployment rate (%) is usually released monthly (while GDP data is usually released at a quarterly frequency) and is subject to revision.

Further, while analyzing the official data on the unemployment rate (%) that is released, focus on the monthly changes in the unemployment rate (%) and **most importantly** compare the average change in the unemployment rate (%) in the previous three months (including the latest month for which official data on the unemployment rate (%) is available) with the average change in the unemployment rate (%) in the corresponding period of the previous year.

For example, if the unemployment rate (%) in an economy had increased to 6.6% in three months to December 2014, from 5.1% in the corresponding period in 2013, then clearly there had been a surge in unemployment in the economy and the outlook for the labour market in the short run or the near term looked grim and possibly earnings growth of those employed had been highly subdued or stagnant.

Most importantly, since rising unemployment rate (%) is reflective of the lagged effect of an economic slowdown, it suggests that this economy had been witnessing continued deceleration in growth of overall economic activity (i.e. continued economic slowdown) for quite a few quarters in the recent past (i.e. prior to the last quarter of 2014) – **which would have been reflected in lower or declining rates of GDP growth**.

On the other hand, if the unemployment rate (%) in an economy had fallen from 5.2% in three months to December 2014, from 6% in the corresponding period in 2013, then clearly there had been a rapid fall in unemployment in the economy - which reflected a strengthening labour market and an economy that had been continually expanding for quite a few quarters in the recent past (i.e. prior to the last quarter of 2014) – possibly accompanied by strong, higher or robust earnings growth of those employed.

In essence, such analysis of official data on the unemployment rate (%) will provide you with valuable insights into the state of the labour market and the economy for any particular period that you choose to focus on.

Having stated the above, the key point to note here is that if the underlying trend is of rising (falling) unemployment, then it is suggestive of a weakening (expanding or strengthening) economy, which in turn is likely to have an adverse (positive) effect on consumer confidence and spending. A fall (rise) in consumer confidence will in turn have downward (positive) implications for investment spending (by firms) and output (GDP) growth in the short run.

6. Money Supply

Before we define money supply and inform you of its constituents, the key point to note is that it is a key economic indicator of overall economic activity in an economy and can be used to forecast whether an economy is going to expand or slowdown (or contract) in the near future.

In other words, if growth of money supply is increasing, the economy will expand in the near future. **On the other hand**, if growth of money supply slows down considerably or if money supply declines, shrinks or contracts, then the economy will slowdown or ultimately contract (i.e. go into a recession). **For example**, if money supply contracts, then the economy is likely to enter a recession in the near future. **On the other hand**, if money supply grows during a recession, then economy recovery from the recession is possibly not too far away.

In essence, money supply is a leading economic indicator, as its growth or decline gives a clear indication of or enables us to predict where the economy is going to head in the near future and its turning points. It might be noted that official data on percentage (%) changes in money supply is usually released monthly in most economies.

Policy makers, economists, analysts, firms and participants in the financial markets are all very keen to know which way the economy is likely to head in the near future i.e. is it going to expand or slowdown (and ultimately contract), for which they analyze official data on money supply (and other leading economic indicators) and don't have to wait for official data on GDP to be released (which is usually released after a lag and is subject to frequent revisions) to arrive at their conclusions.

Another key point to note is that when the an economy is booming or growing too rapidly, the central bank of the country is likely to take policy measures to slowdown the growth of money supply, in order to moderate GDP growth and contain or curb inflation (which may be higher relative to the inflation target of the central bank).

On the other hand, if the economy is facing a slowdown or is in a recession, the central bank will try to expand money supply in the economy, in order to boost GDP growth and put upward pressure on inflation (which may be too low relative to the inflation target of the central bank).

In essence, the central bank of an economy can increase or decrease money supply in the economy, in order to regulate the pace of economic activity and keep inflation close to or near the official inflation target (which is usually set by the central bank).

It might be noted that the central bank of an economy, which largely (though not fully) controls the level of interest rates and the supply of loans/credit in the economy, tries to influence the size and growth of money supply through various monetary policy measures (**please refer to pages 60-65**).

For example, if an economy is growing too rapidly or booming and inflation is accelerating, the central bank of that economy will decrease or reduce the money supply to moderate the pace of growth and curb inflation. To decrease the money supply, the central bank can sell government bonds/securities to banks who would purchase these bonds with money. This in turn will result in banks having less cash to lend to firms and households i.e. supply of credit will go down and money supply will reduce in the economy.

On the other hand, if an economy is in a recession or is facing a slowdown and inflation is too low, the central bank would try to increase money supply to boost growth and put upward pressure on inflation. To increase the money supply, the central bank can purchase bonds/securities from banks who will get money in return. This in turn will result in banks having more cash to lend to households and firms i.e. supply of credit will go up and money supply will increase in the economy.

This monetary policy measure to increase or decrease money supply in an economy is known as **‘Open Market Operations’** – more on this on pages 60-62. **It might be noted** that an increase (decrease) in the growth of money supply in an economy means that the central bank is increasing (decreasing) liquidity of the banking system.

Next, having stated the above, a few important points need to be made with reference to money supply:

First, excessive growth of money supply in an economy tends to cause very rapid rates of inflation. **In other words**, large increases in money supply in an economy is the ultimate cause of very high inflation (that also tends to be volatile), which in turn invariably results in poorer macroeconomic performance and higher unemployment. **Therefore**, when you analyze the growth of money supply of an economy, be particularly wary if it is excessive. This is because excessive growth of money supply, if not checked in time by the central bank of the country, will usually result in very high (and volatile) inflation, lower GDP growth and higher unemployment in the near future.

Second, usually if money supply grows faster than real GDP in an economy, it will lead to inflation.

Third, if money supply is growing very rapidly – a sign of very rapid economic growth or the economy is ‘overheating’ - then the central bank of that country is likely to raise interest rates in the near future. **On the other hand**, if money supply growth slows down considerably – a reflection of an economy that is slowing down or where economic activity is weakening – then the central bank of that country is likely to lower interest rates in the near future.

Fourth, in the real world, central banks have to be concerned about both output and inflation and therefore they would like the money supply to grow at a rate that enables them to meet their respective targeted rate of inflation and an underlying rate of GDP growth. **In reality, achieving these objectives can be a big challenge for the central bank of any country.**

Next, before we define money supply and briefly explain its constituents below, the essence of what has been stated above is that an increase or decrease in money supply growth is a very useful guide or indicator of the pace of overall economic activity and underlying inflation in an economy.

A.1 Money and Money Supply

In order to understand the definition and constituents of money supply, let us first briefly understand what is meant by money.

Money

People hold their wealth in various forms such as cash, bank deposits and in other varieties of financial assets such as bonds, stocks, mutual funds, pension funds etc. While cash and certain types of bank deposits such as ‘checking accounts’ do not usually earn any interest or return, yet they are the most liquid and universally or easily accepted medium of payment for day-to-day transactions such as purchase of goods and services, payment of bills etc.

On the other hand, certain types of bank deposits (for example, ‘time deposits’) and other forms of financial assets such as bonds, stocks, mutual funds, pension funds etc. offer some sort of return in the form of interest or dividend income. However, they are not as liquid as cash or checking accounts or a universally accepted medium of payment for day-to-day transactions such as those mentioned above.

Having stated the above, money can be broadly defined as the amount of wealth held in the form of currency or cash (held by the public) plus total bank deposits. The four functions of money are medium of exchange, store of value, unit of account and standard of deferred payment.

Money plays a very important role in influencing domestic economic activity. This is because money has an important influence on the rate of growth of GDP (i.e. aggregate output) and employment in the short run and also on inflation, interest rates and exchange rates – and, therefore in the functioning of an economy. Money is particularly intimately connected to prices and is a nominal measure of economic activity. **However, it must be clarified that money is considered neutral (i.e. does not affect or influence the ‘real’ economy) in the long run, but in the short run money influences aggregate demand and hence aggregate output and employment i.e. money affects or influences the ‘real’ economy in the short run.**

Money Supply

Money supply is basically the total stock of money available in an economy. Further, there are some measures to estimate the total money supply in an economy at any given time.

Money supply in an economy essentially comprises of coins and currency in circulation with the public and various kinds of deposits held by the public at commercial banks and other depository institutions. It is determined or influenced by the interplay between the central bank, commercial banks (and other depository institutions) and the non-bank private sector in an economy.

It might be noted that for the sake of convenience ‘**commercial banks and other depository institutions**’ has been given the term ‘**banks**’ in this course.

Having stated the above, there are various measures of money supply in an economy according to the degree of liquidity they possess or the ease with which they can be used to carry out transactions.

The classification or definition of the various measures of money supply differs from country to country, yet the **common classification** of the same is M0 or M1, M2, M3 and M4 (these measures of money supply have been explained in brief below).

Not all these measures of money supply are used in every economy. Therefore, check out which of these measures of money supply are used in your economy or in other economies (by visiting the website of the central bank of the country you are interested in).

The key factor that differentiates one measure of money supply from the other is liquidity. Liquidity here means the ease or rapidity with which an asset can be converted into cash without a significant loss in the value of the asset.

M0 or M1 is the most liquid measure of money supply, followed by M2, M3 and M4 (which is the least liquid measure of money supply). Further, **M0 and M1** measure of money supply is also called **‘narrow money,’** while **M2, M3 and M4** measures of money supply are also called **‘broad money.’**

The ‘narrow measure’ of money supply (i.e. M0 or M1) includes the most liquid constituents of money supply in an economy and are easily or immediately accepted for regular transactions such as purchase of goods and services etc. Money under this category of money supply is readily used as a medium of exchange and does not usually earn interest.

A.2 Measures of Money Supply

M0 or M1 (‘Narrow’ Measure of Money Supply)

M0 or M1 include coins and currency with the public (C) + deposits of the public with banks (D) (i.e. checking accounts or what is often known as ‘demand deposits’) against which cheques can be written and money can be easily withdrawn on demand to conduct transactions. These types of deposits can easily or instantly be converted into cash without cost and do not usually earn any interest. **Essentially,** the two constituents (C and D) of **‘narrow’** money supply are highly liquid.

M2, M3 and M4 (‘Broad’ Measures of Money Supply)

The **‘broad’** measures of money supply (i.e. M2, M3 and M4) reflect money’s function as a store of value and include those constituents that are less liquid (and pay a rate of interest) than the constituents of the **‘narrow’** measure of money supply (M0 or M1) and are not usually immediately (or easily) available or always readily acceptable for carrying out regular transactions such as purchase of goods and services etc.

Further, some of the constituents of ‘broad’ money supply require a notice period before they can be withdrawn and may attract penalties for premature withdrawal or have restrictions on their use.

It might be noted that, in addition to the **‘narrow’** measure of money supply (i.e. M0 or M1), **‘broad’** measures of money supply (i.e. M2, M3 or M4) are also computed to reflect liquidity in an economy as their less liquid constituents too can be used for carrying out transactions - **albeit with a delay - when compared to the highly liquid constituents of the ‘narrow’ measure of money supply (i.e. M0 or M1).**

M3 is a broader measure of money supply than M2 and M4 is the broadest. In addition to M0 or M1, central banks look at broader monetary aggregates too. The usual constituents of each of these ‘**broad**’ measures of money supply is given below to provide you with a general idea of what all is included in each of them (**Note:** the constituents of each of these measures of money supply differ slightly from economy to economy and definitions may also vary slightly).

$M2 = M1 + \text{Savings Deposits} + \text{Small and Short Term Time Deposits} + \text{Retail Money Market Funds}$

$M3 = M2 + \text{Large and Longer Term Time Deposits} + \text{Institutional Money Market Funds}$

$M4 = M3 + \text{Other Deposits}$

It might be noted that not all of these measures of money supply are used in every economy. **Different economies use different measures.** However, usually it is M1 (narrow measure of money supply) and M2 or M3 (broad measures of money supply) that are used. Further, usually M2 or M3 are used to estimate the total money supply in an economy at any given time and to control and forecast inflation. For example, M2 is a key economic indicator used to forecast inflation in the US.

Having stated the above, a major problem faced by central banks is the classification of financial assets that can be counted or regarded as money.

This is because of two reasons:

First, the additional assets that are included in M2, M3 and M4 are not close substitutes for coins and currency with the public and checking accounts i.e. ‘demand deposits’ (which are constituents of ‘narrow’ measure of money supply) as they are not highly liquid assets that can be immediately or easily used for regular transactions.

Second, financial assets that are included in any measure of money supply in any economy should have a close link with spending in the economy and data on them should be timely available for purposeful analysis, in order for changes in money supply (by the central bank) to bring about a desirable change in the price level and economic activity. **However, over the last few decades, with increasing deregulation of interest rates and financial markets,** new financial assets have emerged and keep on emerging that are not or might not always be closely linked to spending in an economy. Further, spending patterns in an economy also change over time. Moreover, timely availability of data on such assets for purposeful analysis is also a major problem.

In essence, it has become increasingly difficult for central banks to precisely or exactly define money supply because of the emergence of new financial assets (as a consequence of increasing financial deregulation).

Having stated the above, there are a few important points with reference to money supply that need to be kept in mind.

First, the important point to remember here is that bank deposits, rather than currency held by the public, is the most important or dominant component of total money supply in an economy. Further, when banks increase (decrease) loans or provide more (less) credit to firms and

households, there is an expansion or increase (decrease) in bank deposits, which in turn results in an increase (decrease) in money supply in an economy.

Second, money supply or the amount of money in circulation in an economy and the rate of change in the same is intimately connected to the rate of inflation in an economy. Further, money supply has an important influence on interest rates and exchange rates too.

Third, money supply affects the actual production of goods and services (i.e. aggregate output) and consequently employment in an economy in the short run only.

Fourth, it is widely held that in the long run a change in money supply only causes a change in the rate of inflation and does not affect or influence aggregate output and consequently employment in an economy. However, in the short run, changes in money supply (by influencing aggregate demand) affect aggregate output and consequently employment in an economy, in addition to affecting the rate of inflation. The reason why changes in money supply affect aggregate output and consequently employment in the short run is because prices and wages tend to be sticky in the short run and adjust only slowly. This is why central banks round the world can use monetary policy to influence aggregate output and consequently employment in the short run only, in addition to influencing inflation i.e. **monetary policy is a powerful tool of aggregate demand management in the short run.**

Fifth, a large increase in money supply is generally regarded as inflationary because people will have more money, which will result in higher demand for goods relative to their supply (it might be noted that supply of goods tends to be relatively or highly inelastic in the short run). As a result, higher demand will simply push up prices, stocking inflation.

Further, an increase in money supply tends to lower domestic interest rates, which reduces the cost of borrowing for both firms and consumers and encourages them to borrow for investment and consumption purposes respectively that puts upward pressure on inflation in the short run (as it takes time to enhance supply of goods to cater to increased demand). **Moreover**, with lower domestic interest rates (relative to foreign interest rates), as a result of an increase in money supply, investors in search for higher return or yields on financial assets may want to invest in foreign financial assets, rather than in domestic financial assets – **which could lead to increased demand for foreign exchange and reduced demand for the domestic currency and consequently result in depreciation of the domestic currency vis-à-vis foreign currency.** Depreciation of the domestic currency in turn would make imports costlier and put upward pressure on domestic inflation.

Sixth, large increases in money supply have historically been a very important cause of surging inflation in various economies (but it is not the only cause of inflation).

Seventh, by changing the amount or quantity of money in circulation, central banks seek to bring about desirable changes in the general or overall price level and economic activity in the short run.

Eighth, since money supply is a leading economic indicator, changes (increase or decrease) in the growth rate of money supply impact the financial markets first and then influence changes (increase or decrease) in economic activity - generally with a lag of about 6-12 months – and take up to about eight quarters (two years) to influence changes (increase or decrease) in the rate of inflation.

It might be noted that what has been stated here is in general terms and the exact duration of the lag i.e. the lag with which a change in money supply affects or influences economic activity and inflation in an economy differs from economy to economy.

In other words, after how much time a change in the growth rate of money supply affects or is reflected in changes in economic activity and inflation differs from economy to economy (i.e. lead times differ from economy to economy), and what has been stated here is in general terms.

Having stated the above, the essential point to note is that changes in money supply take some time before they ripple through the economy and affect aggregate demand, output (and in turn unemployment) and inflation.

Ninth, turning points (peaks and troughs) of money supply occur about 12-24 months before the corresponding turning points (peak and trough) in GDP (i.e. the lead time is 12-24 months). If the money supply growth reaches its peak (trough), GDP is likely to peak (trough) about 12-24 months later. **It might be noted that** peaks and troughs in a leading indicator occur before corresponding peaks and troughs in GDP (i.e. the peaks and troughs in a leading indicator precede or occur before peaks and troughs in aggregate economic activity i.e. GDP).

Tenth, while analyzing the official monthly data on money supply (i.e. both narrow and broad money supply) of an economy, it is recommended that you take several months (at least latest 3 months) data and compare money supply growth over a 12-month period i.e. compare with the same period a year ago (that is monthly year-on-year growth in money supply), in order to discern the underlying changes in money supply over time and to obtain a perspective about whether money supply is growing moderately, rapidly (or too rapidly) or slowing down (or contracting), which in turn should enable you to somewhat guess or predict where the economy is likely to head in the near future.

It might be noted that changes or movements in broad money supply tend to prove to be a better guide to the strength or weakness of future economic activity (and inflation) in an economy, than narrow money supply.

Having stated the above, let us now turn to the tools of monetary policy.

A.3 Tools of Monetary Policy

The three main tools of monetary policy that a central bank can use to manipulate or change (increase or decrease) money supply and influence interest rates in an economy are Open Market Operations, Official 'Policy' Rate and Required Reserve Ratio.

The central bank of a country can manipulate or change the money supply by either changing the monetary base or by changing the required reserve ratio (which changes the value or size of the money multiplier).

Open Market Operations and the **Official 'Policy' Rate** are two monetary policy tools that a central bank can use to change the monetary base (to manipulate or change the money supply and influence interest rates) and **Required Reserve Ratio** is a monetary policy tool through which the central bank can change the value or size of the money multiplier (to manipulate or change the money supply and influence interest rates).

Stated below is a brief explanation of these three main tools of monetary policy.

1. Open Market Operations (OMO)

Open Market Operations (i.e. purchases and sales of government securities/bonds to banks) is a tool of monetary policy used by the central bank of a country to manipulate or change (increase or decrease) the money supply (i.e. the amount of money in circulation) in the economy and can be undertaken (by the central bank) on a day to day basis (i.e. every business or working day).

This is the most frequently used tool of monetary policy by most central banks (including the Federal Reserve in the US) to change the money supply in their respective economies.

Further, open market operations are also one of the most direct ways by which a central bank can change the money supply in an economy.

Open Market Operations essentially involves purchases (buying) and sales of government securities/bonds by the central bank of a country from and to banks, which causes a change in bank reserves (i.e. change in the monetary base) that in turn ultimately leads to a change in the money supply and interest rates in the economy.

Purchases of government securities/bonds from banks by the central bank **increases bank reserves** (i.e. it increases the monetary base) - thereby injecting liquidity into the banking system. Whereas, sales of government securities/bonds to banks by the central bank **reduces bank reserves** (i.e. it reduces the monetary base) – thereby reducing liquidity in the banking system.

Essentially, when the central bank of a country purchases government securities/bonds from banks, it increases bank reserves, which enhances the credit creating capacity of banks (as more funds are available with banks for lending to firms and households). Consequently, banks lend more to firms and households - which leads to creation of more deposits in the banking system.

As bank deposits are a very important component of money supply, creation of more deposits in the banking system results in an increase in the money supply (**technically speaking**, an increase in bank reserves leads to an increase in the supply of loanable funds of banks, which usually results in an increase in lending by banks to firms and households and creation of more deposits in the banking system. This in turn leads to an expansion in the money supply ‘multiple’ times the initial increase in bank reserves - **via the money multiplier mechanism**) - which is accompanied by a drop or fall in short term interest rates.

Falling short term interest rates usually results in a fall in long term interest rates. More specifically, real interest rates fall, which in turn increases demand for borrowing, private investment, consumer spending (particularly on consumer durables) and purchase of residential property (i.e. houses). Moreover, fall in real interest rates results in capital outflows and depreciation of the domestic currency vis-à-vis foreign currencies, which boosts net exports.

As a result of the above, aggregate demand, output and inflation rise and unemployment falls.

It might be noted that open market purchase of government securities/bonds by the central bank is undertaken or is recommended when the economy is undergoing a recession or a slowdown and the central bank needs to boost growth i.e. boost the economy (by stimulating aggregate demand) and lower the unemployment rate (%).

On the other hand, when the central bank of a country sells government securities/bonds to banks it reduces bank reserves, which lowers or reduces the credit creating capacity of banks (because fewer funds are available with banks for lending to firms and households). Therefore, banks lend less (i.e. banks make fewer loans to firms and households) which leads to creation of fewer deposits in the banking system and consequently results in a decrease in the money supply (**technically speaking**, a fall in bank reserves leads to a lower supply of loanable funds of banks, which results in banks lending less to firms and households and creation of fewer deposits in the banking system. This in turn causes money supply to decrease via the money multiplier mechanism) - which is accompanied by a rise in short term interest rates.

Rising short term interest rates usually results in a rise in long term interest rates. More specifically, real interest rates rise, which in turn lowers demand for borrowing, private investment, consumer spending (particularly on consumer durables) and purchase of residential property (i.e. houses). Moreover, rise in real interest rates results in capital inflows and appreciation of the domestic currency vis-à-vis foreign currencies, which in turn lowers net exports.

As a result of the above, aggregate demand, output and inflation fall and unemployment rises.

It might be noted that open market sales of government securities/bonds by the central bank is undertaken or is recommended when the economy is expanding too rapidly or unsustainably and the central bank needs to slow it down (by dampening aggregate demand), in order to curb or check inflation and inflation expectations and keep them under control or at desired levels.

Next, there are essentially two types of open market operations. The first one affects the monetary base on a permanent or long run basis and the second one affects the monetary base on a short run or temporary basis.

Finally, the advantage of open market operations (i.e. purchase and selling of government securities/bonds to banks) is that it is under the direct and complete control of the central bank. Further, such transactions can be undertaken expeditiously (if there is an efficient market for government bonds), whether it involves larger or smaller amount of purchases and sales of government securities/bonds.

2. Official ‘Policy’ Rate

Though monetary policy practices differ between countries, the official ‘policy’ rate (which is a short term nominal interest rate) that a central bank sets and announces publicly is **usually** the rate (called the ‘repo’ rate, ‘discount’ rate or ‘refinancing’ rate in some countries) at which banks can borrow from it. Consequently this rate affects the cost of borrowing of banks, which in turn influences domestic interest rates (short term and long term interest rates), bank reserves (and consequently the ability of banks to create credit) and the money supply.

It might be noted that that the **Federal Funds Rate**, which is the **key official ‘policy’ rate** in the US, is different, as it is the target interest rate that banks charge each other to borrow funds usually overnight, in order to meet the reserve requirements of the Federal Reserve (which is the central bank in the US). **The Federal Funds Rate should not be confused with the ‘repo’ rate, ‘discount rate’ or the ‘refinancing’ rate i.e. the official ‘policy’ rate at which banks in a country can borrow from the central bank.**

In addition to ‘Open Market Operations,’ another monetary policy tool used by a central bank to bring about a change in money supply i.e. to manage the money supply (through affecting the cost and availability of credit) is the **Official ‘Policy’ Rate - also referred to as the repo rate, refinancing rate or the discount rate in some countries – as mentioned earlier**. This is the rate at which the central bank of a country directly lends funds (usually on a short term basis – **usually overnight to 14 days**) to banks against approved securities (government securities/bonds) to meet their short-term liquidity needs.

In other words, the official ‘policy’ rate is the rate at which the central bank of a country provides collateralized (short term) financing to banks, with government securities/bonds serving as the collateral. **In essence**, the central bank provides a secured loan to banks on a short-term basis to meet their short-term liquidity needs and charges them a rate of interest (i.e. the official ‘policy’ rate).

Banks sometimes borrow from the central bank to meet short term liquidity needs arising out of the need to meet reserve requirements, demands of depositors, high seasonal demand for loans, or when these institutions require large amounts of liquidity as a result of an unexpected crisis (for example, the recent global financial crisis) due to which they are unable to borrow from other sources or the cost of borrowing from other sources is prohibitively high.

Banks who require funds to meet short-term liquidity needs try to first borrow money from other banks (with surplus funds) in the interbank market. However, if other banks do not have sufficient reserves to lend or the cost of borrowing in the interbank market is high or prohibitive then banks who require funds to meet short-term liquidity needs can borrow money directly from the central bank at the official ‘policy’ rate.

A central bank can change (increase or decrease) the official ‘policy’ rate from time to time, which affects the cost of borrowing for banks and the amount of money they borrow from the central bank. **A change in the official ‘policy’ rate is likely to lead to:**

- A change in the interest rates that banks charge firms and households for borrowing for investment and consumption purposes respectively (i.e. a change in the official ‘policy’ rate is likely to lead to a change in the cost of borrowing for firms and households).
- A change in the willingness of banks to lend (to firms and households).

And

- A change in the demand for credit by firms and households (i.e. the amount of money that households and firms are willing to borrow from banks)

Which will ultimately affect (increase or decrease) the growth of money supply in the economy.

For example, a hike (fall) in the official ‘policy’ rate increases (decreases) the cost of borrowing for banks and encourages banks to borrow less (more) from the central bank. This in turn would lead to an increase (decrease) in the lending rates of banks (i.e. an increase (decrease) in short term interest rates) and also reduce (enhance) their willingness to lend to firms and households.

Consequently, two things will happen:

First, an increase (decrease) in lending rates of banks (i.e. the rates at which firms and households borrow from them) will discourage (encourage) firms and households to borrow i.e. the demand for credit by firms and households will fall (rise), which will adversely (positively) affect aggregate demand and ultimately lead to lower (higher) spending in the economy and consequently result in lower (higher) aggregate output (GDP).

Second, coupled with the first point, a reduction (increase) in the willingness of banks to lend to firms and households will result in fewer (more) loans being made to firms and households.

This will ultimately lead to slower (faster) growth of money supply and lower (higher) inflation in the economy.

Finally, it might be pertinent to mention here that borrowing directly from the central bank (at the official ‘policy’ rate) results in an increase in bank reserves. Since bank reserves are a part of the monetary base, an increase in bank reserves leads to an increase in the monetary base – **which in turn results in a ‘multiple’ increase in money supply (Change in Money Supply = Change in the Monetary Base multiplied by the Money Multiplier).**

3. Required Reserves (Required Reserve Ratio)

The central bank of a country can sometimes use the required reserve ratio (explained in brief below) as a tool of monetary policy to bring out a change in the money supply i.e. the central bank can, by altering (increasing or decreasing) the required reserve ratio, change the amount of funds available with banks to make loans to firms and households, which in turn ultimately brings about a change in the money supply and interest rates – **that impact (increase or decrease) aggregate demand, output and inflation in the short run. Let us briefly explain the concept of Required Reserve Ratio.**

Under the fractional reserve system, banks in an economy are usually required to hold a minimum fixed or specified percentage (for example 5%) of their deposits (i.e. a fraction or proportion of their deposits) as reserves (known as ‘Required Reserves’) either in the form of deposits with the central bank or as vault cash. This minimum or specified percentage or ratio is known as ‘**Required Reserve Ratio**’ or is known by other names in different economies and is usually stipulated or determined by the central bank of a country.

The important point to note here is that these required reserves against deposits have to, by law, be held by banks and they cannot use these reserves to make loans or provide credit. As a result, the central bank of a country can sometimes use the ‘**required reserve ratio**’ as a tool of monetary policy i.e. it can by altering (increasing or decreasing) the required reserve ratio, influence the money supply growth in the economy.

For example, if the central bank hikes the required reserve ratio from 5% to 10% (in order to combat inflationary pressures in the economy), then banks have to keep a greater portion or larger fraction of their deposits as ‘required reserves’ which they cannot lend and therefore, have less funds available to loan out to firms and households. **As a result**, money is sucked out of circulation (or excess liquidity is drained out) because less bank credit is available for firms and households, which in turn leads to smaller expansion in the amount of bank deposits and consequently results in lower money supply growth.

Further, increasing the required reserve ratio leads to a rise in interest rates (i.e. the cost of borrowing for firms and households goes up), which lowers demand for loans and dampens private investment and consumer spending – leading to lower aggregate demand, output and inflation.

On the other hand, if the central bank reduces the required reserve ratio from 5% to 4%, then banks will have more funds available to loan out to firms and households as they have to keep a lower proportion of their deposits as ‘required reserves.’

In other words, lowering of the required reserve ratio enhances the ability of banks to create credit immediately – which results in an increase in the number of loans made by banks to firms and households (i.e. there is increased availability of credit for firms and households). This in turn leads to greater or larger expansion in the amount of bank deposits and consequently results in an increase in money supply growth.

Further, reducing the required reserve ratio leads to lower interest rates (i.e. cost of borrowing for firms and households goes down), which increases demand for loans and stimulates private investment and consumer spending – leading to higher aggregate demand, output and inflation.

These two examples highlight the importance of bank deposits in the money supply growth process in an economy.

7. Official 'Policy' Rate

Though monetary policy practices differ from country to country, the **official 'policy' rate** is usually the rate at which the central bank of a country directly lends money (on a short-term basis – usually overnight to 14 days) to commercial banks against approved securities (government securities/bonds) to meet their short-term liquidity needs.

Consequently this rate affects the cost of borrowing of banks, which in turn influences or affects domestic interest rates (short term and long term interest rates), bank reserves (and consequently the ability of banks to create credit) and the money supply in an economy. Terminologies for the official 'policy' rate differ across countries, however, in some countries this rate is called the **'repo' rate, 'discount' rate or the 'refinancing' rate.**

In other words, the official 'policy' rate is usually the rate at which the central bank of a country provides collateralized (short-term) financing to banks, with government securities/bonds serving as the collateral. **In essence,** the central bank provides a secured loan to banks on a short-term basis to meet their short-term liquidity needs and charges them a rate of interest (i.e. the official 'policy' rate).

It might be noted that this rate is set (and kept unchanged or changed) by the central bank of a country at its regular monetary policy reviews or meetings and is publicly announced. Generally, monetary policy reviews are held monthly or bi-monthly. However, in the US, such reviews or meetings are held every six weeks i.e. eight times a year by its central bank (Federal Reserve) Federal Open Market Committee (FOMC).

A point worth mentioning here is that the **Federal Funds Rate**, which is the Federal Reserve's (the central bank in the US) key 'policy' rate, is different from the 'repo' rate, 'discount' rate or the 'refinancing' rate, **as it is interest rate at which banks lend to each other overnight. However, a change in the Federal Funds rate also affects the cost of borrowing or doing business for banks,** which in turn affects domestic interest rates and consequently influences the interest rates that banks charge borrowers (individuals/consumers and firms) on various types of loans and interest rates that banks offer on deposits of varying maturities.

The key point to understand here is that essentially when the central bank of a country raises (lowers) its official 'policy' rate, it increases (decreases) the cost of borrowing or cost of doing business for banks - which in turn leads to an increase (decrease) in interest rates that banks charge on various types of consumer credit (credit cards, car loans, personal loans etc.), floating or adjustable rate housing/mortgage loans and loans to corporates/firms and also tends to lead an increase (decrease) in interest rates on bank deposits of varying maturities.

Now, when the cost of borrowing for individuals and firms rises (falls) and interest rates on bank deposits are raised (lowered), it increases (decreases) their cost of debt servicing and makes savings more (less) attractive. Higher (lower) cost of debt servicing results in less (more) money being available in the hands of consumers to spend on goods and services and also makes fresh investment spending by firms less (more) profitable - **consequently, aggregate demand is likely to fall (rise), which in turn tends to moderate (enhance) GDP growth or slow down (expand) the economy and ultimately usually results in lower (higher) inflation.**

If the central bank of an economy (for example, the Federal Reserve in the US or the Bank of England in UK or PBOC in China) wants to accelerate (slow) the pace of GDP growth, it lowers (raises) its official ‘policy’ rate.

Having stated the above, it might be noted that when the central bank of an economy lowers (raises) its official ‘policy’ rate, the economy is likely to grow faster (slower) in the coming months or in the near future and not immediately. Similarly, lowering (hiking) of the official ‘policy’ rate by the central bank of an economy is likely to lead to higher (lower) inflation after a lag and not immediately. This is because monetary policy (via a change in the official ‘policy’ rate) works with long and variable lags.

Essentially, monetary policy (working through a change in the official ‘policy’ rate) tends to influence the rate of growth of output (i.e. GDP growth) and inflation in an economy with long and variable lags, rather than immediately. Further, the length of the lag varies from economy to economy and depends on various factors such as stage of the business cycle an economy might be in at a particular point in time, prevailing consumer confidence and business confidence and external factors such as the pace of GDP growth of trading partners of an economy, global economic developments (which in turn influence (increase or decrease) demand for a country’s exports) and developments in global financial markets (which can seriously affect investor, business and consumer confidence in an economy) etc.

Generally speaking, a change (increase or decrease) in the official ‘policy’ rate by the central bank of an economy will usually affect GDP (output) growth with a lag of approximately 2-4 quarters (or sometimes even with a lag of 8 quarters) and affect inflation with a longer lag of approximately 4-8 quarters. **Further, on the average**, it takes about 4 quarters (1 year) for a change in the official ‘policy’ rate to have its maximum effect on aggregate demand and output (GDP) and about 8 quarters (2 years) to have its maximum effect on inflation (via influencing aggregate demand and output) in an economy.

The underlying point that is being made here is that changes in the ‘official’ policy rate take some time before they ripple through the economy and affect aggregate demand, output (and in turn unemployment) and inflation.

Having stated the above, it might be noted that monetary policy lags tend to demonstrate considerable variation and uncertainty and can differ substantially from economy to economy. However, we have stated the aforesaid monetary policy lag durations that are generally evident or applicable across most economies.

Next, a change in the ‘official’ policy rate works largely via its affect on aggregate demand in an economy, which in turn influences output (GDP) growth and ultimately inflation in an economy.

A change in the ‘official’ policy rate influences aggregate demand in an economy in various ways or through various channels; via a change in interest rates (on consumer, mortgage and corporate loans and bank deposits of varying maturities offered by banks to consumers and firms), asset prices (i.e. prices of financial assets (such as stocks, bonds etc.) and real assets (house prices, gold prices etc.)), exchange rates and expectations - **which in turn influences output (GDP) growth and ultimately inflation in an economy.**

How a change in interest rates affects aggregate demand, output and ultimately inflation has been explained in brief above.

With reference to assets prices channel, an official ‘policy’ rate induced increase (decrease) in domestic interest rates tends to dampen (increase) prices of stocks, bond prices, prices of other financial assets, house prices etc. Lower (higher) prices of financial and real assets reduce (increase) the value of household wealth, which in turn adversely (positively) impacts consumer spending (particularly on consumer durables) as households feel poorer (richer). Further, lower (higher) stock prices tend to lead to lower (higher) investment spending by firms as it decreases (increases) the profitability of their investments.

Taken together, lower (higher) consumer spending and investment spending (by firms) means lower (higher) aggregate demand and consequently lower (higher) output (GDP) growth and generally lower (higher) inflation.

With reference to the exchange rate channel, an official ‘policy’ rate induced increase (decrease) in domestic interest rates in an economy that has flexible exchange rates and is open to capital flows is likely to result in an appreciation (depreciation) of the domestic currency vis-à-vis foreign currency - which in turn tends to increase (decrease) demand for imported goods and reduce (increase) foreign demand for domestically produced goods i.e. lower (increase) demand for exports. **Consequently, this leads to lower (higher) net exports (X-M)**, which in turn adversely (positively) affects output (GDP) growth and usually puts downward (upward) pressure on inflation.

Finally, turning to the expectations channel, it might be noted that this channel is the most uncertain of all channels because the impact of a change in the official ‘policy’ rate on the future course of aggregate demand, output (GDP) growth and inflation depends crucially on the way economic agents interpret this change. **For example**, if the central bank of a country lowers its official ‘policy’ rate, it can be interpreted by economic agents in two ways:

First, economic agents may view the lowering of the official ‘policy’ rate as a signal that the central bank perceives the need to enhance or boost growth, which in turn could give rise to expectations of the economy expanding at a more rapid or higher rate in the near future or in the coming quarters. **Consequently**, this might boost confidence (i.e. business confidence and consumer confidence) - **resulting in higher private investment and consumer spending (and therefore, higher aggregate demand, output (GDP) growth and inflation (and inflation expectations))**.

Or

Second, a lowering of the official ‘policy’ rate may be interpreted by economic agents that the central bank perceives that the economy is weaker (or much weaker) than expected (i.e. growth is weaker or much weaker than expected), which in turn could adversely affect confidence (i.e. business confidence and consumer confidence) – **resulting in lower private investment and consumer spending (and therefore, lower aggregate demand, output (GDP) growth and inflation (and inflation expectations))** – as weaker (or much weaker) than expected growth usually engenders pessimism among economic agents about the economic outlook of the economy, future expected disposable incomes (of households) and future sales, revenues and profits (of firms).

8. Fiscal/Budget Balance (as % of GDP) and Government Debt (as % of GDP)

The macroeconomic performance of a country is not only influenced by monetary policy, but by fiscal policy too and governments often use a combination of both to achieve certain macroeconomic objectives or goals (such as macroeconomic stabilization, enhancing the growth rate of GDP, full employment, price stability, economic growth, efficient allocation of resources etc.) and to steer the economy in the appropriate direction - **by essentially trying to influence or impact aggregate demand, given a constant growth of aggregate supply.**

Essentially, fiscal policy relates to how a government raises its revenue and how it spends from such revenue to achieve certain macroeconomic objectives or goals (as stated above) and the annual budget is a statement of the estimates of a government's revenue and expenditure for a fiscal year.

Having stated the above, it might be pertinent to mention that fiscal policy essentially has two roles:

- **Aggregate demand management in the short run** to stabilize short run fluctuations in economic activity and to influence aggregate output, inflation and unemployment in an economy **in the short run.**
- **Enhance economic growth and the growth rate of capital formation in an economy in the long run.**

The focus here is on short run aggregate demand management role of fiscal policy.

Governments use expenditure and taxation policies, termed as fiscal policy, to influence the overall level of aggregate demand (consumption and investment) in the short run, which in turn affects the level of economic activity (output), inflation, unemployment, interest rates, savings rates etc. in an economy.

For example, an increase in government expenditure and/or tax cuts (i.e. fiscal stimulus or expansionary fiscal policy) can stimulate aggregate demand (consumption and investment), which in turn positively impacts aggregate output (GDP) growth in the short run and results in lower unemployment. It might be pertinent to mention here that what effect a fiscal stimulus or an expansionary fiscal policy has on inflation depends substantially on the state of an economy

Fiscal policy is also used as a policy tool for macroeconomic stabilization (i.e. to moderate business cycle fluctuations or short run cyclical fluctuations in economic activity in an economy, by attempting to stabilize fluctuations in aggregate demand) in the short run, in order to promote macroeconomic stability (though monetary policy is typically or normally the more important tool for this purpose). It might be pertinent to mention here that macroeconomic stabilization of an economy is a prerequisite for economic growth, as a stable macroeconomic environment is conducive to higher rates of investment and job creation – **leading to higher economic growth in the long run.**

Having stated the above, note that essentially to boost aggregate output and stabilize macroeconomic fluctuations in the short run, governments attempt to manage demand by changing the level and composition of taxation and government expenditure from time to time.

Next, prior to the recent global financial crisis (2008-2009) the prevailing consensus was to downplay the macroeconomic role of fiscal policy as a tool of macroeconomic stabilization (particularly in countries that have adopted ‘**Inflation Targeting**’ as a framework of monetary policy) and **monetary policy was supposed to deliver as much macroeconomic stabilization as possible in the short run**. However, the recent global financial crisis (2008-2009) has shown that when economies are buffeted by a massive negative shock, conventional monetary policy (mainly through use of interest rates) is powerless or impotent to revive economic activity on its own and **fiscal policy remains a very important tool of macroeconomic stabilization and for positively impacting aggregate output (GDP)**.

Infact, in order to avoid an economic depression in the face of collapse of private demand (due to the effect of the recent global financial crisis on economies across the globe) many countries (for example, US, UK, Eurozone, China etc.) across the globe attempted to stabilize their economies and support aggregate demand - **through massive expansionary fiscal policy or fiscal stimulus initiatives/packages worth billions of dollars (US\$)**. Such massive fiscal stimulus resulted in budget/fiscal deficits (as a percentage (%) of GDP) rising to distressingly high levels in these economies in 2009. High budget/fiscal deficits tend to act as a drag on growth and usually result in a prolonged period of subdued or weak economic growth. **To know the meaning of budget/fiscal deficit (or surplus), please read below.**

A.1 Government Budget (i.e. Fiscal) Deficit and Surplus

A **budget (i.e. fiscal) deficit** arises when tax revenues (of the government) fall short of government expenditure. A government tries to finance its expenditure from direct and indirect taxes and when revenue from these sources fall short of government expenditure (i.e. government expenditure is higher than government revenue), **the government faces a budget deficit** – which represents the borrowing needs of the government. A prudent level of budget deficit is around 3% of GDP and a persistently large budget deficit (for example, 6-7%) adversely affects economic growth. **On the other hand, a budget (i.e. fiscal) surplus** occurs when tax revenues (of the government) exceed or are higher than government expenditure. Further, a balanced budget (neither deficit nor surplus) on the other hand is where government expenditure equals government revenues. **Having a balanced budget is not always desirable.**

When an economy slows down or is in a recession or grows slower than expected, the budget deficit tends to rise or the budget surplus tends to fall, as the government gets lower tax revenues (**for example**, lower corporate and income tax revenues) and incurs higher spending on transfer payments such as unemployment insurance, food stamps etc. **On the other hand**, if an economy is expanding, booming or growing faster than expected, the budget deficit tends to fall or the budget surplus tends to rise, due to higher tax revenues and lower government spending on transfer payments such as unemployment insurance, food stamps etc.

Next, it might be noted that when we refer to or talk about the budget deficit or surplus of an economy, we are interested in the size of the budget deficit or surplus in relation the GDP of that economy (i.e. budget deficit or surplus as a percentage (%) of GDP) - **for example**, a budget deficit of 8% of GDP (which is a very high and unsustainable budget deficit). **Further, one should know that budget deficits are much more common than budget surpluses.**

Moreover, when you analyze official data on the budget deficits/surpluses of an economy, do focus on the underlying trend and changes in budget deficits/surpluses (as percentage (%) of GDP) over time i.e. compare the latest official data on budget deficit/surplus (as a percentage (%) of GDP) with those of several previous periods (quarters/months) and years.

Next, an increase in budget deficit is indicative of an **expansionary fiscal policy** and an increase in government surplus is indicative of a **contractionary fiscal policy**.

An expansionary fiscal policy attempts to stimulate aggregate demand to boost or increase aggregate output (and reduce unemployment) by increasing government expenditure and/or reducing taxes, while a contractionary fiscal policy attempts to dampen aggregate demand to lower aggregate output (which results in higher unemployment) by decreasing or reducing government expenditure and/or increasing taxes.

If an economy is undergoing a recession, a protracted economic slowdown or the government wants to boost aggregate demand to enable the economy to grow more rapidly (in a sustainable manner), then the government can undertake an expansionary fiscal policy (which is also likely to lower the unemployment rate (%) and boost private incomes) to either revive the economy or to make it grow faster (at a sustainable rate).

On the other hand, if an economy is expanding too rapidly or growing unsustainably along with accelerating inflation, then a government can undertake a **contractionary fiscal policy** to moderate economic activity (i.e. slow down growth rate of GDP) and bring inflation under control or put downward pressure on prices (by dampening aggregate demand). **Note** - if an economy is experiencing periods of rapid and unsustainable economic growth - leading to accelerating or sharply rising inflation or high inflationary pressures in the economy - then such an economy is said to be ‘overheating.’

Such use of fiscal policy (expansionary or contractionary) in an economy, to counter short run fluctuations in economic activity and to enhance or slow down the growth rate of output – GDP (and inflation too), essentially involves attempts to influence aggregate demand (in relation to aggregate supply) in the short run.

For example:

We are familiar with this equation (GDP - Expenditure side) given below:

$$Y = C + I + G + (X-M)$$

Now if we slightly alter the equation:

$$Y = C(Y - T) + I + G + (X-M)$$

Fiscal policy impacts aggregate demand directly by changing (increasing or lowering) government expenditure (G) and/or indirectly through changing (increasing or lowering) taxes (T - which affects disposable income of households and therefore leads to changes in consumer spending).

In the case of an expansionary fiscal policy, government can directly increase G and/or lower T (which increases disposable income of households and therefore has a positive effect on consumer spending) and stimulate aggregate demand - to boost aggregate output (incomes and employment).

Whereas, in the case of contractionary fiscal policy, government can directly reduce G and/or raise T (which reduces disposable income of households and therefore has a negative effect on consumer spending) and dampen aggregate demand - to reduce aggregate output and put downward pressure on prices.

Having briefly explained the concept of expansionary and contractionary fiscal policy, an important point needs to be mentioned with reference to government budget deficit and government debt.

Government budget deficit as a percentage (%) of GDP and government debt as a percentage (%) of GDP are **important indicators of the macroeconomic stability of a country.**

If a government is able to consistently maintain budget deficit (as a % of GDP) at prudent or low levels (at around 3% of GDP), it is indicative of sound management of public finances and helps to keep inflation under control in that economy and also enhances the government's ability to borrow from financial markets at lower rates of interest (as markets find it safer to lend to governments who manage their finances well) - which enhances its debt servicing capacity and is also conducive to economic growth. Further, and very importantly, low budget deficits (as a % of GDP) prevents the growth of government debt (as a % of GDP) – which is of paramount importance for the macroeconomic stability of a country.

It might be noted here that persistently high budget deficits (as a % of GDP) are often found to be the chief culprit behind high and volatile inflation and poor macroeconomic performance, which in turn endangers the macroeconomic stability of a country.

Having stated the above, let us give you an example of the importance of low budget deficits (as a % of GDP) with reference to macroeconomic stability.

Economies are buffeted by huge negative shocks (for example, the recent global financial crisis) from time to time, which can result in a large drop in output (GDP), high and rising unemployment and rapidly falling inflation – **which endangers the macroeconomic stability of a country**. Therefore, in such a challenging economic scenario, if a country has low government debt to GDP ratio (around 60% or lower) **due to a record of low or prudent level of budget deficits (as a % of GDP)**, then the government can create fiscal space to run larger budget deficits and provide a powerful fiscal stimulus (i.e. expansionary fiscal policy through a massive rise in government expenditure and/or substantial tax cuts) to the economy and sustain aggregate demand and private sector incomes, in order to prevent an economic collapse (and ward off deflationary pressures) and pave the path for economic recovery.

In essence, if a country has low government debt- to-GDP ratio (around 60% or lower), due to a record of low or prudent level of budget deficits (as a % of GDP), then it can provide a massive fiscal stimulus to the economy and temporarily run large budget deficits if the economy has been hit by a huge or massive negative shock (which usually results in a large drop in output, high and rising unemployment and rapidly falling inflation).

On the other hand, if a country has a high government debt-to-GDP ratio, due to a record of high or excessive budget deficits (as a % of GDP), then it will find it very difficult to stabilize the economy and boost aggregate output by stimulating aggregate demand (through expansionary fiscal policy) if the economy has been hit by a huge or massive negative shock.

Consequently the economy may have to go through a protracted recession (accompanied by soaring unemployment and deflationary pressures). To make matters worse, in such dire economic circumstances, conventional monetary policy is usually powerless or impotent to revive the economy on its own.

Having stated the above, let us now turn to **Fiscal Policy Multipliers** – concepts that you should be aware of.

A.2 Fiscal Policy Multipliers

Fiscal policy consists of changes in government expenditure and/or taxes to influence or affect aggregate demand, in order to bring about a desired change in aggregate output. Therefore, when fiscal policy is prescribed to influence aggregate demand and hence aggregate output in an economy, policy makers are always interested in knowing by how much will aggregate output ultimately change as a result of a change in either government expenditure or taxes or both.

In other words, policy makers are keen to know the magnitude of the multiple change in aggregate output as a result of a change in either government expenditure or taxes or both and **Fiscal Policy Multipliers** provides them with such answers (estimates).

Three Types of Fiscal Policy Multipliers

- A. **The Expenditure Multiplier** quantifies how much will aggregate output ultimately change as a result of a given amount of change in government expenditure.
- B. **The Tax Multiplier** quantifies how much will aggregate output ultimately change as a result of a change in taxes.
- C. **The Balanced Budget Multiplier** quantifies the combined impact of a change in government expenditure and taxes on aggregate output.

Having stated the above, it's very important to be aware of the sources of financing Government Budget/Fiscal Deficit.

A.3 Sources of Financing Government Budget/Fiscal Deficit

Given below is a brief explanation of the two sources of financing a budget/fiscal deficit: Market Borrowing and Money Creation.

1. Market Borrowing

A government runs a budget deficit when government expenditure exceeds government revenue. In order to finance the budget deficit, a government has the option to resort to market borrowing by issuing government securities of varying maturities to institutional investors. **For example,** a government can raise funds from the market by issuing Treasury bills with a maturity of up to one year or by issuing long term government bonds with a maturity of up to 50 years (with the average maturity of such bonds being between 5-10 years in many countries) to institutional investors. It might be noted that such borrowing from the market adds to public debt or what is commonly called government debt.

Essentially, the important point to note here, in terms of the short term aggregate demand management role of fiscal policy, is that governments frequently run a budget deficit (i.e. excess of government expenditure over government revenue) to stimulate aggregate demand when an economy faces an economic slowdown or a recession (i.e. when the economy is operating far below its full capacity and there is existence of a massive or large ‘negative’ output gap) and consequently have to borrow from the market.

An important point worth mentioning here is that if a government has a high or rising budget deficit (which results in higher government debt), it will have to resort to more or higher market borrowing, which is likely to drive up domestic interest rates and result in some or significant ‘crowding’ out of private investment (as the cost of borrowing for firms will go up, which in turn will lower profitability of investments). Such ‘**crowding**’ out in turn is likely to reduce the expansionary effect of fiscal policy on aggregate output. Further, higher government borrowing from the market may lead to firms and households anticipating or expecting higher taxes in the near future, which may result in lower current consumer spending and investment spending (by firms). This in turn could significantly nullify or lower the expansionary effect of fiscal policy on aggregate output.

Given below are some very important reasons why governments should avoid high and rising budget deficits as a percentage (%) of GDP (that increases or leads to higher government debt as a percentage (%) of GDP), which invariably leads to higher market borrowing.

First, high and rising budget deficits result in sharp increases in government borrowing from the market and lead to higher domestic interest rates (which in turn leads to some or substantial ‘crowding’ out of private investment – depending on the state of the economy) and also to higher government debt (which increases the debt servicing burden of the government). **Note, Debt in time period t = Debt in time period $t-1$ + Budget deficit in time period $t-1$.**

Second, high or rising budget deficits may result in the government being forced to offer higher and higher rates of interest to attract institutional investors who buy such debt – leading to increased government expenditure on interest payments, which in turn further worsens the budget deficit (as the government has to spend more and more each year on debt servicing).

Third, rising government debt (due to high and rising budget deficits) results in increasing amount of government tax revenue going just towards making interest payments on outstanding debt. This leaves lesser and lesser amount of money available for expenditure on productive government investment (for example, on infrastructure) and other government programs, which impedes private investment, capital formation and retards economic growth. Further, inadequate government and private investment tends to fuel inflationary pressures as supply does not keep pace with demand in a growing economy.

Fourth, rising government debt (due to high and rising budget deficits), which leads to an increasing amount of government revenue being impounded for interest payments on outstanding debt, may leave the government with no option but to raise taxes to finance government expenditure on any program. If taxes are raised, it would tend to dampen consumer confidence and spending and consequently lead to lower GDP growth.

Having stated the above, it must be pointed out that the ability of a government to raise taxes will depend largely on how fast the economy is growing.

If the economy is witnessing a prolonged period of anemic or low growth due to deficiency or lack of adequate demand, it would be very difficult for the government to raise taxes, and the inability to do so will further compound the problems of the government with reference to managing public finances and confidence of institutional investors who invest in its (government) debt.

High and rising budget deficits and increasing government debt tends to fuel fears among foreign institutional investors in government debt about the ability of the government to meet their debt repayments – which can lead to higher borrowing costs for the government (i.e. **rising yields on government debt**) if these investors demand higher yields on such debt to compensate for the risk of government default on the same. **If this happens**, the government will face an increasing burden of interest payments on outstanding debt, which will result in worsening of public finances. The worst scenario is when government tax revenues are not sufficient each year and the government has to borrow from the market just to pay interest on outstanding debt.

Next, rising yields on government debt (such as 10 year government bonds) also lead to a rise in other long term debt rates - such as mortgage rates, which are closely linked to such yields. Rising mortgage rates in turn tend to lower demand for housing, which adversely affects related consumer spending (for example, on furniture, household appliances etc.) and pace of growth of GDP.

Fifth, if government debt (as a % of GDP) rises to a level that institutional investors consider unsustainable or exorbitant, then they might become very reluctant or may not be willing to lend to the government to finance its expenditures, which would severely limit or inhibit the ability of a government to borrow funds from the market. **This can be incredibly worrying**, particularly if the economy is in a recession or is facing a protracted economic slowdown and the government wants to undertake a massive government expenditure programme - **to stimulate aggregate demand and take the economy out of the recession or a protracted economic slowdown** on to the path of economic recovery.

This is because the government would find it very difficult or impossible to increase government expenditure to counter recessionary conditions or a protracted economic slowdown, rising unemployment and plunge in consumer and investment demand. **Consequently** the economy is likely to face a more severe recession or a more prolonged economic slowdown (accompanied by rapidly rising unemployment) – **which would further weaken government finances**, due to higher government expenditure (on account of higher unemployment insurance and welfare payments) and lower tax revenues.

In such an economic scenario, monetary policy alone is usually not powerful enough or potent enough to jump start or kick start the economy. Even if the central bank in such a scenario slashes or reduces its official ‘policy’ rate to near zero levels to stimulate aggregate demand, it is unlikely to resuscitate or revive the economy on its own (due to the marked drop in consumer confidence and business confidence and the uncertain macroeconomic outlook - which gives rise to increasing pessimism about future expected disposable incomes, employment prospects and profitability of investments). Consequently, demand conditions in the economy are likely to remain woefully weak or subdued for an extended period of time.

Sixth, persistently high budget deficits can lead to a downgrade of a country’s sovereign rating and consequently increase the cost of borrowing (from the market) for the government.

Seventh, persistently high budget deficits result in higher real interest rates and lower economic growth in the long run. Further, lower the growth rate and higher the real interest rates in an economy, higher will be the budget deficit and consequently higher will the government debt (as a percentage (%) of GDP) – **with all its adverse economic consequences; higher inflation, lower growth, more macroeconomic volatility and higher unemployment.**

Eighth, persistently high budget deficits are a very important source of rising inflation in an economy.

Due to all the reasons stated above, it must be clear why budget deficits must be brought under control and kept at prudent levels.

2. Money Creation

If a government cannot borrow from the market because no one is willing to lend to them or there is a shortage of lenders, maybe because the government has been running persistently high budget deficits (as a percentage (%) of GDP) and unsustainably high levels of government debt (as a percentage (%) of GDP), then the only way the government can finance its budget deficit is by creation of new money (i.e. by obliging the central bank of the country to purchase government bonds, which leads to creation of new money), which is known as **‘monetizing’ the budget deficit.**

The unfortunate part of ‘monetizing’ the budget deficit is that it leads to high inflation and the experience of various countries in the past with such money creation is that it results in very high and variable rates of inflation and poor macroeconomic performance (with adverse consequences for the labour market in terms of higher unemployment).

Essentially, when a government resorts to borrowing from the central bank (i.e. by obliging the central bank of the country to purchase government bonds) to finance its budget deficit, which leads to ‘creation’ of new money as stated above, **it causes a larger expansion in money supply** (via the process of the money multiplier) and consequently results in higher inflation, which in turn leads to higher inflation expectations (and consequently demand for higher wages - that can lead to a wage-price spiral in the economy) and a further rise in the budget deficit.

It might be noted that a rapid or excessive expansion or growth in money supply is the ultimate cause of persistent, accelerating and variable inflation in an economy and invariably results in poor macroeconomic performance (along with higher unemployment).

An important point worth mentioning here is that if a government resorts to ‘monetizing’ the budget deficit, then there is no ‘crowding’ out of private investment. Consequently, the expansionary effect of an increase in government expenditure on aggregate output will be larger or greater when the government ‘monetizes’ its budget deficit, than when such expenditure is financed through market borrowing. **Having said this**, it must be remembered that ‘monetizing’ the budget deficit is a powerful source of inflation (which can be difficult to control) and therefore, it is not recommended or advisable to use this method to boost economic activity in an economy.

Next, having stated the two sources of financing budget/fiscal deficits, a point related to budget/fiscal deficits is noteworthy:

Government spending can be broken down into current spending (i.e. spending on wages of public sector employees, subsidies, payment of interest on government debt, social security payments etc.) and capital spending (i.e. spending on capital investment).

If a government incurs a budget deficit due to excessive current spending, then this is worrisome or problematic as such spending does not directly create output and also tends to be inflationary (because such spending adds to aggregate demand without corresponding increase in supply of output). **However, if a government incurs a budget deficit to finance capital investment,** it can prove to be beneficial for the economy. This is because government expenditure on capital projects - such as infrastructure projects - tends to enhance business confidence and encourage greater business fixed investment by firms, which in turn is likely to result in higher productive capacity, output, job growth and tax revenues and lower inflation in the future.

It might be noted that higher tax revenues, due to higher output and job growth, will tend to lower the budget deficit in the future and help the government manage its finances more prudently. Further, lower inflation in the future will put lesser strain on public finances (due to lower government spending) and help contain the budget deficit at prudent levels.

9. Exchange Rates

It's imperative to understand what exchange rates mean, as significant changes in the same can have a potent (and often disruptive) influence or impact on aggregate economic activity (GDP), inflation, interest rates, unemployment, corporate profits, business confidence, consumer confidence and the macroeconomic performance and stability (including financial stability) of a country or an economy.

A.1 Exchange Rates: Key Terminologies

Nominal Exchange Rate: is the rate (in money terms) at which one currency (**for example, the US dollar i.e. US\$**) is traded for the other (**for example, the British pound (£)**) at any particular time in the foreign exchange market i.e. the nominal exchange rate is the market value of a currency (For example, the US dollar (\$)) expressed in terms of the other currency (for example, the British Pound (£)). **In other words**, the nominal exchange rate is simply the number of units of a currency that can be exchanged or swapped for a unit of another currency.

For example, if the current or prevailing nominal exchange rate is 10 British Pounds for 1 US dollar, then you have to give up 10 pounds to buy or purchase 1 US dollar. **In other words**, we say that the exchange rate US\$/£ is 10£ - which means that 1US dollar will buy 10 British Pounds. **It might be noted that the most important currencies in the world that tend to be mentioned in the media are the US dollar, Euro, British Pound and the Japanese Yen.**

Often consumers and firms wish to know the **nominal** value (i.e. nominal exchange rate) of their (domestic) currency vis-à-vis other major currencies (such as the US dollar, Euro, Yen and the British Pound). Further, firms also wish to know the nominal value of their (domestic) currency vis-à-vis currencies of their country's trading partners as they engage in international trade.

It might be noted that the **nominal exchange rate** between the domestic currency and the foreign currency or any two currencies depends (in a flexible exchange rate system – **which has been explained later**) largely on the demand for and supply of these currencies in the foreign exchange market. Further, the main sources of demand for and supply of domestic and foreign currencies in the foreign exchange market are **international trade and capital flows** (arising out of purchases and sales of domestic and foreign financial assets (stocks, bonds etc.) by foreign institutional investors).

Having stated the above, it's important to know the meaning of currency appreciation and depreciation at the outset.

Let's take the above mentioned example; if after a few days you read in the newspapers or go to a foreign exchange dealer and find that the exchange rate (**i.e. nominal exchange rate**) between the two currencies has changed i.e. the exchange rate is now 15 pounds (instead of 10 pounds) for 1 US dollar, then this would mean that you have to now pay 5 more pounds for each US dollar.

In other words, the US dollar has become more expensive in terms of the pound. **In economics terminology**, we say that the pound (domestic currency) has **depreciated** against the US dollar (foreign currency) or alternatively the US dollar has **appreciated** against the pound.

On the other hand, if the exchange rate changes to 8 pounds (instead of 10 pounds) for 1 US dollar, this would mean that you have to now pay 2 pounds less for each US dollar. In other words, the US dollar has become cheaper in terms of the pound. **In economics terminology**, we say that the pound (domestic currency) has **appreciated** against the US dollar (foreign currency) or alternatively the US dollar has **depreciated** against the pound.

Real Exchange Rate: is the nominal exchange rate adjusted for inflation (which is calculated as the ratio of the domestic price level to the foreign price level or price level abroad - where the latter is converted into domestic currency units through the current nominal exchange rate). **So, essentially, the real exchange rate can be defined as the nominal exchange rate that takes the inflation differentials between countries into account.**

The real exchange rate essentially informs us of what a specified amount of money (say US\$100) can purchase in one country (for example, in the US) compared with what it can purchase in another country (for example, in the UK) i.e. relative cost of goods in different economies - **when expressed in a common currency. In other words**, the real exchange rate essentially measures the cost (i.e. price) of foreign goods relative to domestic goods and is therefore a measure of the competitiveness of a country's exports relative to exports of its trading partners.

Formula of Real Exchange Rate

$$Q = \frac{P_d}{P_a} \times E$$

Where Q refers to the real exchange rate, E refers to the nominal exchange rate, P_d refers to the domestic price level and P_a refers to the foreign price level or price level abroad.

It must be clear from the formula of real exchange rate that both price levels (domestic and foreign) and the nominal exchange rate can have an influence on its value. Further, the value of the real exchange rate varies directly with changes in the domestic price level and negatively or inversely with changes in the foreign price level. Moreover, the value of the real exchange rate also varies directly with changes in the nominal exchange rate.

Example: Real Exchange Rate

For example, assume that the US is the domestic economy and Australia is the foreign economy and the nominal exchange rate between the two is Aus\$3 = US\$1. Now if a typical basket of goods cost US\$1 in the US and the same basket of goods cost Aus\$6 in Australia, then the real exchange rate can be calculated as:

$$\text{Real Exchange Rate} = 3 \times \text{US\$1/6} = 0.5$$

A real exchange rate of 0.5 means that one can buy only 50% in Australia of what the same amount of money (in US\$) can buy in the US. **In other words**, one can buy twice as many goods in the US than in Australia for the same amount of money (in US\$).

Having stated the above, in reality, it is the real exchange rate (rather than the nominal exchange rate) that is of consequence, as it gives us the purchasing power of a currency relative to another currency at current exchange rates and prices.

Further, when we want to assess the impact of changes in exchange rates on international trade (exports, imports and balance of payments) and the international competitiveness of an economy, **we need to focus on the real exchange rate, rather than on the nominal exchange rate.**

Having stated the above, an important point needs to be mentioned. Real and nominal exchange rates tend to behave very similarly as real exchange rates tend to follow movements in the nominal exchange rate quite closely. **Further, since nominal exchange rates are volatile, real exchange rates also tend to be volatile. An important reason attributed for this** is that the real exchange rate is simply the nominal exchange rate multiplied by the ratio of the domestic price level to the foreign price level or price level abroad and with prices (domestic and foreign) typically slow to change as they are sticky in the short run, **it is fluctuations in the nominal exchange rate that generate fluctuations in the real exchange rate in the short run.**

Trade Weighted Exchange Rate: is calculated or expressed as **a trade-weighted index (TWI), which is a measure of the nominal value of the domestic currency relative to the currencies of the domestic economy's major trading partners and is also known as the domestic currency's effective exchange rate** i.e. it is used to compare the nominal exchange rate of a country against those of its major trading partners.

Essentially, this index (i.e. trade-weighted index (TWI)) is a weighted exchange value of the domestic currency vis-à-vis the currencies of its major trading partners, with the weight for each trading partner in the index equal to its share in total trade with the domestic economy i.e. if the domestic economy trades 20 times more with Country A than Country B, then the currency of Country A will get a weight that is 20 times higher than the currency of Country B in the index.

An increase in TWI indicates an overall or effective appreciation in the value of the domestic currency vis-à-vis the currencies of the domestic economy's trading partners. While a decrease in TWI indicates an overall or effective depreciation in the value of the domestic currency vis-à-vis the currencies of the domestic economy's trading partners. An overall or effective currency appreciation (depreciation) reduces (enhances) the export competitiveness of the domestic economy.

An example of a trade weighted index (TWI) is the US dollar index, which measures the performance of the US dollar (nominal exchange rate) against a basket of currencies (i.e. against the currencies of its most important trading partners – Euro, British Pound, Yen, Canadian dollar, Swiss franc and Swedish crown).

Finally, it might be noted that the **trade weighted exchange rate is an example of Nominal Effective Exchange rate** (which is usually measured by trade flows). Essentially, what is important to note here is that the nominal effective exchange rate (for example, the trade weighted exchange rate) is a better or sounder measure of the economic performance of an economy, when compared to the nominal exchange rate. However, the nominal effective exchange rate does not take inflation into account and consequently does not indicate anything about the changes in the international competitiveness of an economy. A sound measure of the changes in the international competitiveness of an economy is the **Real Effective Exchange Rate (REER).**

Real Effective Exchange Rate (REER): is the nominal effective exchange rate adjusted for inflation and is hence a sound measure of the international competitiveness of an economy.

The REER calculates the real exchange rate of the domestic currency against a basket of other foreign currencies. **More specifically**, it is the average of the bilateral real exchange rates between the domestic economy and each of its trading partners - weighted by their respective shares in its (domestic economy's) total trade (i.e. the weights reflect the importance of each trading partner's currency in the domestic economy's trade). **In other words**, REER is the weighted average of the real exchange rates of a country with all its trading partners, with weights reflecting the importance of each trading partner (i.e. the importance of each trading partner's currency in the domestic economy's trade).

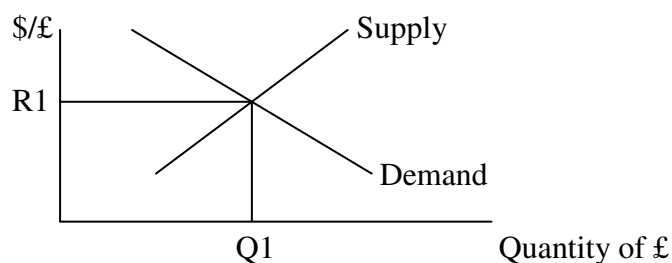
It might be noted that a higher (lower) REER indicates lower (higher) export competitiveness. Further, economists are mostly interested in the **real effective exchange rate (REER)**.

A.2 Exchange Rate Systems

The two major classifications of exchange rate systems are the flexible and fixed exchange rate systems. **In this course, the focus is primarily on the flexible exchange rate system** as the main currencies of the world (US Dollar, British Pound, Japanese Yen and Euro) today operate under the flexible exchange rate system and float independently against each other. Further, an increasing number of countries are adopting such a system due to various reasons. Moreover, the majority share of global economic activity occurs in countries that have adopted the flexible exchange rate system.

In a flexible exchange rate system (i.e. floating exchange rate system) market forces of demand and supply **largely determine** the exchange rate between any two currencies (for example, value of the US dollar vis-à-vis the British Pound), subjecting it to considerable fluctuations (particularly in the short run) which tend to be unpredictable or unexpected.

Graph: Exchange rates - Demand and Supply (Flexible Exchange Rate System)



The graph above demonstrates that it is demand and supply (i.e. intersection of the demand and supply curves) that determines the market exchange rate (R1) between any two currencies (i.e. the nominal exchange rate between any two currencies) under a flexible exchange rate system.

It might be noted that considerable fluctuations in the exchange rate can have many adverse implications for an economy, such as lower economic growth, high and volatile inflation and higher unemployment. As a result, policy makers prefer that exchange rate fluctuations are not subject to wild swings or undue volatility.

For example, if the currency of a country witnesses an unexpectedly large depreciation and the share of imports in domestic consumption and the trade to GDP ratio of that country is high, then imports, which become much more costlier (as a result of the unexpectedly large currency depreciation), will have a greater pass through to domestic producer and consumer prices – **that could result in a significant rise in domestic inflation rates**. This in turn is likely to adversely affect aggregate demand and output and therefore employment (as higher domestic inflation is likely to lead to higher domestic interest rates that will dampen private investment (I) and consumer spending (C) and consequently result in lower aggregate economic activity).

A major factor responsible for considerable or large and unexpected fluctuations in exchange rates under the flexible exchange rate system over the years has been the dramatic increase in **hot and volatile capital flows** (inflows and outflows) across borders (since the 1990s, consequent upon deregulation of financial markets and lowering of capital controls by various countries) related to or arising out of financial transactions, which are recorded in the **‘capital account’** of the balance of payments of a country i.e. capital flows related to or arising out of sales and purchases of domestic and foreign financial assets (such as stocks, bonds and other financial assets) by institutional investors.

Currency dealings arising out of financial transactions have led to a dramatic increase in hot and volatile capital flows (worth billions of US\$) across borders, as foreign investors can move in and out of domestic and foreign financial assets relatively rapidly or easily in search for higher returns on their financial investments. Further, if the outlook of any particular economy or economies (mostly emerging/developing economies) is gloomy, then foreign investors tend to panic and resort to mass selling of financial assets of that particular economy or economies (mostly emerging/developing economies) and rush to buy or purchase the financial assets of ‘safe haven’ countries such as the US, Germany etc. – **which are considered to be relatively stable and sound**.

Foreign investors also tend to rush to buy the financial assets of ‘safe haven’ countries and dump (i.e. mass selling) the financial assets of countries which are not considered ‘safe haven’ economies if the outlook for the global economy is gloomy or there are financial market jitters or crisis. **Moreover, countries with a high fiscal deficit, high current account deficit, high inflation and low GDP growth tend to be most vulnerable to massive capital outflows** (resulting from dumping of their financial assets by foreign institutional investors), as foreign institutional investors become more uncertain or pessimistic about the economic outlook and macroeconomic stability of such economies.

Due to what has just been stated, exchange rates tend to witness large and unexpected fluctuations, particularly in the short run and are very difficult to predict.

It might be noted that unexpected and/or massive inflow of capital into a country can lead to significant currency appreciation, which can harm its international competitiveness (as the country’s exports become more expensive for foreigners, leading to lower demand for the same) and also fuel an unsustainable asset price bubble (for example, stock market and property market bubbles) in the economy that can endanger its macroeconomic stability and make it more vulnerable to external financial shocks.

On the other hand, unexpected and/or massive outflow of capital from a country can lead to significant currency depreciation, which can harm the economy in various ways – **as stated on the previous page**. Further, the deceleration in aggregate demand and output, due to the significant currency depreciation, is likely dampen stock prices and house prices (i.e. dampen asset prices), which in turn could compound the economic slowdown as falling asset prices tend to adversely affect business confidence, consumer confidence and investor confidence.

Having stated the above, it must be known that a flexible exchange rate system (i.e. a floating exchange rate system) is never ‘fully free’ where exchange rates are purely determined by market forces of demand and supply and the central bank never intervenes in order to reduce or moderate fluctuations in the exchange rate.

This is why we had stated at the very beginning that market forces of demand and supply **largely (not fully) determine** the exchange rate between any two currencies in a flexible exchange rate system.

In the ‘real world’ a fully flexible or freely floating exchange rate system in which the central bank never intervenes to control the level or variability of the exchange rate is a myth. This is because central banks in countries that have adopted this exchange rate system do occasionally intervene to influence exchange rates and moderate significant fluctuations or high volatility in the same, as such volatility can have serious downside or adverse effect on domestic economic activity, trade and capital flows and also exposes the economy to considerable economic and financial shocks.

Even in countries (US, UK, Switzerland, New Zealand, Japan, South Africa etc.) whose currencies are on **independent float** (which is closest to a **fully free** flexible exchange rate system) central banks have occasionally (i.e. exceptionally) intervened to influence exchange rates in order to reduce highly destabilizing or excessive fluctuations in the exchange rate (though the degree of intervention varies considerably between these countries), with the intervention in countries such as UK and Japan being more than in the US.

It’s important to note that such official intervention does not have any reference target for the exchange rate. A reference target is one which is an exchange rate policy determined target - where a specific level of exchange rate is targeted by the central bank of a country.

Another major variant of the flexible exchange rate system is the **‘managed float’ system**, where the exchange rate is also permitted to be largely determined in the foreign exchange market (i.e. allowed to float depending on the market forces of demand and supply), yet the central bank of a country adopting such a system does intervene from time to time to ensure that the exchange rate does not go beyond or fluctuate more than the undeclared official range for the exchange rate or to prevent excessive fluctuations in the exchange rate. **However, even in a ‘managed float’ exchange rate system, there is usually no explicit reference target for the exchange rate.**

Basically, in a ‘managed’ floating exchange rate system, the exchange rate is also largely determined by the market forces of supply and demand, yet central bank intervention takes place from time to time (through buying and selling currencies) to moderate or prevent destabilizing or excessive fluctuations in the exchange rate – without any explicit reference target for the exchange rate. Countries such as Malaysia, Thailand and India have adopted the **‘managed’ floating exchange rate system**.

Finally, before ending the topic of flexible exchange rates, it might be worth noting that the exchange rate (in a flexible exchange rate system) is also an important channel of transmission of monetary policy.

Fixed Exchange Rate System

Since exchange rates under a flexible exchange rate system are often subject to considerable fluctuations or volatility (due to factors or causes such as volatility of capital flows, speculative activities, interest rates differentials between different financial centres, macroeconomic shocks or deviation of the exchange rate from fundamentals, inflation rate differentials between countries, sustainability concerns of government and corporate debt of a country that is denominated in a foreign currency (for example the US dollar), political instability, risk aversion among investors etc.) which can seriously dampen or disrupt domestic economic activity and trade and also expose the economy to considerable economic and financial shocks, some countries have adopted the fixed exchange rate system instead of the flexible exchange rate system.

Examples of countries that have adopted a fixed exchange rate system are Hong Kong, UAE, Qatar, Nepal and Namibia. **It might be pertinent to mention here that there are different or various variants of the fixed exchange rate system.**

A fixed exchange rate system, **also known as a pegged exchange rate system**, is one where the government or the central bank of a country ties or pegs the country's currency to either another country's currency or to a basket of other currencies and agrees to maintain the value at that level. **For example**, Hong Kong pegs its currency to the US dollar.

The key point to note is that the exchange rate under a fixed exchange rate system may be either higher or lower than the one determined by the market forces of demand and supply (i.e. the equilibrium exchange rate determined by market forces) as the exchange rate under this system is set and **artificially maintained** by official intervention (i.e. by the government or the central bank).

Further, in a fixed exchange rate system, the central bank intervenes in the foreign exchange market so that the exchange rate stays within a very narrow band or close to the exchange rate target (which is officially determined and artificially maintained) and **uses its foreign exchange reserves to ensure the stability of the fixed or pegged exchange rate system.**

For example, if a country fixes its exchange rate against the US dollar (at 5 units of the domestic currency for 1 US dollar) and if the demand for the US dollar rises because domestic residents want to purchase more US goods (i.e. goods produced in the US economy), then there will be pressure for the domestic currency to depreciate (and for the US dollar to appreciate – as more US dollars are being demanded for purchase of US goods by domestic residents). **To maintain the pegged exchange rate**, the domestic central bank will sell US dollars in the market (in exchange for the domestic currency) - **using its foreign exchange reserves** - to increase the supply of US dollars (in order to prevent its appreciation vis-à-vis the domestic currency).

On the other hand, if US residents wish to purchase more goods from this country, then there will be pressure for this country's currency to appreciate (and for the US dollar to depreciate) as more of its currency is being demanded by US residents to pay for goods produced in this country.

To maintain the pegged exchange rate, the domestic central bank will buy US dollars in the market (in exchange for the domestic currency) which will increase the supply of the domestic currency (and prevents its appreciation vis-à-vis the US dollar).

Essentially, in order to maintain or ensure the stability of the fixed or pegged exchange rate system (i.e. keep the nominal exchange rate stable) the central bank of a country (which has adopted this system of exchange rates) must have sufficient or large amount of foreign exchange reserves, in order to manage changes in demand for or supply of the domestic currency vis-à-vis foreign currency/currencies arising out of international trade (current account transactions) and trade in financial assets (capital account transactions), **as it is obligated to keep the exchange rate fixed or pegged by agreeing to sell or purchase foreign exchange at all times.**

A.3 Exchange Rate Fluctuations

Exchange rates fluctuations can affect an economy in various ways. Some of the most important ways by which such fluctuations can affect an economy are stated below.

Exchange rate fluctuations:

- Impact prices of imports and therefore affect the domestic inflation rate and growth rate of GDP (i.e. such fluctuations have important implications for an economy's business cycle).
- Alter demand between goods and services produced domestically (exports) and foreign produced goods and services (imports) because of relative price changes (thereby affecting the international competitiveness of an economy) and therefore influence the level of a country's international trade flows (i.e. exports and imports).
- Affect the supply side of the economy, due to the change in relative price of imports of raw materials, commodities and other inputs used in the production of output.
- Result in higher volatility of capital inflows and outflows that affect the prices of assets (stocks, bonds, other financial assets, housing or property assets etc.) and liabilities—which in turn tends to adversely influences aggregate demand for goods and services and consequently economic activity – resulting in lower aggregate output (GDP).
- Affect values of international investment portfolios (i.e. affects the market values of assets or investments denominated in foreign currencies and returns on such assets).
- Alter attractiveness of international (outward) and foreign (inward) direct investment.
- Change the value of external debt (i.e. debt denominated in foreign currencies) held by domestic households, firms and government—**with implications for the financial stability of a country.**
- Impact the trade balance, current account balance and fiscal balance of a country.
- Affects the value of international reserves of a country.
- Can also lead to various forms of import protection in the form of quotas, tariffs, subsidies etc.—which distort international trade and competitiveness.
- Affect money supply and interest rates-with consequences for domestic economic activity, inflation and unemployment.
- Make business planning more challenging and complex.

Having stated the above, you can possibly comprehend in how many ways exchange rate fluctuations can affect an economy and this is why policy makers don't like large or significant fluctuations in exchange rates.

A.4 Factors that Determine or Influence Exchange Rates (Short, Medium and Long Run)

Mentioned below are factors that primarily determine or influence exchange rates in the short run, medium run and the long run.

The Short Run

In the short run, it is capital mobility i.e. capital flows (inflows and outflows) across borders (relating to purchase and selling of domestic and foreign financial assets) that hold the key to short run fluctuations or movements in exchange rates.

The key point to note here is that decisions pertaining to investments in domestic or international financial assets (leading to capital mobility across borders) plays a significantly more important role in influencing exchange rates and fluctuations in the same in the short run than macroeconomic fundamentals and demand for exports and imports (i.e. current account transactions).

The implication of what has been stated above is that it is **differences in real interest rates** (i.e. real interest rate differentials between countries or relative real interest rates) and **expectations of future exchange rate movements** that play a pivotal role in determining exchange rates and fluctuations in the same in the short run. This is because these are the two key factors (among other factors) that investors (seeking best expected return on investments in financial assets – domestic or foreign) take into account when deciding whether to investment in domestic or foreign financial assets – which in turn usually results in massive (and highly volatile) capital flows across borders **i.e. across countries**.

In other words, it is not macroeconomic fundamentals or international trade flows (i.e. international trade in goods and services) but foreign exchange transactions pertaining to investment in assets - traded in global financial markets (as a result of increasing financial liberalization over the past few decades) - that play a pivotal role in exchange rate determination and fluctuations in the short run.

It might be pertinent to mention here that the volume of international trade in goods and services is very small when compared to international trade in financial assets. Further, due to the large volume of international trade in financial assets, exchange rate fluctuations can be considerable or large, particularly in the short run.

Moreover, foreign exchange transactions relating to investments in financial assets (treasury bills, government bonds, equities, corporate bonds and other financial assets) that are traded (i.e. transfers of financial assets) in global markets overwhelmingly dwarf foreign exchange transactions relating to exports and imports of goods and services (i.e. current account transactions) – as a result, there are some examples or instances where countries with a balance of trade surplus (i.e. trade surplus) have witnessed currency depreciation while countries with a balance of trade deficit (i.e. trade deficit) have witnessed currency appreciation (which is contrary to economic theory) in the short run.

Next, other factors can and do somewhat influence movements or fluctuations in exchange rates in the short run. **For example**, exchange rates tend to fluctuate immediately in response to news pertaining to expectations with reference to future economic growth, changes in corporate income tax, stock market prices and changes in inflation rates, and news pertaining to trade balance and current account balance and market expectations about their future values. Sudden or unexpected changes in government policy, particularly monetary policy, can also influence movements in exchange rates in the short run.

The Medium Run

It is argued that the direction of macroeconomic fundamentals or factors play a pivotal role in influencing or determining exchange rates over the medium run as they take some time to change and therefore their effect or influence on exchange rates takes time to play out, rather than such fundamentals impacting exchange rates in any substantial or significant manner in the short run.

The key macroeconomic fundamentals or factors that usually play a pivotal role in the determination of exchange rates in the medium run include relative GDP growth, inflation and expectations of future inflation, expectations of future exchange rate movements, relative real interest rates, trade balance, current account balance, capital account balance, trade policy, cyclical fluctuations in economic activity i.e. business cycles, relative monetary and fiscal policies and investment climate (other factors such as expected corporate income taxes also influence exchange rates in the medium run).

The aforesaid macroeconomic fundamentals or factors often cause a currency to deviate significantly (i.e. rise or fall relative to its long run equilibrium path) in the medium run from its long run equilibrium path, as a result of which exchange rates in a flexible exchange rate system tend to undergo large fluctuations or volatility not only in the short run but also in the medium run.

Having stated the above, it might be noted that changes in monetary and fiscal policies usually play the most important role in influencing a currency's value in the medium run.

The Long Run

In the long run, the factors that tend to play a pivotal role in the determination of exchange rates or influence the same are inflation differentials between countries, relative productivity growth, national saving/investment balance, consumer tastes and preferences and trade barriers.

It may be clear from the above that it is not only relative price levels (i.e. inflation differentials between countries) that influence long run path of exchange rates.

Other factors, as stated above, also play a pivotal role in influencing the long run path of exchange rates and seem to explain why there have been substantial and persistent deviations of exchange rates from estimated purchasing power parity (i.e. PPP values) and that the speed of convergence to PPP values usually takes a considerable period of time (it can take up to several years and sometimes a decade or more for such convergence to occur or take place).

Empirical evidence seems to suggest that exchange rates tend to move towards their PPP values in the long run, however, as just stated, exchange rates usually takes many years to move towards their PPP values due to the presence of other aforesaid factors that influence exchange rates in the long run.

Having stated the above, it might be noted that factors that play a pivotal role in the determination of exchange rates in the long run usually tend to change more slowly - when compared to factors that primarily determine exchange rates in the short run and the medium run – and, therefore their effect on exchange rates takes a considerable amount of time to play out.

Having briefly mentioned the key factors that determine or influence exchange rates (in the short, medium and long run), a few points related to exchange rates should be kept in mind:

First, if a country witnesses persistently lower inflation and higher productivity growth than its trading partners then the currency of that country will tend to witness appreciation (i.e. currency appreciation) relative to the currencies of its trading partners.

Second, over time, the strength or weakness of a country's currency should reflect the underlying strength of weakness respectively of that country's economic performance and fundamentals.

Third, emerging/developing economies currencies tend to be more unstable or volatile than the currencies of developed countries such as the US dollar, British Pound, Euro and the Japanese Yen - consequently these currencies are more widely accepted for payments related to international financial transactions, international trade, settlement of external debts and borrowing in international markets.

Fourth, currency depreciation (appreciation) makes imports more (less) expensive and tends to lead to a rise (fall or decline) in exports and consequently results in a lower (higher) trade deficit. It might be noted that when imports become more expensive due to currency depreciation, it puts upward pressure on domestic inflation (and consequently on domestic interest rates).

Fifth, generally if a country **witnesses sizeable or persistent currency depreciation**, it is due to weak economic fundamentals such as persistent and sizeable current account deficit, high and volatile inflation, high fiscal deficit etc. – which in turn can lead to foreign institutional investors selling assets (bonds, securities/shares and other financial assets) of this country and reinvesting the proceeds in assets of other countries that have sound economic fundamentals. **If this happens,** then further downward pressure is put on the currency of this country – which in turn is likely to lead to more rapid rise in inflation and interest rates and a serious or protracted economic slowdown accompanied by rising unemployment.

Sixth, immediately after a currency depreciates, the trade and current account balances tend to deteriorate initially. However, as time goes by (i.e. after around 6-18 months – duration varies from economy to economy) the trade and current account balances tends to improve, as more expensive imports (due to currency depreciation) cause a shift towards domestic production of imported goods (leading to lower imports) and exports also tend to rise more significantly.

To understand the concepts of trade and current account balances, please refer to the next economic indicator.

10. Current Account Balance (as a % of GDP) and Trade Balance (as % of GDP)

In order to understand the concept of trade balance and current account balance of a country, one needs to be aware of the concept of **Balance of Payments**.

The Balance of Payments (BOP) is a record of all the economic transactions (stated in the domestic currency) that takes place between a country and the rest of the world (i.e. between residents of the domestic economy and the rest of the world) in a specific period of time, usually a quarter or a year. Such records (BOP) provide us with a framework for assessing any country's international economic relationships and its relative strength and competitiveness in the global economy.

The balance of payments records of a country include its economic transactions with the rest of the world relating to trade (i.e. export and import) in goods and services, income (labour and investment income), unilateral transfers, international capital flows (capital inflow and capital outflow) and official transactions of the country's central bank and government with other central banks and governments in a specific period of time, usually a quarter or a year.

Having stated the above, it might be noted that the balance of payments statement has a double entry system. It has two sides (credit and debit) in which financial flows (i.e. receipts and payments) arising out of a country's economic transactions with the rest of the world are recorded.

The credit side records receipts (i.e. foreign currency inflow) received by the domestic economy from foreigners on account of payment for exports of goods and services, transfer receipts (such as remittances, donations, gifts, pensions etc.), investment income (dividend, interest, royalties etc.) from assets abroad, labors income received by residents of the domestic country working abroad, capital inflows on account of foreign investments (i.e. purchase of domestic financial assets by foreigners and foreign direct investment) in the domestic economy and foreign currency borrowings. **All the above are sources of foreign exchange as they lead to an inflow of the same.**

The debit side records payments (i.e. foreign currency outflow) made to foreigners on account of imports of goods and services, transfer payments, labour income paid to residents of a foreign country working in the domestic economy, payment of investment income (dividend, interest, royalties etc.) to foreign owners of domestic assets, capital outflows on account of investments (i.e. purchase of foreign financial assets by domestic residents and direct investment abroad by domestic firms) and lending activities abroad (by domestic residents). **All the above are uses of foreign exchange as they lead to an outflow of the same.**

Having stated the above, the balance of payments statement of a country is mainly divided into the current account and the capital account. In this course, we have focused primarily on the current account (i.e. Current Account Balance (**which also includes the Trade Balance**)).

Current Account

The current account records all economic transactions of a country with the rest of the world relating to trade in goods and services, income (labour and investment income) receipts and payments and unilateral transfers (receipts and payments) in a specific period of time, usually a quarter or a year.

Consequently, the current account balance (CAB) of a country consists of net exports (i.e. trade in goods and services – also called the ‘Trade Balance’) + net income (labour and investment income) + net unilateral transfers.

It might be noted that trade (exports and imports) in goods and services is typically the largest component of the current account and the difference between value of exports and value of imports is known as the ‘**Trade Balance**’ (i.e. **Net Exports (X–M)**). A country has a **trade deficit** if the value of imports is more than the value of exports and has a **trade surplus** if the value of exports is more than the value of imports. It might be noted that the **trade balance is a component of aggregate demand (i.e. GDP on the expenditure side)**. **Other things equal, a trade deficit reduces the GDP, while a trade surplus increases the GDP.** Further, small changes or variations (increases or decreases) in exports or imports can have a significant impact on the trade balance of a country.

Principal Determinants of Net Exports (also called ‘Trade Balance’)

$$X-M = f(Y_d, Y_f, R)$$

Where X-M refers to net exports (i.e. Exports (X) – Imports (M)), Y_d refers to level of domestic output or income (i.e. domestic GDP), Y_f refers to the level of foreign output or income (i.e. foreign GDP) and R refers to the real exchange rate.

This equation states that net exports are a function of the level of domestic GDP, foreign GDP and the real exchange rate.

An increase in domestic GDP (other things remaining constant or the same), by increasing demand for imports, will result in lower net exports (i.e. a worsening of the trade balance).

On the other hand, a fall in domestic GDP (other things remaining constant or the same), by decreasing demand for imports, will result in higher net exports (i.e. an improvement in the trade balance).

An increase in foreign GDP (other things remaining constant or the same), by increasing demand for exports, will result in higher net exports (i.e. improvement in trade balance). **On the other hand**, a fall in foreign GDP (other things remaining constant or the same), by decreasing demand for exports, will result in lower net exports (i.e. a worsening of the trade balance).

Higher net exports have a favorable effect on the level of domestic income and output and employment. Further, higher net exports tend to lead to more exchange rate stability, which is important for macroeconomic and inflation stability in an era of increasing economic interdependence between countries and volatile capital flows.

With reference to real exchange rates, a real exchange rate appreciation reduces exports and increases imports and therefore results in lower net exports. **On the other hand**, a real exchange rate depreciation increases exports and reduces imports and therefore results in higher net exports.

A key point to note with reference to the ‘Trade Balance’ is that it tends to fluctuate with the business cycle. **For example, let us take the case of a trade deficit.** When an economy emerges from a recession and continues expanding or witnesses a period of strong economic growth (expansions) or boom, the trade deficit tends to rise (rather rapidly sometimes) due to higher demand for imports as a result of domestic demand expansion.

Further, during economic expansions, imports tend to rise faster than exports and consequently the trade deficit tends to rise (rather rapidly sometimes).

On the other hand, when an economy is in a recession, the trade deficit tends to fall (rather rapidly sometimes) due to lower demand for imports as a result of domestic demand contraction. Further, in a recession imports tend to fall faster than exports and consequently the trade deficit tends to fall.

A point worth mentioning here is that if an economy is witnessing stronger (weaker) GDP growth than its trading partners, it usually results in a higher trade deficit (falling trade deficit). Further, countries with persistently high trade deficits (generally above 5% of GDP) tend to grow more slowly when compared to countries that have persistent low trade deficits or trade surpluses. This is because such countries tend to attract less foreign capital from investors, which in turn implies lower investment activity and growth when compared to countries that have persistently low trade deficits or trade surpluses.

Investors generally tend to be wary of countries with persistently high trade deficits (the US economy is an exception, as the US dollar is seen as a 'safe haven' by investors who have confidence in the underlying resilience, strength and outlook of the US economy).

Next, it might be noted that we have given more emphasis above on trade deficit, rather than trade surplus, as a deficit usually tends to be more problematic for countries than a surplus. If a country witnesses persistently high trade deficits (as a percentage (%) of GDP), then this possibly suggests that firms in that country are unable to supply enough output to match increasing or higher domestic demand (as a result of which imports tend to rise or surge) and/or the country is not very competitive or has been losing competitiveness in international markets – **resulting in falling or lower demand for its exports from the country's trading partners.**

High trade deficits can also be the result of reckless expansionary budget/fiscal policy or sustained consumer spending boom in an economy (due to a prolonged period of strong economic growth coupled with rising asset prices (mainly house and stock market prices) and easy availability of credit to fund consumer spending - **particularly on consumer durables.**

Next, if a country has been witnessing a surge in imports and lackadaisical growth in exports for some time, which in turn results in a persistently high trade deficit, **then there can be four negative consequences.** **First**, it is likely to lead to an exchange rate crisis (i.e. a sizeable or significant currency depreciation), which in turn may lead to higher domestic interest rates (to stem a further depreciation of the currency) that will adversely affect aggregate demand and output. **Second**, a depreciating currency is likely to lead to higher domestic inflation as imports become more expensive. **Third**, a persistently high trade deficit can lead to accumulation of foreign debt which might become unsustainable and consequently lead to an exchange rate crisis – with adverse economic consequences as stated above. **Fourth**, in order to tackle a persistently high trade deficit and the possible danger of an exchange rate crisis, policy makers in a country could try to dampen aggregate demand and output (to lower demand for imports), which in turn could lead to higher unemployment, slower growth of incomes and a protracted economic slowdown or even a recession.

Finally, before returning back to current account balance, one should be aware that official data on the trade balance of an economy/country is usually released monthly in most economies.

Further, one should focus on the underlying or ongoing trend of the trade balance (deficit or surplus) of an economy in relation to the current account balance and its size (as a percentage (%) of GDP), rather than focus on a single month's data.

Next, returning to current account balance, if a country has a current account deficit (i.e. where the current account balance is negative), it is clearly spending more than what it is earning. **In other words,** a country has a current account deficit when the sum of the trade balance + net income (labour and investment income) + net unilateral transfers is negative (i.e. less than zero).

If a country has a current account deficit, it can be financed primarily through selling of domestic financial assets (domestic government and corporate bonds, equities and other forms of financial assets) to foreigners (known as foreign portfolio investment), foreign direct investment and borrowing from foreigners.

The ideal way to fund a current account deficit is through foreign direct investment (which are long term capital inflows). Funding of current account deficit through foreign portfolio investments (which are essentially short term capital flows and tend to be volatile) or through borrowing from foreigners is not the best way to fund a current account deficit, as these types of capital flows can sometimes threaten the exchange rate stability of a country and consequently adversely affect its macroeconomic stability.

Next, it might be noted that if a country has a large current account deficit, it reflects loss of that country's international competitiveness relative to its trading partners.

On the other hand, if a country has a current account surplus (i.e. where the current account balance is positive), it is clearly spending less than what it is earning i.e. a country has a current account surplus when the sum of the trade balance + net income (labour and investment income) + net unilateral transfers is greater than zero (i.e. positive).

A country having a current account surplus uses its foreign exchange reserves to purchase foreign financial assets (i.e. foreign government and corporate bonds, equities and other forms of financial assets), directly invest abroad (outward direct investment) or lend abroad to other countries to finance their current account deficit.

It must be noted that current account transactions do not include capital flows relating to purchasing and selling of assets, foreign direct investment and direct investment abroad, borrowings (i.e. foreign currency borrowings) and lending activities abroad (by domestic residents) or capital flows relating to any other international economic transactions. **Such transactions are recorded in the capital account (explained in the following page).**

A point worth noting here is that a country's current account deficit also reflects that its national savings (S) are insufficient or inadequate to fund or is lower than its domestic investment (I) requirements i.e. $S < I$. Therefore, this gap can be financed through various means; borrowing abroad (i.e. use savings of other countries), foreign direct (inward) investment, using the foreign currency reserves of the country and/or sales of assets to foreign institutional investors by the country. National savings (S) include savings by the private sector (Sp) and the government sector (Sg).

Next, it might be noted that when one refers to the current account and trade account balances (i.e. deficits or surpluses) of a country, one is talking about the size (large or small) of the current account and trade account balances as a percentage (%) of that country's GDP. **For example**, if you read in the media or newspapers that the size of the current account or trade account deficit of a country is 5%, it usually means the current account or trade account deficit is 5% of the GDP of that country. **In essence**, whether it is the current account or the trade account, one has to look at the size of their balances (deficit or surpluses) relative to that of the overall economy (i.e. GDP).

It's very important to know the size of the trade balance and current account balance (deficit or surplus) of an economy as a percentage (%) of GDP, as it has implications for the exchange rate and macroeconomic stability of a country. For example, generally a persistent current account deficit of over or above 5% of GDP is considered worrisome. **For example**, if in an economy the current account deficit is persistently over or above 5% of GDP, then this possibly indicates that the economy could face a serious exchange rate crisis (i.e. the economy could possibly witness a large or sizeable exchange rate depreciation), which in turn is likely to result in higher inflation, rising domestic interest rates and a protracted economic slowdown (accompanied by rising unemployment).

A persistent current account deficit of over 5% of GDP is particularly worrisome if it is due to excessive domestic consumer spending (which results in surging imports, as domestic supply cannot cope with rising consumer demand) or when such deficit is being financed by the foreign exchange reserves of the country (which can result in a substantial depletion of such reserves and lead to an exchange rate crisis – leaving the economy more exposed or vulnerable to negative shocks from the global economy or global financial markets) or by short-term debt **denominated in foreign currency**.

Capital Account

The capital account records all capital transactions of a country with the rest of the world relating to purchasing and selling of assets, foreign direct investment and direct investment abroad, borrowing (i.e. foreign currency borrowing) and lending activities abroad (by domestic residents) and capital flows relating to any other international economic transactions in a specified period of time, usually a quarter or a year. Consequently, the capital account balance of a country consists of or measures **net flows of capital** (i.e. net capital flows) between it and the rest of the world - **relating to the aforesaid types of capital transactions. To put it simply:**

Capital account balance = capital inflows - capital outflows

If the capital account of a country is in surplus, it means that capital inflows are greater than capital outflows. **On the other hand**, if the capital account of a country is in deficit, it means that capital outflows are greater than capital inflows.

Next, an important point worth noting here is that there is a relationship between the current account and the capital account of the balance of payments records of a country. The capital account is largely the counterpart or the mirror image of the current account.

This means:

If a country has a current account deficit, then the deficit has to be financed by attracting capital inflows mainly through sales of domestic financial assets to foreigners i.e. foreign portfolio investment (in excess of purchase of foreign financial assets by domestic residents), foreign direct investment or borrowing from foreigners. **In other words, if a country has a current account deficit then it has to be ‘balanced’ by a capital account surplus.**

And

If a country has a current account surplus then it has to be ‘balanced’ by a capital account deficit i.e. the country uses its foreign exchange reserves to purchase foreign financial assets (in excess of purchase of domestic financial assets by foreigners), directly invest abroad or lend abroad to other countries to finance their current account deficit.

In essence, a key aspect about the balance of payments is that the current account and the capital account should balance (i.e. capital account transactions should match current account transactions).

$$\text{Balance of Payments} = \text{Current Account} + \text{Capital Account} = 0$$

In other words, the sum of the current account and the capital account should be zero (consequently, the sum of the balance of payments should be zero).

However, in reality, due to several reasons, current account transactions and capital account transactions do not match perfectly and consequently they don’t add up to zero. Therefore, a balancing item, known as ‘**Statistical discrepancy**’ is added, so that the sum of the current account and capital account is equal to zero.

Having stated the above, the key point to note is that:

A country that has a current account deficit is essentially borrowing money from foreigners to finance its current account deficit and this is why it has a capital account surplus.

A country with a current account surplus is essentially lending money to other countries to finance their current account deficit and this is why it has a **capital** account deficit.

Having briefly explained the current account and the capital account of the balance of payments records of a country, few points are worth mentioning:

First, if a country has a large current account deficit (as a % of GDP), due to decline in international competitiveness and relatively higher inflation than its trading partners, then the size of the current account deficit can be reduced if the country adopts a flexible exchange rate system. This is because a depreciation of the domestic currency vis-à-vis foreign currencies makes exports cheaper and imports more expensive, which in turn enhances the demand for exports and reduces the demand for imports – **thereby leading to a gradual reduction in the size of the current account deficit.**

It might be noted here that currency depreciation up to an extent (i.e. currency depreciation which is gradual, orderly or small) can help lower the current account deficit. If there is very sizeable or large currency depreciation, it can lead to significant capital outflows from the country and result in higher domestic inflation - which in turn can even worsen the current account deficit.

Further, the beneficial effect of currency depreciation (which results in imports becoming more expensive and increases demand for exports as they becoming cheaper for foreigners) on the current account deficit depends substantially on the **price elasticity of demand for exports and imports**.

The price elasticity of exports measures the sensitivity of quantity demanded of exports to a change in the price of exports. **Similarly, price elasticity of imports** measures the sensitivity of quantity demanded of imports to a change in the price of imports.

Ex = % change in quantity demanded of exports / % change in the price of exports

Where Ex refers to Price Elasticity of Exports

Em = % change in quantity demanded of imports / % change in the price of imports

Where Em refers to Price Elasticity of Imports

It might be noted that though it's not mentioned above, **the sign of both elasticities is negative**. This is because price and quantity demanded of a good are negatively related (i.e. an increase in the price of a good reduces the quantity demanded of it and a fall in the price of a good increases the quantity demanded of it) and this negative relationship applies to both exports and imports.

When price elasticity of exports is greater than 1, it means that quantity demanded of exports is very responsive to a change in the price of exports. **In other words, export demand is elastic. Export demand is elastic** when a 1% change in the price of exports causes a change in the quantity demanded of exports by more than 1%. For example, if there is a 1% increase (decrease) in the price of exports, it will cause a decrease (increase) in quantity demanded of exports by more than 1%.

Similar is the case with price elasticity of imports. If the price elasticity of imports is greater than 1, it means that a 1% change in the price of imports causes a change in the quantity demanded of imports by more than 1%. **In other words, import demand is elastic. For example,** if there is a 1% increase (decrease) in the price of imports, it will cause a decrease (increase) in quantity demanded of imports by more than 1%.

On the other hand, when price elasticity of exports is less than 1, it means that quantity demanded of exports is not very responsive to a change in the price of exports. **In other words, export demand is inelastic. Export demand is inelastic** when a 1% change in the price of exports causes a change in the quantity demanded of exports by less than 1%. **For example,** if there is a 1% increase (decrease) in the price of exports, it will cause a decrease (increase) in quantity demanded of exports by less than 1%.

Similar is the case with price elasticity of imports. If the price elasticity of imports is less than 1, it means that a 1% change in the price of imports causes a change in the quantity demanded of imports by less than 1%. **In other words, import demand is inelastic. For example,** if there is a 1% increase (decrease) in the price of imports, it will cause a decrease (increase) in the quantity demanded of goods by less than 1%.

Having stated the above, it might be noted that these two price elasticities (price elasticity of exports and price elasticity of imports) differ from economy to economy. Further, most crucially, the price elasticity of exports and price elasticity of imports enables us to assess or ascertain the impact of changes in the exchange rate on exports revenues and import spending (i.e. import bill) of a country respectively.

Essentially, changes in the exchange rate alter or change the price of exports and imports (i.e. either making them cheaper or more expensive), which in turn affects the quantity demanded of exports and imports respectively.

In other words, changes in the exchange rate alter relative prices of exports and imports, which in turn results in changes in quantity demanded of exports and imports respectively. Now, to determine the impact of a change in the price of exports and imports on the quantity demanded of exports and imports respectively (and therefore the impact on export revenues and import spending respectively) the concepts of price elasticity of exports and price elasticity of imports are used.

Next, in addition to the price elasticity of exports and price elasticity of imports, **the income elasticity of exports and income elasticity of imports** also have an important influence on the quantity demanded of exports and imports respectively. The income elasticity of imports is the ratio of import growth to domestic GDP growth and the income elasticity of exports is the ratio of export growth to foreign GDP growth (i.e. GDP growth of the trading partners of the domestic economy). **In other words**, these elasticities measure the percentage (%) change in imports and exports respectively in response to 1% change in domestic GDP growth and foreign GDP growth respectively. It might be noted that higher domestic (foreign) GDP growth generally tends to lead to higher demand for imports (exports) and lower domestic (foreign) GDP growth generally tends to lead to lower demand for imports (exports).

If the income elasticity of a country's imports is high (small), then if the GDP of that country rises by 1%, imports will tend to rise by a relatively large (small) amount. Similarly, if the income elasticity of a country's exports is high (small), then if the foreign GDP rises by 1%, exports will tend to rise by a relatively large (small) amount.

A key point to note here is that if the income elasticity of a country's imports is significantly higher or greater than the income elasticity of its exports, then this is a warning signal against increasing or rising trade deficits over time. **On the other hand**, if the income elasticity of a country's exports is significantly higher or greater than the income elasticity of its imports, then this suggests that this country's trade deficit will tend to fall markedly over time (or its trade surplus will tend to become larger over time).

It might be noted that different countries have different or varying price elasticity of exports and imports and income elasticity of exports and imports.

Second, if a country has not adopted a flexible exchange rate system, then in order to reduce a large current account deficit it will have to rely on **deflationary policies** to regain international competitiveness. But such policies tend to have serious and protracted downside effects on domestic economic growth and employment generation (with adverse implications for public finances).

Third, the size of the current account deficit (which is expressed as a % of GDP) of a country is an important indicator of its macroeconomic stability, in addition to the size of the fiscal deficit and rate of inflation. These three indicators of macroeconomic stability of a country also tend to have an important influence on the exchange rate. A country with a large current account deficit and high fiscal deficit and inflation tends to face more exchange rate volatility or instability than countries with sustainable current account deficit and fiscal deficit and low or moderate inflation.

It might be noted that exchange rate volatility or instability tends to endanger macroeconomic stability and domestic economic growth.

In the present context, due to rising economic interdependence between countries across the globe and volatility of capital flows – which are exposing economies to more macroeconomic instability - **it is imperative for economies to have sustainable current account and fiscal deficits and low and stable inflation.**

Fourth, one should be aware that official data on the current account balance of an economy/country is usually released monthly. However, in some economies it is released quarterly. Further, one should focus on the underlying or ongoing trend of the current account balance (deficit or surplus) of an economy in terms of its size (i.e. as a percentage (%) of GDP), rather than focus on a single month's (or quarter's) data.

Having stated the above, we now turn to the problems that a country can face if it persistently runs high current account deficits.

A.1 Problems with persistently high Current Account Deficits (CAD)

A country should avoid running or having a persistently high current account deficit due to various reasons. Some of the most important ones are stated below.

A persistently high current account deficit:

- **Is usually accompanied by or can lead to significant currency depreciation over time** (i.e. weakening of the domestic currency vis-à-vis foreign currencies over time), which in turn can lead to substantial 'imported' inflation (as imports become significantly more expensive) and build up of inflationary pressures in the economy, particularly if the country is a big importer of commodities such as oil.
- **Is associated with higher inflation rates and lower export competitiveness i.e.** countries that have a persistently high current account deficit tend to have higher inflation rates than countries that do not have such a problem. Further, higher inflation tends to lower the export competitiveness of a country.
- **Can lead to a marked rise in domestic interest rates**, as the central bank of the country is likely to raise its 'official' policy rate, in order to stem the outflow of capital from the country resulting from foreign investors dumping or selling domestic financial assets because they become more negative about the stability and growth prospects / economic outlook of the country (due to the persistently high current account deficit).

A marked rise in domestic interest rates tend to significantly dampen domestic economic activity (resulting in higher unemployment) as private investment (I) drops sharply and consumer spending decelerates (because the cost of borrowing for firms and households goes up significantly).

- **Generally leads to a rise in a country's net external indebtedness** and usually results in the country paying higher real interest rates on its debt in world financial markets i.e. the country's cost of borrowing goes up.

Having stated the above, a country can lower its current account deficit by implementing policies to:

- Lower domestic consumption (which reduces demand for imports).
- Lower government budget deficit and keeping it at a prudent level.
- Raise private savings (household sector and firms).
- Let the domestic currency depreciate vis-à-vis foreign currencies, so that exports become cheaper and consequently the export competitiveness of the country increases.
- Undertake structural reforms to boost exports, such as high- value manufacturing exports, and build a globally competitive export sector.
- Enhance productivity that will lower the cost of production of domestic firms, which in turn will make exports cheaper.
- Achieve energy independence and security. For example, if a country is a big importer of oil and gas then it could invest heavily in the domestic exploration of oil and gas, in order to reduce its huge import bill on account of oil and gas imports.
- Keep domestic inflation low and stable (lower than the inflation rate of the country's trading partners), so as to enhance the export competitiveness of the country in international markets (and consequently increase exports) and also lower demand for imports (higher inflation abroad tend to deter demand for imports).

Next, having stated the above, we now turn to two very points related to the trade balance (i.e. Net Exports (X-M)) of a country, which are very important to note.

1. Currency Appreciation and Depreciation

In order to assess the impact of currency appreciation and depreciation on the trade balance (net exports) of a country, we need to identify the impact of these changes in exchange rates on export revenues and import expenditures and for such identification **the concepts of price elasticity of exports and price elasticity of imports are used. Provided below are four examples.**

Currency Appreciation

If the price elasticity of exports is less than 1 and the price elasticity of imports is also less than 1, then currency appreciation will cause an **improvement in the trade balance** as export revenues will rise and import spending by the country will be lower.

If the price elasticity of exports is greater than 1 and the price elasticity of imports is also greater than 1, then currency appreciation will cause a **worsening of the trade balance**, as export revenues will fall and import spending by the country will rise.

Currency Depreciation

If the price elasticity of exports is less than 1 and the price elasticity of imports is also less than 1, then currency depreciation will cause a **worsening of the trade balance**, as the rise in export revenues will be small or very small when compared to the rise in import spending by the country.

If the price elasticity of exports is greater than 1 and the price elasticity of imports is also greater than 1, then currency depreciation will cause an **improvement in the trade balance**, as export revenues will rise and import spending by the country will be lower.

Having stated the above, what is crucial to keep in mind is that the effect of a currency depreciation or appreciation on the demand for exports and imports depends on the size or value of the price elasticity of demand for exports and imports respectively. Larger the size or value of price elasticity of demand for exports and imports, more pronounced will be the effect of a currency depreciation or appreciation on the demand for exports and imports respectively.

In other words, a currency depreciation or appreciation alters the relative price of exports and imports, which in turn results in a change in quantity demanded of exports and imports respectively – with the size of change in quantity demanded of exports and imports depending on the size or value of the price elasticity of exports and imports respectively.

2. Marshal Lerner Condition

A real exchange depreciation of the domestic currency (which lowers price of exports and increases price of imports) will only lead to an improvement in the trade balance or an increase in net exports if the sum of price elasticity of exports (E_x) and price elasticity of imports (E_m) is greater than one (i.e. $E_x + E_m > 1$). **This is known as the Marshall-Lerner condition.**

The Marshall-Lerner condition is applicable or generally holds (in many economies, particularly in developed economies) over a time horizon of six months to a year or even more (depending from economy to economy). Therefore, the trade balance (i.e.net exports) gradually improves usually over a time horizon of six months to a year or even more – **consequent upon a real exchange rate depreciation.**

It might be noted that the **Marshal-Lerner Condition** may not be fulfilled in periods less than six months, as the price elasticity of exports (E_x) and the price elasticity of imports (E_m) often tend to be quite small or low during periods of such short duration (i.e. demand for exports and imports tend to be inelastic during periods of such short duration) – consequently, the sum of E_x and E_m almost always fails to equal 1 in periods less than six months.

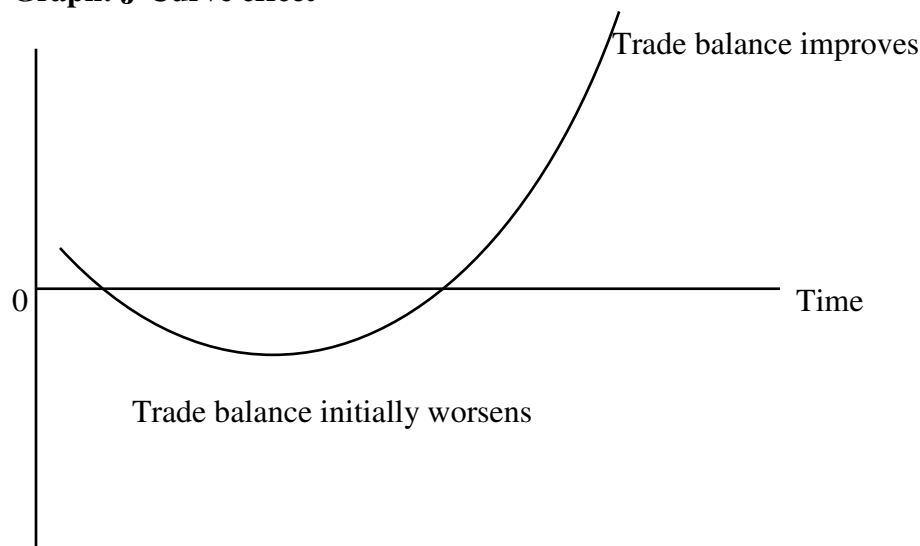
In essence, shortly or immediately after a real exchange rate depreciation the Marshall-Lerner condition may be not be fulfilled, as the aforesaid elasticities are often quite small or low in the very short run, which here means a period of less than six months (resulting in the sum of E_x and E_m being almost always less than 1 in periods less than six months).

Since the Marshall-Lerner Condition may not be fulfilled in periods less than six months, a real exchange rate depreciation is likely to initially worsen the trade balance (i.e. initially net exports are likely to fall) during this period, before it (the trade balance) gradually improves usually over a time period of six months to a year or even more (as the price elasticity of exports and price elasticity of imports gradually increase)–this effect is known as the J-curve effect (please refer to the graph of J-Curve on the following page).

The J-curve effect essentially means that consequent upon a real exchange rate depreciation there is initially a deterioration in the trade balance (i.e. a fall in net exports), which tends to gradually improve as demand for exports and demand for imports start to gradually respond to the real exchange rate depreciation.

Having stated the above, don't be surprised or unduly concerned when you read about the trade balance worsening in any country immediately, initially or very soon after a real exchange rate depreciation.

Graph: J-Curve effect



This graph (J-Curve) shows that consequent upon a real exchange rate depreciation the trade balance initially worsens and then only gradually improves – so the movement of the curve is like a J: first down, then up.

Question: why are the aforesaid price elasticities often quite small or low in periods shorter than six months, resulting in the Marshal-Lerner condition not likely to be met during periods of such short duration and why does the trade balance worsen initially?

First, import and export contracts tend to be negotiated or confirmed in advance. Therefore, initially import volumes or quantities are unlikely to go down (i.e. likely to remain steady) and exports volumes or quantities are unlikely to go up immediately after the real exchange rate depreciation. However, because of the real exchange rate depreciation, the value of existing import volumes or quantities increases in terms of the domestic currency (i.e. domestic expenditure on imports rises) and export revenues fall – **leading to an initial deterioration in the trade balance.**

Second, domestic consumers and firms tend to gradually shift their expenditure away from imported goods to domestically produced goods (which become cheaper after the real exchange rate depreciation) rather than doing so immediately, because it takes time for consumers and firms to search for cheaper domestic alternatives, gather information on the same and also because it takes time to change preferences.

Similarly, foreign consumers and firms also tend to gradually shift their expenditure away from goods produced in their country (which become more expensive) to exports (as they have become cheaper), because it takes time for them to search for cheaper foreign alternatives, gather information on the same and also because it takes time to change preferences.

As a result, the volume or quantity of imports go down and the volume or quantity of exports rise only gradually (not immediately or instantaneously) after the real exchange rate depreciation. Consequently, the trade balance only improves after a lag - **usually over a time period of six months to a year or even more** – after deteriorating initially.

In other words, exports and imports tend to be price inelastic in the very short run - **leading to an initial deterioration in the trade balance.**

Third, the trade balance tends to worsen or deteriorate initially **as price effects of a real exchange rate depreciation tend to dominate the volume effects of the same in the very short run (i.e. in periods less than six months)**. However, gradually over time- **usually over a time period of six months to a year or even more** – as import volumes fall (due to higher prices of the same - leading to lower demand for imports) and volume of exports rise (due to lower prices for the same - leading to higher demand for exports) the volume effects of a real exchange rate depreciation begins to dominate the price effects and **the value of exports exceeds the value of imports -which leads to an improvement in the trade balance.**

11. Consumer Confidence

Since consumer spending is typically or usually the dominant or largest component of aggregate demand and consequently has a substantial effect on GDP growth in an economy, policy makers, analysts and financial markets have an avid interest in how confident consumers feel economically now and about the future (typically 6-12 months ahead), as **Consumer Confidence** is a key determinant of consumer spending.

If consumers/households don't feel economically confident now and are pessimistic about the future, then this probably indicates that the economy is likely to witness a slowdown or grow less rapidly in the coming months or quarters, as consumer spending is likely to decelerate or slowdown.

On the other hand, if consumers are economically confident now and optimistic about the future, then this probably indicates that the economy is likely to pick up, gather momentum or continue expanding in the coming months or quarters, as consumer spending is likely to grow rapidly.

Consumer confidence is measured through the **Consumer Confidence Index (CCI)**, which is a monthly index (based on survey of households by one or more organizations in most economies) and is a very valuable leading indicator of the likely direction of consumer spending (especially on purchase of 'big ticket' items such as consumer durables) and the economy in the near future (i.e. over several months or coming quarters).

For example, if the **CCI** increases from 45 in any particular month to 51 in the subsequent month, it indicates that consumers are more confident about their economic situation and the near term economic outlook. **On the other hand**, if for example, the CCI decreases from 45 in any particular month to 40 in the subsequent month, it reflects that consumers are less confident or are pessimistic about their economic situation and the near term economic outlook. **In the former case**, rising consumer confidence has positive implications for GDP growth in the near future, **while in the latter case**, falling consumer confidence has adverse implications for GDP growth in the near future.

Having stated the above, there are a few points with respect to the CCI of an economy which have been briefly mentioned after the following point mentioned below.

Essentially, consumer spending thrives in an economy when consumers/households witness strong growth in their **real disposable incomes** and when they are confident (as captured by the Consumer Confidence Index or Indices of any economy) and optimistic about their **job prospects, economic outlook** (predicated on sustained economic expansion in the recent past), **future expected real disposable incomes** (i.e. disposable incomes adjusted for inflation) and **personal finances**, and when there is **low and stable inflation accompanied by low cost and easy availability of credit**. Further, if consumer confidence is robust (as will be reflected in higher numbers on CCI over several months), it's likely that households' will continue to spend in the near future and make major spending commitments on items such as cars and other consumer durables. **Consequently**, in such a scenario, consumer borrowing to fund such purchases is likely to increase and the **household savings ratio** is likely to go down.

When consumer spending thrives, it has positive implications for economic activity or output and employment generation in the short-run, as firms are likely to expand production and increase their investment spending to cater to buoyant consumer spending/demand (which is expected to continue in the future also) and also hire more labour to produce more output.

On the other hand, a dramatic unfavorable change in any of the aforesaid factors (mentioned in bold on the previous page), such as high and volatile inflation, soaring unemployment, high cost of credit etc. or an highly adverse change in any combination of such factors, is likely to lead to a marked fall in consumer confidence (as will be reflected in lower numbers on CCI over several months), which in turn could result in a sharp retrenchment or fall in consumer spending - particularly on consumer durables. Falling or decelerating consumer spending in turn could lead to production cut-backs, rising unemployment, sharp fall in private investment and a protracted economic slowdown or downturn, or even a recession.

It might be noted that the aforesaid factors (**mentioned in bold on the previous page**) play a pivotal role or are the **main determinants of Consumer Confidence – which is a key driver of consumer spending**.

Having stated the above, mentioned below are certain points that you need to be aware of with reference to the CCI of an economy:

First, the CCI provides invaluable insights into underlying and prevailing sentiments and views of households'/consumers with reference to their employment prospects, personal finances and outlook on the economy. Therefore, the CCI provides an indication of the likely direction of consumer spending in the near future (i.e. over several months or coming quarters). **Further**, if the CCI suggests that consumer confidence is low, policy makers can respond accordingly to stimulate consumer demand and the economy (through various policy instruments – such as expansionary monetary policy and/or expansionary fiscal policy).

On the other hand, if the CCI suggests that consumer confidence is high, policy makers can accordingly prevent consumer demand and the economy from growing too rapidly or 'overheating' (through various policy instruments – such as contractionary monetary policy and/or contractionary fiscal policy).

Second, it must be noted that monthly CCI can be volatile and subject to wild swings, due to the influence of factors such as bad weather, seasonal factors and unanticipated developments (such as surging inflation, financial crisis, wars, natural disasters, oil crisis or any other exogenous shock to the economy, terrorist attack etc.) on consumer confidence. Therefore, monthly movements (i.e. monthly increase or decrease) in the CCI don't reflect the underlying trend (upward or downward) or a sustained trend in consumer confidence in an economy.

Instead, it's advisable to focus on quarterly or three-month moving average and the previous 12 month movements in the CCI, rather than on monthly movements (i.e. monthly increase or decrease) in the same, to gauge the underlying trend or changes in consumer confidence and the outlook for the same in the near future i.e. it's the underlying trend in consumer confidence or sentiment (i.e. CCI) that is of significance, rather than the CCI of any one month or a particular month - **which can be unduly influenced by the aforesaid factors**.

Third, due to monthly volatility of the CCI, it will usually not provide a very accurate forecast of changes in consumer spending on a month-to-month basis.

However, the CCI is a valuable leading indicator of the likely direction of consumer spending over time (i.e. over several months or coming quarters), as changes in CCI tend to be related to changes in consumer spending over time (i.e. over several months or coming quarters).

Fourth, as the monthly CCI can be volatile, one should also rely on other economic indicators to gauge the underlying or prevailing consumer sentiment in an economy; some of the important economic indicators are **sales of consumer durables, retail sales, household savings ratio and growth of consumer credit**.

Fifth, an example of a famous or highly regarded consumer confidence Index is the Consumer Confidence Index (CCI) prepared by Conference Board in the US. It is widely regarded as a key economic indicator there. The other measure of consumer confidence in the US is the Consumer Sentiment Index prepared by the University of Michigan (US). Likewise, many other countries too have organizations (such as GFK NOP) that prepare CCI based on Surveys. **For example, in the UK**, monthly CCI based on surveys are prepared by two organizations - **GFK NOP, and Nationwide**.

Find out which organization/s constructs the Consumer Confidence Index (CCI) in your economy.

12. Business Confidence

Business confidence, like consumer confidence, is measured in many countries across the world and is a valuable indicator of expectations or sentiment that firms have relating to business conditions in an economy (i.e. it is an indicator that measures how optimistic or pessimistic firms in an economy are about their business prospects – current business conditions and expectations about future outlook). This indicator is also a valuable gauge of the overall state or condition of an economy.

It is very important to know how confident are firms in an economy about their business prospects with reference to expected sales and profitability (and the rate of capacity utilization) and about the future economic scenario. This is because if firms are optimistic (pessimistic) with regards to these variables, they are more likely (less likely) to undertake capital investment and borrow more (less) to invest in new projects, which in turn will boost (dampen) aggregate demand and GDP in the short run and also add (not add) to the productive capacity of the economy – resulting in lower (higher) unemployment and higher (lower) long term growth.

Essentially, the more (less) confident firms are about the current and future outlook, more (less) likely are they to undertake capital investment and employ labour, which in turn will boost (dampen) the economy in the near future and also result in lower (higher) unemployment and higher (lower) long term growth.

In many economies, business confidence is measured through a Business Confidence Index.

Business Confidence Index (BCI), which is produced or published on a quarterly and/or monthly basis in many economies, is an (survey based) indicator or measure that tracks the level or movements in business confidence in an economy (i.e. it is a barometer of business sentiment in an economy) and is obtained by surveying a large sample of firms, usually in the manufacturing sector. The BCI is a useful indicator of business conditions/sentiments in an economy. Since this indicator measures the amount of optimistic or pessimistic expectations or sentiments that firms have relating to business conditions, it can prove valuable in predicting future changes in economic activity in an economy. **Further,** the survey based BCI tends to provide early signals of changes in economic trends or turning points in economic activity in an economy.

Next, if firms are optimistic about future business conditions in an economy, **as will be reflected by a high or rising Business Confidence Index, then this will encourage higher private investment, which in turn is likely to lead to higher GDP growth and lower unemployment in the near future.**

On the other hand, if firms are negative or pessimistic about future business conditions in an economy, **as will be reflected by a low or falling Business Confidence Index, then this might lead to a significant drop or slowdown in private investment, which in turn could lead to an economic slowdown or even a recession and higher unemployment in the near future.**

Examples of Organizations that measure Business Confidence in their respective economies:

- BCI managed by National Australia Bank, Australia.
- BCI managed by South African Chamber of Commerce and Industry, South Africa.
- BCI managed by Confederation of Indian Industry (CII), India.

- CEO Confidence Survey managed by Conference Board, USA.
- Several surveys managed by Confederation of British Industry in UK.
- Purchasing Managers Index (PMI) managed by Institute of Supply Management (ISM), USA.
- IFO Business Climate Index, CESifo Group, Germany
- Tankan Survey, Japan (Bank of Japan)

Essentially, such business confidence surveys are very valuable indicators of business conditions/climate and economic activity in an economy – current and future. Consequently, they can be used to forecast the turning points of the business cycle in an economy. Further, since such business confidence surveys are released in a timely manner and more frequently than the official data on GDP (which is usually released quarterly and with a lag), they provide analysts, economists and policy makers an insight into the state of an economy and where it is likely to head in the near future **well in advance - even before changes in the economy are reflected in such official data i.e. official GDP data** (that is usually released on a quarterly frequency and that too with a lag). **Therefore, business confidence is a leading indicator**, as it provides valuable insights into the direction an economy will probably take in the near future (i.e. will it slowdown, expand, boom or contract) even before it is reflected in official data on GDP.

A.1 Examples – Two Very Prominent Business Confidence Surveys

The IFO Business Climate Index is released on a monthly frequency and is a sound leading indicator of how the German economy will perform in the near future. Consequently it is an early indicator of the state of the German economy. It might be noted that The IFO Business Climate Index is based on a monthly survey of 7000 firms in the manufacturing, construction, whole sale and retail industries.

Briefly, the firms included in this monthly survey are asked for their assessment of current business conditions and expectations for the next six months. They can characterize their assessment of current business conditions as 'good', 'satisfactory' or 'poor' and their expectations for the next six months as 'more favourable', 'unchanged' or 'more unfavourable.'

Without going into the technicalities of how the total **Business Climate Index** is computed from the assessments of the firms included in this survey, the key point to note is that the answers of the firms form the basis of the computation of the total Business Climate Index for that month i.e. the **Business Climate Index** is a mean value of the transformed balances of the current business situation and of expectations, and can fluctuate between extreme values of -100 (all responding firms are pessimistic or expect business to become worse) and +100 (all responding firms are optimistic or expect an improvement in their business)).

Having stated the above, essentially, this index of business confidence measures monthly changes in business confidence in Germany and provides valuable clues about whether business spending and capital investment is likely to increase or decrease in the near future in this country. Further, this index provides advance warning signals of turning points in economic activity.

A rising (falling) **Business Climate Index** over several months (**at least three successive months**) is indicative of an underlying trend of rising (falling) business confidence or morale, which points towards higher (lower or falling) business spending and capital investment and stronger (weaker or fragile) economic activity/growth in the near future. Further, if the **Business Climate Index** for the latest month is higher (lower) than expected, then it should be taken as positive/bullish (negative/bearish) for the Euro (the single currency of the Euro Zone).

Next, another very prominent measure of business confidence is the Tankan Survey in Japan, which is compiled quarterly by the Bank of Japan. This quarterly survey of about 11,000 firms (manufacturing and non-manufacturing firms – both large and small) is a very sound reflection of their confidence about current business and conditions in their respective industries and confidence about future business activity. **Essentially**, this survey provides a very sound picture of business trends in Japan and valuable insights into the state of the Japanese economy (i.e. Japanese economic growth). Further, this survey is used to formulate monetary policy in Japan. Moreover, this survey enables investors, analysts and economists to gauge the possibility of interest rate and other monetary policy changes by the Bank of Japan in the near future.

For more details about this survey, please visit Bank of Japan's website:

<http://www.boj.or.jp/en/statistics/outline/exp/tk/faqtk02.htm/#p0101>

A.2 Business Confidence Index – Data Related Points

Having stated the above, a very important point to remember is that **month-to-month movements in the Business Confidence Index** can be volatile or subject to sharp swings. **Therefore**, one should not place undue emphasis on a single month's reading (rise or fall) of this index and arrive at conclusions about the underlying trend of rising (falling) business confidence in an economy. **If you do so**, you can arrive at erroneous conclusions about the underlying state of business confidence in an economy.

Instead, when you analyze the Business Confidence Index of an economy, it is better to focus on the 3-month moving average of the Index, in order to obtain a more reliable and consistent picture of the underlying strength or weakness of business confidence in an economy. **Essentially**, a 3-month moving average tends to smooth out the noise or volatility from the data and consequently gives a more reliable picture with reference to the underlying state of business confidence in an economy. **Further, only trends (i.e. rising or falling business confidence) extending over 3 months (or more) can really be viewed as reliable or significant**. Moreover, one should use 3-month moving averages to spot a change in trend with regards to business confidence in an economy.

The underlying message is that it is advisable not to arrive at conclusions about the underlying strength or weakness of business confidence in an economy, just on the basis of the latest month's Business Confidence Index reading or month-to-month movements in this index. **Instead, focus on the 3-month moving average of this Index.**

13. Industrial Production

Industrial production in an economy is usually segmented or categorized into three major or broad sectors; mining, manufacturing and utilities (i.e. electricity, gas and water utilities). Out of these three major or broad categories, manufacturing tends to be the most important or largest sector (and includes durables and non-durables goods manufacturing). **It might be noted that the manufacturing sector is the most cyclically sensitive sector of an economy.**

Official data (early or preliminary estimate) on industrial production in an economy is usually released monthly in the form of index numbers. The **industrial production index** measures the volume of physical output of those industries that fall into the aforesaid three major or broad sectors and is an indicator of industrial activity and business conditions in an economy. It might be noted that industrial production data is often subject to revision (it is important to note this).

Since data on industrial production (presented as index numbers) is available at monthly frequency in most economies, this indicator is often a sound or good indicator of current economic activity in an economy i.e. it is often a useful measure for assessing the current state of an economy. **In other words,** this indicator is broadly indicative of the stage of the business cycle an economy might be in - **whether the economy is contracting, emerging from a protracted economic downturn or recession, expanding or booming.**

For example, view the monthly data on industrial production (i.e. monthly industrial production growth) of a particular economy (**for example,** the US economy, Indian economy, Eurozone economy etc.) and if there is a pick-up in monthly industrial production growth, it possibly signals or reflects a growing or expanding economy. **On the other hand,** a deceleration or contraction in monthly industrial production growth could possibly be signaling or reflecting an economic slowdown or contraction. **It might be noted that a marked and sustained deceleration in industrial production over a few months can plunge an economy into a recession.**

Having stated the above, don't give undue importance or rely solely on industrial production growth data for any particular month, as industrial production can be volatile. **Instead,** look at the **three-month moving average** of the percentage (%) change in the industrial production index of an economy to discern whether industrial growth is picking up (or growing) or decelerating, in order to arrive at a more accurate conclusion about the current or prevailing state of the economy.

In essence, one should focus on the underlying trends in industrial production growth in an economy, rather than lay undue emphasis on any particular month's growth figures. At least analyze the latest three consecutive months of industrial production growth data, before arriving at any conclusions with reference to the current or prevailing state of an economy.

Having stated the above, also analyze monthly year-on-year growth (%) in industrial production (i.e. industrial production growth in any particular month compared to the corresponding month of the previous year) of the **latest three consecutive months** to gain an insight into the pace of growth of industrial production in the short run and the overall level of economic activity in the economy. It might be noted that industrial production tends to demonstrate strong positive correlation with GDP changes (i.e. changes in overall level of economic activity) in an economy (as manufacturing activity tends to closely parallel shifts in the overall economy).

In other words, there is a close relationship between changes in industrial production and GDP growth, with the percentage (%) change in the industrial production index indicating where the economy as a whole is going.

It might be noted that since industrial production tends to demonstrate strong positive correlation with GDP changes, therefore, it can be a valuable alternative (i.e. substitute for GDP) indicator of short run changes in economic activity in an economy. Further, as official data on industrial production is usually released monthly, it is a timely indicator of the state of an economy.

Next, for those who are interested in the technicals, the usual close relationship (i.e. positive relationship) between GDP and industrial production for an economy can be demonstrated by taking year-on-year growth (or percentage (%) change) in quarterly GDP and quarterly industrial production index (by transforming monthly industrial production index series into quarterly industrial production series i.e. aggregating the monthly industrial production index series to a quarterly frequency) and plotting it. Such a plot is likely to show that when industrial growth increases, GDP growth also rises and when industrial growth decelerates, GDP growth also decelerates. **In essence, fluctuations in industrial production tend to be strongly positively correlated with fluctuations in GDP.**

Returning back to the analysis of changes in industrial production, another highly recommended way to draw useful insights about industrial and overall economic activity in an economy is to compare industrial production growth (i.e. percentage (%) change) of the latest three consecutive months with the previous three months and over the same period (i.e. same three month period) a year ago. This is often a robust way of discerning how the economy as a whole is performing.

Next, if industrial production has been growing faster than expected in a sustained manner over 3-6 months during a time of economic expansion, it is usually considered inflationary and consequently will result in a rise in interest rates in the economy.

On the other hand, if industrial production growth has been witnessing sustained deceleration over the same period mentioned above, then inflation will usually fall and consequently result in lower interest rates in the economy (it might be noted that industrial production growth tends to be responsive to changes in interest rates too).

Next, growth in industrial production is also important from the point of view of the labour market in an economy, as employment and wage growth in the manufacturing sector tends to closely track changes in industrial production - which in turn tends to have implications for consumer spending and overall economic activity. Further industrial production figures are very useful, as one can analyze the output or production figures of key industries such as the **consumer durables industry, capital or investment goods industry** etc. and identify which industry or industries are raising industrial output and which are dragging it down.

It might be noted that consumer durables and capital or investment goods industries tend to be the most adversely affected industries during an economic downturn and the consumer durables industry tends to be particularly cyclically volatile.

Lastly, industrial production growth data is given substantial attention by the media, policy makers and financial markets, as these figures do often provide valuable insights into the stage of the business cycle an economy may be in at a particular point in time and also because changes in industrial production tends to have an important bearing on overall economic activity, employment, wage growth and business confidence. Further, data on industrial production can provide valuable clues about the future direction of key economic indicators such as GDP and inflation. Moreover, the industrial sector tends to be the most cyclical part of an economy and a sustained slowdown in industrial production can lead an economy into a recession and growing industrial production can take an economy out of a recession onto the path of economic recovery.

14. Capacity Utilization

The capacity utilization rate (%) essentially informs us of what proportion of productive capacity are firms using up in the production of output in an economy. In other words, the capacity utilization rate (%) is the percentage of installed capacity that firms are using in an economy, in order to produce output. Let us explain what capacity utilization essentially means with reference to a firm, which will make it easier for you to understand this key economic indicator. **For example,** if a manufacturing plant has the capacity to produce 10,000 washing machines per month and it is only producing 6,500 washing machines per month, then the capacity utilization rate is 65%.

Having stated this example, essentially, the capacity utilization rate (%) is a measure of how close or far an economy's industrial sector is from full capacity at any particular point in time i.e. how much spare capacity is there in an economy at any particular point in time – **which is also indicative of the unutilized capacity there is in the economy to meet rising demand.**

It might be noted that along with industrial production, a closely watched economic indicator is the capacity utilization rate (%). The reason why this economic indicator is so important is that it provides very useful and timely insight into manufacturing conditions (strong or weak) and trends in industrial production in an economy and is also a valuable gauge of the overall health of an economy. Further, the capacity utilization rate (%) also tends to be indicative of the inflationary pressures (strong or weak) in an economy (in fact, watch for or monitor the capacity utilization rate (%) for signs of inflationary pressures). Moreover, the capacity utilization rate (%) is a sound gauge of whether current output (i.e. current GDP) growth is strong enough or not to spur fresh investments in plant and machinery (by firms) in an economy – which in turn boosts GDP in the short run and adds to the productive capacity of the economy.

For example, suppose an economy has been growing for some time and demand is strong (which will be reflected in strong GDP growth) leading to high capacity utilization rates (as firms tend to produce output at rates close to their installed capacity when demand for their products is robust). Now, if demand rises further, firms may not be able to increase production sufficiently to cater to rising demand due to inadequate installed capacity. This in turn is likely to lead to higher or rising inflation or build up of inflationary pressures in the economy, as rising demand will meet increasing supply or production bottlenecks (resulting in build up of price pressures). Further, rising demand is likely to lead to firms undertaking fresh capital investment (i.e. investment in plant and machinery) to increase production capacity, **in order to produce more output to meet rising demand.**

In other words, when the capacity utilization rate (%) is high and rising in an economy, it is probably an advance signal that inflation and capital investment are going to rise (with a lag i.e. in the near future).

On the other hand, in a weakening or sluggish economy where demand has been decelerating for sometime (which will be reflected in weak, falling or sluggish GDP growth), the capacity utilization rate (%) will be low. This in turn will deter firms from undertaking fresh capital investments to increase production capacity. Further, low capacity utilization rate (%) will probably result in decelerating inflation (with a lag i.e. in the near future).

It might be noted that persistently low (high) levels of capacity utilization in an economy tends to precede a period of decelerating (rising) inflation.

Having stated the above, a point is particularly worth noting; while high and rising capacity utilization rate (%) – which is indicative of high and robust demand and that output (GDP) growth is strong – tends to spur fresh capital investments by firms to increase production capacity, yet, generally speaking, if the capacity utilization rate (%) is in the range of around 82-85% in an economy (i.e. it is as high as 82-85%) then inflationary pressures tend to mount in the economy - **particularly at the producer price level**. This in turn is likely to lead to the central bank of the country raising interest rates in the coming days/weeks, in order to moderate GDP growth and consequently prevent inflation from rising rapidly in the near future.

The hike in interest rates by the central bank is likely to deter fresh capital investment by firms to enhance production capacity (as borrowing becomes more expensive for firms and adversely affects the profitability of investments). **Therefore, be particularly watchful if the capacity utilization rate (%) in an economy is in the range of 82-85% or exceeds it**, as it is likely to lead to a tight monetary policy – reflected in rise in interest rates – which might deter firms from undertaking fresh capital investments.

It might be noted that central banks tend to raise interest rates (i.e. tighten monetary policy) when the economy has been growing rapidly for a prolonged period and rising economic activity could result in high levels of inflation in the near future (due to the productive capacity of the economy not being able to keep pace with growing aggregate demand) i.e. central banks tend to raise interest rates at the first signs of ‘overheating’ of the economy. – which will be duly reflected in the aforesaid capacity utilization rates (%) i.e. 82-85%.

Having stated the above, the key point to note here is that, generally speaking, high and rising capacity utilization rates (%) tend to spur fresh capital investments by firms to enhance production capacity - **as long as interest rates do not rise (and remain low)**.

Generally speaking, as long as the capacity utilization rate (%) is below 82-85% (for example, 81%) prices are unlikely to come under pressure (i.e. prices will not rise markedly or sharply) and consequently inflation is likely to be moderate. **In such an economic scenario, the central bank is unlikely to raise interest rates. Consequently**, firms will be encouraged to undertake fresh capital investments to enhance production capacity.

It might be noted that when the capacity utilization rate (%) is around 90% or above (i.e. excessive capacity utilization) in an economy, inflation tends to accelerate.

On the other hand, capacity utilization rates (%) of between 70-80% is not very likely to spur firms to undertake fresh investments in plant and machinery (i.e. firms will be discouraged to undertake fresh capital investments) to enhance their production capacity, as such levels of capacity utilization is indicative of the fact that aggregate demand is not robust enough or weak and that output (GDP) growth is sluggish or weak.

In fact, capacity utilization below 78%-80% is indicative of existence of slack in the economy and gives rise to worries or concerns of a protracted economic slowdown or even a recession (which is usually accompanied by a rise in unemployment) – unless expansionary macroeconomic policies (i.e. expansionary monetary policy and/or expansionary fiscal policy) are used to boost aggregate demand and GDP growth.

It might be interesting to note that if the capacity utilization rate (%) in an economy falls below 70% (i.e. capacity utilization is really low), it means that firms are producing significantly below their full capacity due to a protracted period of depressed demand (which results in a recession). **In such situations**, firms can easily expand production when demand (and hence sales) eventually recovers without undertaking any fresh capital investments (to expand production capacity) **until the point is reached where output growth or the growth of the economy is robust or strong enough and increasing capacity utilization (after a particular level) warrants fresh capital investments.**

It might be noted that when capacity utilization falls below 70%, there are dangers of deflation.

Next, an important point worth noting is that central banks tend to lower interest rates when an economy is faced with persistently low levels of capacity utilization rate (which will be reflected in sluggish, falling or weak GDP growth, decelerating inflation and falling investments), in order to encourage firms to undertake fresh investments, put upward pressure on inflation and boost GDP growth in the short run.

Having stated the above, another important point with reference to low levels of capacity utilization rates (%) should be known; when an economy has been in a recession or has witnessed a protracted economic slowdown and starts to recover again, the capacity utilization rate (%) will be low (for example 74%) – which is reflective of weak, inadequate or subdued demand. **In such a scenario**, firms are unlikely to immediately undertake fresh capital investments to enhance production capacity, as there is enough unutilized capacity to increase output to cater to rising demand. Further, firms are unlikely to undertake fresh capital investments till they are sure that the economic recovery is durable or well entrenched i.e. **until the point is reached where output growth or the growth of the economy is robust or strong enough and increasing capacity utilization (after a particular level) warrants fresh capital investments.**

Finally, a few points with reference to capacity utilization are important to note:

First, an important point to note is that the capacity utilization rate (%) in an economy tends to rise and fall with the business cycle. **For example**, when economic activity in an economy expands (i.e. upswing of the business cycle), industrial output also rises and consequently firms use more of their installed capacity (i.e. the capacity utilization rate (%) rises or increases). **On the other hand**, if an economy is in a recession, industrial output tends to decline and consequently firms use less of their installed capacity (i.e. the capacity utilization rate (%) falls).

Second, official data on capacity utilization rate (%) is usually released monthly.

Third, while analyzing capacity utilization rates (%) of an economy, focus on the underlying trend, rather than on the capacity utilization rate (%) in any particular month or the latest month for which official data on the same is available or released.

Fourth, the average capacity utilization rate (%) varies from economy to economy. Try to find out the average capacity utilization rate (%) of your economy or the economy you are interested in.

Fifth, high capacity utilization rate (%) above the trend rate (%) is often viewed as a leading indicator of higher inflation in an economy.

Sixth, if in an economy the capacity utilization rate (%) is high and rising, it could lead to pressure or demand for higher wages, which in turn could feed into higher inflation (as manufacturers could be tempted to pass on higher labour costs to consumers in the form of higher prices for their output).

Seventh, capacity utilization can exceed 100% in some industries, but only temporarily or occasionally.

15. Purchasing Managers Index (PMI) – Manufacturing Sector

The Purchasing Managers Index (PMI) of the Manufacturing sector is a key economic indicator that is derived from monthly survey of purchasing managers (in carefully selected private sector firms) of the manufacturing sector in an economy and is released in a timely manner (monthly). This indicator (**PMI-Manufacturing sector**) has been developed in many economies across the globe and provides a snapshot view of the state or health of the manufacturing sector in an economy. It is usually released at the start of each month and provides very valuable insights into the pace of manufacturing activity (i.e. is manufacturing activity expanding, stalling, decelerating or contracting) in an economy during the previous 30 day period.

This key economic indicator (PMI-Manufacturing sector) is extensively followed by analysts, economists, policy makers and financial markets, as it provides a very valuable reflection of the current state of an economy and also tends to signal whether an economy is likely to expand, stall, decelerate or contract in the near future (**i.e. this economic indicator is considered a sound leading indicator of future economic activity in an economy.**)

In essence, the reason why the PMI (Manufacturing sector) is given so much importance is that this indicator tends to have a close relationship or is highly correlated with the overall economy (i.e. GDP). **An excellent example is the Eurozone, where the Eurozone GDP and Eurozone PMI are strongly correlated.**

Another very important reason why the PMI (Manufacturing sector) as an economic indicator is so important is because economists, analysts, policy makers and financial markets often find it difficult to accurately assess the current state of an economy (i.e. its current macroeconomic performance), as quarterly GDP growth data (for any particular quarter) is usually released after a lag (i.e. usually released within 2 weeks to 3 months after the end of each quarter) in most countries. Further, GDP data is subject to frequent revisions (which can sometimes be significant). **Consequently, instead of waiting for the GDP data to be released**, they can use the **PMI – Manufacturing sector** (which is a more timely economic indicator as it is released monthly) to make inferences or to assess the current state of the economy and whether the economy in the current quarter is likely to expand, stall, decelerate or contract i.e. **the level of this indicator provides a valuable indication of GDP growth in the current quarter.**

In reality, the PMI-Manufacturing sector is a very closely watched economic indicator even if the manufacturing sector is not the dominant sector in an economy, as if the manufacturing sector is expanding (slowing down or contracting) the economy is also likely to expand (slow down or contract). This is because manufacturing tends to provide a sound representation of the strength of economic activity and economic conditions in an economy. Consequently, there tends to be a close relationship or strong correlation of the PMI -Manufacturing sector with the broad or overall economy and macroeconomic trends.

Having stated the above, the key point to note is that when you read about the PMI - Manufacturing sector of an economy for any particular month in any online or offline print media or publication, look at the reading for this economic indicator. **A reading of above 50 indicates an expanding economy, while a reading below 50 indicates a declining economy.**

For example, if in any particular quarter (for example, January-March quarter) the monthly PMI - Manufacturing sector reading is 51 and 53 for January and February respectively in an economy, then this is indicative of an economy on an expansion path - **which will be reflected in rising GDP growth (the official estimate of which is released with a lag after the end of this quarter).**

On the other hand, if in any particular quarter (for example, January-March quarter) the monthly PMI (Manufacturing sector) reading is 49 and 48 for January and February respectively in an economy, then this is indicative of a faltering or a contracting economy - **which will be reflected in decelerating or negative GDP growth (the official estimate of which is released with a lag after the end of this quarter).**

It might be noted that higher (lower) the PMI reading above (below) 50, greater is the expansion (contraction) in manufacturing activity and consequently larger is the expansion (downturn or contraction) likely to be in overall economic activity.

Having stated the above, let us provide you with a valuable suggestion; it is advisable to view several months of monthly PMI (Manufacturing sector) reading, in order to obtain valuable insights into the underlying state of the manufacturing sector and the overall economy and where they are heading in the near future. **Try to monitor or analyze at least the previous 6 months PMI (Manufacturing sector) reading for an economy for this purpose.**

For example, if in an economy, this indicator shows a reading of above 50 for 6 consecutive months (for example, between July and December) and is demonstrating a higher reading in each successive month (**for example**, 50.2, 50.6, 51, 53, 54, 57), then this is indicative of robust manufacturing activity and consequently the economy is on a path of rapid growth.

On the other hand, if in an economy, this indicator shows a reading of above 50 for 6 consecutive months (for example, between July and December) **but is demonstrating a lower reading in each successive month** (for example, 57, 56, 52.4, 52.3, 51.2, 51), then even though the PMI - Manufacturing sector reading is above 50 (which signifies expansion) it indicates that although manufacturing activity is growing, the pace of growth is decelerating – **which is not looked at favourably, particularly if the economy had previously been growing rapidly or in a robust manner.** This is because if the pace of growth of manufacturing activity is slowing down, it signals **slower or lower economic activity (GDP growth) in the near future.**

Next, another point worth noting with reference to the reading on the monthly PMI - Manufacturing sector is that if the reading on this indicator is stronger (weaker) than expected in successive months in an economy, interest rates will probably rise (fall) – **which in turn will restrain or lower (enhance) economic activity (GDP growth) in the near future.**

For example, if an economy is operating at high (low) capacity and activity in the manufacturing sector is stronger (weaker) than expected in successive months, then this could prove to be inflationary (disinflationary) as the economy is likely to witness more rapid (slower) growth in the near future and consequently operate close or near (much below) to full capacity. **To curb/reduce (raise) future inflation**, the central bank of the country is likely to raise (lower) its ‘official’ policy rate, which in turn would result in higher (lower) interest rates in the economy.

Higher (lower) interest rates are likely to dampen (increase) the demand for borrowing (by firms and consumers) and probably result in lower (higher) investment and consumer spending in the economy, which in turn will result in lower (higher) aggregate demand and GDP growth in the near future. Lower (higher) aggregate demand and GDP growth in turn will help in curbing/reducing (raising) inflation.

It might be noted that stronger (weaker) than expected manufacturing activity in successive months could also lead to currency appreciation (depreciation), if interest rates are expected to go up (down) in the future. Currency appreciation (depreciation) is also likely to dampen (enhance) domestic economic activity as it tends to adversely (positively) affect demand for exports.

Having stated the above, it might be noted that what has been stated above refers only to the headline indicator i.e. PMI - Manufacturing sector – which provides a general view of the state of the manufacturing sector and of the larger economy. **It is also very important to take note of that the fact that the PMI – Manufacturing sector is made up of a few major sub-indices** (i.e. the PMI is a weighted average or composite of these sub-indices) – **new orders** (shows level of new orders from customers), **production** (shows rate and direction of change in the level of production) **employment** (shows the rate of increase or decrease in the level of employment), **suppliers deliveries** (shows if deliveries are faster or slower) and **inventories** (shows increases and decreases in inventory levels) – and, **each sub-indices is accorded different weights.**

These sub-indices tend to provide vital insights into key economic variables (inflation and related pressures, employment, inventories, strength of demand and exports) that affect overall economic activity in an economy and consequently can be even better indicators of the future direction of an economy than the headline indicator i.e. PMI - Manufacturing sector. **Consequently, don't just look at the headline indicator,** but also the readings of its sub-indices. **The three key sub-indices to watch out for are the New Orders Index, Production Index and Employment Index.**

Stated below are a few points with reference to these three sub-indices that one should be aware of:

First, the most important sub-index in the PMI is the New Orders Index, as it is a leading indicator of future economic activity. It's very important to monitor this sub-index to know if new orders are strong or weak. If new orders are strong (i.e. the reading on this sub-index is substantially higher than 50) then future economic activity is likely to be strong, as higher orders indicate that demand will increase in the near future - which in turn probably means higher investment spending and more output or production in the future. **However, there is a point of caution here.** A substantially higher than 50 reading on this sub-index may provide an early warning signal of higher prices in the future, due to higher demand.

On the other hand, if new orders are weak (i.e. the reading on this sub-index is substantially lower than 50) then future economic activity is likely to exhibit weakness, as lower or shrinking orders indicates that demand will decrease in the future, which in turn probably means lower investment spending and less output or production in the future. A substantially lower than 50 reading on this sub-index may provide an early warning signal of lower prices in the future, due to weakness in demand.

Second, the Production Index is a very important sub-index too. An uptick or rise on this sub-index (above 50) indicates rising production (a reflection of an increase or pick up in demand for manufactured goods and consequent depletion of inventories – requiring the need to restock in the near future). Rising demand for manufactured goods usually results in higher sales and corporate profitability and tends to boost overall economic activity.

On the other hand, a fall in this sub-index (below 50) indicates falling production (a reflection of decrease or fall in demand for manufactured goods and consequent accumulation or increase in inventories). Falling demand for manufactured goods usually results in lower sales and corporate profitability and tends to have downside implications for overall economic activity.

Third, another important sub-index in the PMI to watch out for is the **Employment Index. This sub-index shows the rate of increase or decrease in the level of employment and is a sound indicator** of the health of the job market in the manufacturing sector. A reading of above (below) 50 on this sub-index shows an increase (decrease) in employment in the manufacturing sector. If firms expect growth in the near future, then employment in the manufacturing sector is likely to go up as firms will probably hire more labour. **Consequently,** this sub-index will rise or show an uptick (above 50).

Having stated the above, the key point to remember here is that strong (weak) readings above (below) 50 on the headline PMI and new orders, production and employment sub-indices are suggestive or indicate that the manufacturing sector is expanding (slowing down or contracting) and in a healthy (weak) state, which in turn suggests that the economy is expanding (slowing down or contracting) too along with it and future economic activity is likely to be strong (weak).

Next, the monthly PMI - Manufacturing sector has now become one of the most closely tracked economic indicators. Such a monthly index has been constructed or developed (from manufacturing surveys) for all main developed economies and key developing economies to enable economists, analysts, policy makers and financial markets to gauge the state of the manufacturing sector and the overall economy and the likely strength or weakness in economic activity in the near future.

Examples: Two important organizations that construct PMI

In the US, The institute of Supply Management (ISM) has developed a PMI i.e. **ISM Manufacturing PMI.** For more details, please visit:

<http://www.ism.ws/ISMReport/content.cfm?ItemNumber=13130>

Markit, a highly prominent financial services provider has developed the PMI series for more than 30 countries. For more details, please visit: <https://www.markit.com/product/pmi>

Having stated the above, it is highly recommended to particularly monitor or track the following PMI's (in addition to the PMI of your own country and other countries of your choice):

Global Manufacturing PMI (to gauge global manufacturing trends)

ISM Manufacturing PMI (to gauge manufacturing trends in the US economy)

China Manufacturing PMI (to gauge manufacturing trends in China)

Eurozone Manufacturing PMI (to gauge manufacturing trends in the Eurozone)

Note: It is imperative to monitor or track the Manufacturing PMI's of the US, Chinese and Eurozone economies, given their powerful influence over global economic activity and trade.

16. Real Household Disposable Income

Since consumer spending is typically the largest component of aggregate demand (i.e. GDP – Expenditure side) in an economy, it is imperative for this key economic indicator to expand or grow at a sustainable pace or rate (%), in order for the economy to continue expanding (along with falling unemployment). If consumer spending slows down, it tends to signal weak economic conditions.

Having stated the above, the primary or most important determinant of consumer spending in an economy is household incomes. **Consequently**, official data (**monthly or quarterly**) on growth or slowdown in household incomes provide very valuable insights or clues about the likely pace (i.e. strength or weakness) of future consumer spending and economic activity in an economy. **This is why tracking the growth of household incomes is so important.** It might be noted that when we refer to the future here, we mean the coming months or quarters (1-4 quarters ahead) i.e. the near future.

Essentially, stronger (weaker) than expected income growth of households (over several months or quarters) usually results in higher (lower) consumer spending, which in turn is not only a sign of a strengthening (weakening) economy but also indicates that future economic activity is likely to be strong (weak) and consequently unemployment will probably fall (rise) with a lag.

As long as household incomes in an economy exhibit healthy growth, consumers are likely to spend - which in turn will boost production of goods by firms (to meet increasing consumer demand), enhance business investment and confidence and employment generation. Consequently, overall economic activity will expand and the economy will grow more rapidly.

Next, before explaining the term household incomes, a key point must be noted here. The dominant constituent of household incomes is earnings from employment (explained later). Therefore, the strength of the labour market tends to play a pivotal role in determining growth of household incomes in an economy.

If an economy has been expanding (slowing down) for some time and consequently unemployment is falling (rising) rapidly i.e. the labour market is tightening (weakening), income of households will tend to demonstrate higher or stronger (weak or falling) growth. This in turn is likely to boost (restrain) consumer spending and result in higher (lower) economic activity i.e. higher (lower) GDP growth.

In essence, one must track or monitor the **strength or weakness of the labour market** of an economy, in order to be able to guess the likely path of income growth of households in the near future - which in turn can give you some idea of whether the economy is likely to strengthen or weaken over the coming months or quarters.

Having stated the above, let us now understand what is meant by household incomes and its various facets.

When we refer to household incomes here, we mean household or personal disposable income and more specifically we are referring to **real household disposable income (i.e. household disposable income adjusted for inflation)- which is the primary or main determinant of consumer spending in an economy.**

Essentially, household (or personal) income is the total income from all sources before payment of personal or income tax and non-tax payments. And, household (or personal) disposable income is the income that is left over after all personal or income tax and non-tax payments are made. **When household (or personal) disposable income is adjusted for inflation it is known as ‘real household disposable income.’** For example, if household disposable income increases by 4% and if prices (on the **Consumer Price Index** measure) rise by 3%, then real household disposable income has risen or increased by only 1%.

It is actually real household disposable income that truly matters in terms of the real spending (or purchasing) power of consumers and changes in consumer spending patterns in an economy tend to be preceded by changes in real household disposable income.

It might be noted that official data on growth rate (%) of real household disposable income is usually or mainly released quarterly, though in some economies, such as the US, data on the same is released monthly.

If you wish to assess the underlying strength or weakness in growth of real household disposable income of an economy, this is what we suggest; suppose official data on growth of real household disposable income is available on a quarterly frequency in an economy, then obtain quarterly year-on-year growth rates of this key economic indicator for the previous 4 quarters (including the latest quarter for which such data is available) and also for the previous 12 quarters (including the latest quarter for which such data is available) for that economy.

For example, if you obtain quarterly year-on-year growth rates of real household disposable income for Q1, Q2, Q3 and Q4 of any particular year (for example, the year 2014) for an economy and you find that the quarterly year-on-year growth in real household disposable income is 1.2% (Q1), 0.7% (Q2), 2.1% (Q3) and 2.4% (Q4), then you can infer that the year-on-year growth in real household disposable had risen significantly or markedly after the second quarter (Q2) of 2014 (compared to the year-on-year growth in the previous two quarters) – **which is possibly a reflection of an improving labour market.** However, one must also compare these quarterly year-on-year growth rates (i.e. for Q1, Q2, Q3 and Q4) of 2014 with the quarterly year-on-year growth rates (Q1, Q2, Q3 and Q4) of the previous two **years i.e. 2013 and 2012.**

If upon such comparison you find that quarterly year-on-year growth rates of real household disposable income in 2014 were significantly lower than in 2013 and 2012 in most or in all the four quarters (Q1, Q2, Q3, Q4), then even if year-on-year growth in real household disposable income had risen significantly after the second quarter of 2014 (compared to the year-on-year growth in the previous two quarters) - **possibly a reflection of an improving labour market - there seemed to be existence of considerable slack in the labour market (even though it was improving) and economy recovery was probably not on a firm footing or was not well established in 2014.**

A noteworthy point worth mentioning here is that when growth in real household disposable incomes is weak or weaker than previous years, there are two economic indicators which are likely to reflect this – **Retail Sales and Consumer Confidence i.e.** retail sales is likely to show slower growth and consumer confidence will be lower.

Next, in addition to the aforesaid comparison, also compare the annual growth rate (%) of real household disposable income for at least 3 calendar years (i.e. the latest three years) to obtain a better perspective of the underlying pace of growth of real household disposable income in an economy. **For example,** if in the year 2014 real household disposable income grew by 1.5%, compared to 2.5% in 2013 and 2.8% in 2012, then clearly growth in real household disposable income had decelerated significantly in 2014 (when compared to the previous two years).

Having stated the above, it's important to be aware of the various sources of income of households; income from employment (including self-employment) comprising wages, salaries and employee benefits i.e. i.e. the compensation received by all paid employees – generally called **earnings from employment**, transfer payments (such as social security payments), interest income, dividend income, rental income, annuities, pensions and other sources of non-earned income.

It might be noted that income from sources other than **earnings from employment** is the **non-wage component of household incomes**. Further, one should be aware that what is included in the computation of total or gross income of households from all or various sources differs from economy to economy, **however, the above are generally included.**

The total of these various sources of income is the gross income of households from which income or personal tax and other non-tax payments (such as national insurance contributions and in some countries even council tax) are deducted to arrive at household (or personal) disposable income. **The household (or personal) disposable income adjusted for inflation i.e. real household disposable income is a common measure to describe the economic well-being of households** (as it defines the spending power of households or their ability to spend on consumer durable and non-durable goods and services in an economy and to save for other purposes such as investment, future consumption, payment of interest etc.).

Having stated the above, an important point needs to be mentioned here; high wage growth is normally associated with a low unemployment rate (%) and low or slow wage growth is normally associated with a high unemployment rate (%). **Further, and very importantly, when an economy starts to recover from a recession,** employers usually wait for a while before hiring workers again to enhance production (i.e. **unemployment tends to fall after a lag – in other words,** the unemployment rate (%) starts to fall after a lag). This is because employers tend to wait to make sure that the increase in demand and economic recovery is not temporary, but somewhat more established. Once employers are convinced that the rise in demand and economic recovery is somewhat more established, then they start hiring and as demand keeps on growing the unemployment rate (%) starts to fall because more and more workers are hired to enhance production (to cater to rising demand). This in turn puts upward pressure on wages resulting in more rapid or faster growth of wages, although with a lag. **In essence,** wage growth increases as unemployment falls, but with a lag.

Similarly, when an economy slows down, the unemployment rate (%) tends to rise, but with a lag. This is because employers usually hesitate to lay off workers until they are forced to do so or unless the economic slowdown becomes a protracted or prolonged one. Therefore, unemployment (i.e. the unemployment rate (%)) tends to rise, but with a lag. Further, as unemployment rises, wages of workers who are still in employment tends to grow more slowly (i.e. wage growth slows down), although with lag, or even remain stagnant.

The underlying emphasis here is that whether wage growth is more rapid or slower (or stagnant), due to falling or rising unemployment respectively, the change in the same (i.e. wages) is usually with a lag, rather than immediately.

In essence, changes in the labour market have a lagged rather than an immediate effect (downward or upward) on wage growth of those employed. So, don't expect wage growth to increase immediately after an economy begins to recover from a recession, nor expect wage growth to slowdown (or become stagnant) immediately after an economy begins to slowdown.

Having stated the above, a few key points must be kept in mind with reference to disposable income of households:

First, wages and salaries and employee benefits (i.e. the compensation received by all paid employees), which is generally termed as **earnings from employment**, is the major or dominant source of income of households and accounts for anywhere between 50-75% of gross income of households in economies across the globe. **Consequently, changes in earned or labour income deserve our greatest attention.** The remaining percentage (%) of gross income of households is accounted for by the non-wage component of income (constituents of which have already been mentioned on the previous page).

Second, one must particularly keep a track whether **real earnings** (i.e. earnings from employment adjusted for inflation) are growing too fast or registering tepid (weak) growth in an economy. This is very important as earnings from employment is the major or dominant source of income of households and is consequently a key determinant of consumer spending and the pace of overall economic activity in an economy. **For example**, if real earnings are growing too rapidly in an economy (which is usually a sign of a robust labour market and strong demand pressures), it may lead to excessive consumer spending and an unsustainable economic boom with rapidly rising inflation.

On the other hand, if real earnings growth remains weak or tepid for a considerable period of time (which is usually a sign of a weak labour market and subdued demand pressures), it is usually a powerful sign of a still fragile economy that is far from healthy and is struggling to recover in a sustainable manner.

Until real earnings growth rises more rapidly, consumer confidence is likely to remain weak or not robust enough to propel consumers to increase their spending on goods and services. This in turn will prevent firms from enhancing production or undertaking fresh capital investment – which is likely to ensure that future economic activity will remain subdued or sluggish and inflation will probably decelerate.

For example, if in an economy earnings growth is only 1.2% over the previous 12 months and if after adjusting for inflation real earnings growth is only 0.4%, then clearly real earnings growth is highly subdued or tepid. **Consequently**, consumer spending is likely to remain muted or subdued and the economy will continue to struggle to recover until there is sustained acceleration in real earnings growth over several months.

Having stated the above, it might be worth mentioning here that real earnings growth is a key economic indicator used by policy makers in an economy to gauge or measure the inflationary pressure arising or emanating from the labour market.

Third, in many countries, social security benefits from the government is the largest source of non-wage component of gross income of households.

Fourth, the important point to note is the pivotal role played by the labour market (due to the dominant share of earned income in gross income of households, **as mentioned before**) in propelling or dampening consumer spending and GDP growth in an economy.

A strong labour market (reflected in falling unemployment and strong job growth) tends to lead to higher growth in earnings from employment, which in turn bolsters consumer confidence and encourages borrowing and consumer spending. Banks/financial institutions i.e. lenders too are usually more willing to lend to households (which increases their ability to splurge on goods and services, particularly on 'big ticket' items such as consumer durables) when the unemployment rate (%) is low or is falling rapidly and economic expansion is leading to faster creation of jobs i.e. when the labour market is strong or robust.

A robust labor market, due to its positive impact on growth of earnings from employment, availability of credit, house prices and stock prices, tends to propel consumer spending in a potent manner, which in turn boosts GDP growth.

On the other hand, in a milieu of escalating unemployment (due to an economic slowdown) i.e. where the labour market worsens progressively, downward pressure on earnings from employment tends to dampen consumer spending. Further, in such a milieu, asset prices (house prices and stock prices) also tend to fall and consequently adversely affect certain non- wage components of income (such as interest and dividend income) - which in turn has a restraining effect on consumer spending. Moreover, rising job insecurity (due to escalating unemployment) and pessimism about future expected disposable incomes (due to the economic slowdown) tend to amplify the effect of the downward pressure on earnings from employment on consumer spending – **which results in a sharp fall in consumer spending, with obvious downside implications for GDP growth.**

An important point worth mentioning here is that when disposable income of households falls due to an economic downturn, households tend to focus on rebuilding their savings and/or retire outstanding debt - **particularly when there is lack of sufficient availability of credit to tide over difficult times. Consequently,** these factors also amplify the downside effect of falling disposable incomes (mainly due to fall in earnings from employment) on consumer spending.

Fifth, an increase in taxes reduces current disposable income of households at all levels of income and adversely affects consumer spending, while a decrease in taxes increases current disposable income of households at all levels of income and positively affects consumer spending.

Having stated the above, it's important to distinguish between a permanent and temporary reduction in taxes. A permanent change in taxes has a larger impact or influence on consumer spending than a temporary change in taxes.

For example, a permanent reduction in taxes, such as a permanent reduction in income tax or some lump-sum tax or tax rebate, is likely to have a larger or higher positive impact on consumer spending than a temporary reduction in the same.

If the government makes a temporary tax cut, then over a one year time horizon the positive impact of such a cut on consumer spending will be much less than a permanent tax cut. This is because households know that the increase in disposable income arising out of the temporary tax cut is only temporary in nature. **Consequently**, most of the increase in current disposable income, due to the temporary tax cut, is likely to be saved rather than spent on consumption **i.e. effect of a temporary tax cut on consumer spending is likely to be negligible and temporary.**

On the other hand, a permanent tax cut is likely to have a larger or greater positive impact on consumer spending, as it not only increases current disposable income but also expected future disposable income of households. **In other words**, households know that the increase in disposable income arising out of the permanent tax cut is permanent in nature. **Consequently**, the increase in disposable income, due to the permanent tax cut, is likely to be largely spent on consumption **i.e. effect of a permanent tax cut on consumer spending is likely to be significant and permanent.**

Two points are worth mentioning here with reference to tax cuts:

First, if an economy is undergoing a protracted economic slowdown and policy makers wish to kick start an economic recovery through boosting consumer spending by a tax cut or rebate, then a permanent tax cut is likely to be a more potent policy measure to kick start economic recovery, than a temporary tax cut, due to its greater or more powerful impact on consumer spending.

Second, generally, if households are more optimistic about the economic outlook, they are likely to spend a larger proportion of any tax cut on goods and services (of course, if the tax cut is permanent, the positive impact on consumer spending will be greater).

Sixth, turning to the impact of inflation on disposable income of households – if in an economy, inflation is rising faster than the rise in nominal wages and salaries of people employed, then this usually means that disposable income of households is falling (i.e. real household disposable incomes are falling). This in turn will dampen or adversely affect consumer spending, particularly on consumer durables, because a fall in real household disposable incomes tends to presage a fall in consumer spending. The main squeeze on household incomes (and consequently disposable incomes) usually comes from inflation rising faster than the rise in earnings from employment.

On the other hand, if inflation is rising more slowly than the rise in nominal wages and salaries of people employed, then this usually means that disposable income of households is rising (i.e. real household disposable incomes are rising) – **which in turn will boost consumer spending, particularly on consumer durables.**

Seventh, healthy or strong growth of real household disposable income in an economy that is expanding, yet not operating close to or near full capacity, is viewed favorably by stock markets, as it usually tends to spur consumer spending and private investment and increases corporate profits without resulting in emergence of inflationary pressures or escalating inflation. Further, in such an economy, healthy or strong growth of real household disposable income, by spurring economic activity, puts upward pressure on domestic interest rates - which make domestic financial assets more attractive to foreign investors in search of higher returns on their investments.

Consequently, the economy may witness considerable or substantial inflow of capital from abroad, which in turn will enhance the foreign exchange reserves of the country.

On the other hand, if an economy is operating close to or near full capacity, then strong growth of real household disposable income can prove to be inflationary or result in emergence of inflationary pressures (as the economy is increasingly unlikely to be able to produce enough output to cater to buoyant consumer demand). **Consequently**, this will probably result in the central bank raising interest rates to restrain aggregate demand and cool the economy, in order to curb inflationary pressures or check rising inflation. While rising inflation or inflationary pressures may be curbed by such policy action, yet GDP growth is likely to moderate (due to the downward pressure of such policy action on aggregate demand).

The key point that we are trying to make here is that always try to find out the state of the economy i.e. at what stage of the business cycle is the economy in (**in other words**, try to find whether the economy is operating far below, moderately below or close (near) to full capacity) and then make a judgment whether growth of real household disposable income is likely to prove inflationary or not. **If growth of real household disposable income is likely to prove inflationary, then this may not be viewed favourably by stock markets** because they will probably anticipate that the central bank may soon raise interest rates to restrain aggregate demand and cool the economy.

Eighth, if you find that real earnings growth in an economy has turned positive or has started growing after a considerable period of time, don't always assume that the economy has started to recover in a sustainable manner or that economic recovery is no longer fragile. Real earnings growth in an economy can also turn positive if inflation falls substantially - with hardly any increase in nominal wage growth.

17. Household Savings Ratio

Before stating the concept of **household savings ratio**, it's important to be familiar with the concept of **national savings** (NS), in order to put this key economic indicator (household savings ratio) in proper perspective.

National savings (NS) is the sum of savings by the government sector and the private sector in an economy. Further, private sector savings is the sum of savings by the household sector and firms or companies in an economy.

Having said this, from a macroeconomic perspective, the importance of national savings is that, in addition to the rate of growth of GDP, economic growth of a country also depends on its wealth and the rate of growth of national savings is an important determinant of wealth. When economists refer to national savings, they mean total savings in an economy as a percentage (%) of GDP (i.e. the national savings ratio).

It might be noted that for the long term growth of an economy, sufficient amount of domestic investment in infrastructure, building of new factories and other forms of fixed investment and technology is critical (in order for output to expand at a sustainable pace in the future to cater to increasing consumption (which helps keep domestic inflation in check) and for employment opportunities to expand) and **adequate savings** are required to fund such investment (**note: more savings enable more investment in an economy, which in turn results in more output and employment in the future**).

If national savings (i.e. the sum of savings by the government sector and the private sector) are insufficient to fund investment in an economy, then excess foreign savings are used to fund the savings-investment gap. **Consequently, national savings must keep on rising sufficiently to fund investment spending by firms in an economy.**

Having said this, since **household savings** tends to be the most important or the largest component of national savings in an economy (as government's usually dissave or run deficits (as % of GDP) and the savings of firms or companies is usually quite small from a macroeconomic perspective), consistently high household savings rate (%) is pivotal for higher investment activity, long term economic growth, greater employment generation and wealth creation in an economy – as higher household savings imply that more funds are available for growth.

In essence, the main source of funds to finance investment in an economy tends to be household savings.

Household savings which are deposited in banks and/or used to purchase corporate debt/equity offerings of firms can be used to finance private investment activity and savings invested in treasury bills or government securities can be used to finance public investment for capital formation (which in turn fosters or encourages private investment activity, as public investment tends to have a positive impact on business confidence).

Having stated the above, household savings is the difference between household disposable incomes and what they actually spend i.e. household disposable income – household consumption or the amount that households in an economy have left over out of their incomes after paying taxes and all forms of spending. Household savings are expressed as a percentage (%) of household disposable income and is known as **household savings ratio**.

An economy having consistently high or adequate household savings ratio is an imperative not only for higher (or more) investment, long term economic growth and employment, **but also due to two other important reasons:**

First, if public debt in an economy is high or large (as a percentage (%) of GDP), as in the case of many countries (for example, Japan where public or government debt is over 240 % of GDP), i.e. the economy is highly indebted, **then the key question and worry for policy makers is that who is mainly financing this huge public debt?**

If most of the debt is being financed by domestic sources i.e. internally through household savings, then the government has less to worry about as this is a more sustainable option. But if the economy is highly or substantially dependent on foreign savings i.e. foreigners hold a large part or percentage (%) of the public debt, due to inadequate levels of household savings, then the government has a lot to worry about as foreigners might stop lending to the economy. **If this happens**, it could lead to massive capital flight from the economy, substantial exchange rate depreciation, sharply higher interest rates, plunging or contracting economic activity and rising unemployment in the economy. Further, if foreigners hold a large part of the public debt of an economy, then it can cause macroeconomic and financial instability, particularly if the economy is witnessing sluggish or anemic rates of growth or is not growing rapidly.

In essence, public debt should largely be owned by domestic investors, for which a high or adequate level of household savings (i.e. a high or adequate household savings ratio) is required.

Second, If households in an economy have adequate savings (i.e. a reasonably or adequately high household savings ratio), it can serve as a buffer or a cushion for them and the economy against negative economic shocks (external or internal).

For example, if an oil price shock (i.e. due to a surge in international oil prices) or a financial crisis or any other economic shock were to hit an economy and consequently economic activity starts to slowdown - with accompanying rise in unemployment, declining or falling incomes and credit not as easily available from banks' (as they tend to become more stringent in giving credit to borrowers in such an economic scenario, due to fear of rising bad debts) – then households can possibly cope up better with financial hardship by dipping into their savings to maintain their consumption levels. This is likely to moderate or mitigate the fall or downturn in consumer spending (which is typically the largest component of aggregate demand in an economy). Consequently, the economic slowdown or slowdown in the pace of economic activity is likely to be shorter in duration and much less severe.

Next, having stated the above, it's important to note that an economy should not have either a very low or rapidly falling household savings ratio or an excessively high household savings ratio.

Briefly, if an economy has a very low or rapidly falling household savings ratio, it could mean or result in a high or increasing dependence on foreign savings to finance public debt, higher vulnerability to severe economic downturns (due to economic shocks) and substantially slower recovery from such downturns, higher current account deficit, build up of unsustainably high household debt (as a percentage (%) of household disposable income) and inadequate domestic savings to fund investment (which will hamper long term economic growth, employment generation and possibly lead to increased supply side bottlenecks and higher inflation).

It might be noted that a very low or rapidly falling household savings ratio in an economy is often indicative of excessive consumer spending and households possibly financing some of their spending on goods and services through higher borrowing or debt and/or running down their savings – **which essentially means that the economy is storing up trouble for the future**, as in the event of an economic shock there is likely to be a marked plunge in consumer confidence and spending that in turn would possibly lead to a protracted economic slowdown or a recession.

On the other hand, if an economy has an excessively high household savings ratio or this ratio rises sharply, then this can be harmful for the economy in certain situations. **For example**, if an economy is facing a protracted economic slowdown or a recession, then consumer spending on goods and services is likely to fall significantly as people tend to delay purchases and try to rebuild savings (leading to excessively high household savings ratio or a sharp rise in the same) for precautionary purposes and/or to repay existing debt. Further, fear of losing their jobs in such an economic scenario also induces people to save more.

With consumers/households not willing to spend and existence of sufficient idle capacity in the economy, firms are reluctant to undertake capital investment (which in turn dampens GDP growth and employment generation in the economy).

In such a situation, the government will have to incur higher expenditure to offset the fall in spending by the private sector, in order to prevent the economic slowdown or recession from becoming deeper. However, higher government expenditure invariably or usually results in higher fiscal/budget deficits (as a percentage (%) of GDP), which in turn tends to ultimately lead to higher inflation, rising interest rates and slower economic growth - even though government expenditure does provide a short term or temporary boost to economic activity and output. Further, excessively high household savings ratio or a sharp rise in the same could have a dampening effect on economic recovery.

In the aftermath of the global financial crisis, household savings ratio started to rise sharply in many countries such as the US, UK, Canada, Belgium etc. which in turn has had a dampening effect on economic recovery in these countries.

If you wish to find out whether the household savings ratio of a country is excessive, adequate or low and is rising or falling, what you can do is try to obtain previous 5-10 years of official quarterly (or annual) data on the same and calculate the average household savings ratio for this period. Then compare it with the average household savings ratio of the past 4 quarters (or the latest annual household savings ratio) to arrive at your conclusions with reference to this key economic indicator. You can also obtain such information from official and private publications in most countries.

For example, if the average household savings ratio from the previous 5-10 years of quarterly (annual) data is 6.4% in an economy and the average household savings ratio from the past 4 quarters (or latest annual household savings ratio) is 3.2%, then the household savings ratio has fallen significantly recently and is low compared to the average of the previous 5-10 years. This might lead us to conclude that the economy has recently been witnessing excessive consumption and consequently the economy is not saving enough to invest - **in order to enhance future output and long term economic growth**.

Another important analysis that should be carried out in the context of household savings ratio is whether this important economic indicator is trending upwards or downwards (i.e. is it increasing or decreasing over several quarters) – for which, at least view the data for the previous 4 quarters to discern an underlying trend.

If the household savings ratio has been trending upward in the previous 4 quarters, then this possibly indicates that consumers are not feeling confident, which usually translates into lower consumer spending (that in turn has a dampening effect on GDP growth).

On the other hand, if the household savings ratio has been trending downwards in the previous 4 quarters, then this possibly indicates that consumers have the confidence to spend, which usually translates into higher consumer spending (that in turn has an upside or positive effect on GDP growth). **It might be noted that data on household savings ratio is usually released on a quarterly and annual basis in most economies and is derived from GDP data. Further, it is subject to frequent revisions.**

Next, stated below are some of the most important factors that determine or influence household savings (i.e. households saving ratio) in an economy:

Stock prices, house prices, interest rates, cost and availability of consumer credit, inflation, ease with which households can refinance their mortgages, ease with which households can take out loans against assets (serving as collateral) for spending on goods and services, social security, structure of the population, economic growth and unemployment.

High and rising stock prices and house prices (i.e. rising asset prices) make people feel wealthier and results in higher consumer confidence. Consequently, people are encouraged to spend on goods and services, rather than save. Higher nominal interest rates tend to induce people to save more and spend less. Easier availability of credit encourages people to spend more and save less, as they have recourse to credit if they require it. Further, having recourse to credit at a low cost enables households' to purchase goods on credit, rather than save to purchase the same.

In certain economies such as the US, UK and many others, it is easier to refinance mortgages or take out loans against the rising value of property or stocks (i.e. assets). Consequently, households are able to use the freed up cash for extra spending on goods and services in the case of easier refinancing of mortgages or are able to indulge more extravagantly on purchase of goods and services in the case of being able to take out loans against the rising value of assets. **As a result**, households generally tend to save less in such economies, when compared to other economies where refinancing of mortgages or taking out loans against assets is more difficult.

Turning to social security and structure of population, countries where social security provisions are well developed (for example, public pensions) and have a larger ageing population, the household savings ratio tends to fall. Further, if an economy has been witnessing a sustained period of economic growth with falling unemployment and rising incomes, people tend to become more confident about their finances, expected future disposable incomes and the economic outlook. This in turn tends to encourage people to spend and borrow more and as a logical corollary save less. Finally, turning to inflation, in periods of high inflation people tend to save more, due to fall in real incomes, higher inflation expectations and less optimism or more pessimism about future expected disposable incomes and the near term economic outlook of their economy. **It might be noted that periods of high inflation are invariably followed by economic downturns or slowdown.**

In essence, factors that induce people to save less (more) results in lower (higher) household savings ratio.

Finally, having stated the above, it might be noted that the household savings ratio varies very widely from economy to economy - due to several factors (mentioned in bold on the previous page) that influence this important economic indicator.

18. House Prices

Owning a house is often the largest expense for a household. Further, a house usually tends to be the most important asset for a household and typically accounts for a large or dominant part of household wealth (which comprises of financial and non-financial assets) in an economy. Consequently, a marked rise or fall in house prices tends to have a substantial impact on consumer spending in an economy.

Rising (falling) house prices tend to have a significant positive (negative) effect on consumer confidence due to the positive (negative) ‘wealth’ effect, which makes households feel ‘richer’ (‘poorer’) and more (less) optimistic about the future economic outlook. This results in higher (lower) consumer spending (particularly, higher (lower) spending on consumer durables - which typically involve borrowing). Considering that consumer spending typically accounts for around 45-70% of aggregate demand in an economy, a rise (fall) in house prices tends to boost (dampen) GDP growth, enhance (lower) employment generation and put upward (downward) pressure on inflation in the short run.

It might be pertinent to mention here that when we talk about a rise or fall in house prices having a substantial effect on consumer spending, **we mean a sustained rise or sustained fall in house prices, rather than a temporary rise or fall in the same.** When house prices rise (fall) for a sustained period, rather than for a month or two or for a very short period, households tend to view such a rise (fall) in house prices as ‘**permanent**’ rather than ‘**temporary**,’ which in turn makes them substantially more (less) confident to spend on goods and services

Having stated the above, an important point needs to be made with reference to the positive ‘wealth’ effect of rising house prices:

Rising house prices tends to enhance consumer confidence and spending not only because it make households feel more wealthy, but also due to the fact that households are often able to avail of loans from banks against the rising value of their properties - to splurge or fund spending on ‘big ticket’ items such as consumer durables. Consequently, **current consumption** tends to rise more than what can be justified by rise in **current disposable income of households** (infact, incomes may not have risen at all). This phenomena was particularly evident in many developed countries (such as the US and UK) between 1995-2005. Considering the widespread effect of such loans on consumer demand, a sustained rise in house prices can have a major upside effect on overall economic activity in an economy.

It might be noted that house prices tend to affect bank lending (credit availability) and demand for credit. For example, when house prices rise as a result of more optimism about the future economic outlook of the economy, then banks tend to be more liberal in lending to households. Further, the capacity to borrow (in order to spend) of households also increases due to the increase in the value of their properties (where the house is used as a collateral for loans), which in turn enhances the demand for credit.

A.1 House Prices - Key Points

First, sustained rise in house prices tends to result in higher residential construction (which is a part of business ‘fixed’ investment). There tends to be a strong correlation between house prices and residential construction i.e. sustained rise (fall) in house prices tends to result in significant or strong growth (marked fall or decline) of private investment in residential construction.

Second, house prices are not only determined by factors of supply and demand, but also by speculative activity in the housing market as a result of financial deregulation and liberalization (for example, easier availability of mortgage loans/credit and refinancing of mortgages, more variety of mortgage loans, interest rate liberalization, allowing overseas investors to buy or purchase domestic residential property, lower transaction costs etc.) over the past few decades (in both developed and developing/emerging economies). Consequently, house prices sometimes tend to ‘overshoot’ or rise higher than what can be explained by the underlying economic factors of demand for and supply of housing. **This is a phenomenon that should be kept in mind.**

Third, central banks tend to worry about undue fluctuations in house prices. **For example**, if house prices continue to rise sharply or boom in an economy and the rate of increase in the same is significantly higher than the rate of inflation (usually on the CPI measure of inflation), then such real increase in house prices (i.e. nominal house price increase – the rate of inflation) can have a substantial upside or positive effect on household wealth (which in turn can lead to a consumer spending boom, particularly on consumer durables, even if household incomes have not changed), business ‘fixed’ investment (in the form of new residential construction) and availability of credit (as banks’ tend to become less risk averse and are willing to extend more credit when asset prices are increasing). **This in turn can eventually result in an unsustainable rise in aggregate demand and overall economic activity - leading to higher or accelerating inflation which can be difficult to control.**

Fourth, a problem with surging, booming or soaring house prices is that it can result in consumer spending growth outpacing household income growth, which in turn can lead to **an unsustainable or substantial rise in household debt** (as a percentage (%) of household disposable income) and a **marked fall in household savings ratio.**

The problem with an unsustainable or substantial rise in household debt and sharp fall in household savings ratio is that if the economy were to face an unexpected exogenous shock (**for example**, a financial crisis, spurt in oil prices etc.), then consumers saddled with high debt and low or falling savings, can suddenly and sharply cut back on their spending on goods and services (due to fear of losing their jobs, pessimism about expected future disposable incomes and the economic outlook, and plunge in consumer confidence), which in turn could result in a sharp/protracted economic slowdown or even a recession. This is because consumer spending typically accounts for around 45-70% of aggregate demand in an economy.

Having stated the above, it might be noted that growth in consumer spending can only outpace household income growth for sometime (i.e. temporarily or in the short run) and not perpetually.

On the other hand, a marked downturn or sudden plunge in house prices can lead to a sharp fall in overall economic activity or a recession (and even deflation), as it tends to have a marked prolonged downside effect on aggregate demand in an economy. This is because when house prices fall sharply or markedly, it results in a substantial fall in household wealth (which can lead to a drastic reduction or fall in consumer spending, particularly on consumer durables) and decline in private investment in residential construction (as builders become reluctant to undertake new residential construction projects).

Further, when house prices fall sharply or plunge, there tends to be a marked reduction or contraction in the availability of credit (as banks become highly risk averse and unwilling to lend, due to fear of higher bad debts), which further dampens aggregate demand.

Fifth, if an economy has been growing in a sustained manner for some time and house prices are rising too rapidly or surging (beyond what is justified by the economics of demand for and supply of housing) along with falling unemployment and rising incomes, then this can lead to a surge in imports (due to consumer demand outstripping the economy's capacity to supply enough output i.e. excess of demand over supply, due to unsustainable consumer boom). This in turn can lead to higher trade and current account deficits, which could have adverse implications for the exchange rate and macroeconomic stability of the country.

Sixth, a sustained period of soaring or booming house prices could result in a spurt in mortgage loans, which can eventually prove to be problematic for the economy. This is because in the event of a collapse in house prices (which tends to lead to a protracted economic downturn or slowdown in economic activity coupled with rising unemployment and falling household incomes), marked or sharp rise in domestic interest rates or an economic downturn (due to an unexpected exogenous shock to the economy), debt servicing for households can become significantly more challenging, which in turn can pummel consumer confidence. If consumer confidence plummets, then the fall or decline in consumer spending could be sharp, which in turn is likely to adversely affect business confidence, investment spending, employment generation and GDP growth for a prolonged period.

Seventh, if an economy is expanding and aggregate demand is rising more rapidly than what the aggregate supply side of the economy can sustain (i.e. excess of demand over supply), then booming or soaring house prices (by giving further boost to consumer spending and household incomes) will usually stoke demand-pull inflation. This is because a further rise in consumer demand is likely to translate into higher prices, rather than result in an increase in output. **On the other hand**, rising house prices are unlikely to lead to or fuel higher inflation if an economy is operating at below capacity i.e. **where actual GDP is below potential GDP. In such an economic scenario**, higher consumer demand and household incomes (as a result of rising house prices) are likely to translate into an increase in output, rather than an increase in inflation.

Essentially, the key point here is that one must take into account the **prevailing state of an economy** (for example, whether the economy is recovering, expanding rapidly or 'overheating'), in order to be able to properly assess the effect of rising house prices on inflation and output.

Eighth, generally, mortgage payments account for around 15-20% of monthly disposable income of households (though it varies from economy to economy). Therefore, changes in interest rates tend to have a very important influence on demand for housing and consequently on house prices.

Ninth, when people buy houses, they also tend to increase their spending on household goods such as furniture, home electronics, kitchen related equipment etc. **Such spending has a rippling effect on through out the economy** – leading to an increase in overall economic activity i.e. higher GDP growth.

Tenth, when house prices rise, households can borrow more from banks due to the increasing value of their property. A part of this borrowed money can also be used to buy another property (in addition to using such money for spending on goods and services), **which in turn can lead to a further rise in house prices**. Banks also tend to be more liberal in giving credit to households when house prices are rising, due to its positive effect on their balance sheets.

Typically, when house prices rise, bank lending tends to rise and when house prices fall, bank lending tends to fall.

Eleventh, demand for housing and consequently house prices depend on various factors; some of the key factors are steady growth in household incomes and employment, level of interest rates (particularly mortgage rates), economic growth, expected future real household disposable incomes (particularly future earnings from employment), availability of mortgage loans, employment security, consumer confidence, speculative activity, inflow of foreign money into the residential property market, ratio of house prices to average incomes, rents, monthly mortgage payments as a percentage (%) of household disposable income and loan-to-value ratio (i.e. loan as a certain proportion of the value of a house (which is usually between 75% to 80% - **however, this ratio is even higher (exceeding 90%) in a few countries**).

While the aforesaid factors tend to have a significant impact on demand for housing and consequently house prices, however, **the most important factors** that usually drive housing demand and prices in an economy are steady growth in income and employment, future earning prospects, job security, level of interest rates (mortgage interest rates), availability of mortgage loans, favourable economic conditions and outlook.

Since buying a house is usually the most expensive purchase decision for a household, steady growth in income and employment, confidence about future earning prospects, employment security, a growing economy coupled with a favourable economic outlook, low or falling mortgage rates and easily availability of mortgage finance including a high loan-to-value ratio results in more people being able to afford buying a house. This in turn leads to an increase in demand for housing, which translates into higher house prices. When house prices rise in a sustained manner, usually reflective of higher demand for housing, **it tends to boost GDP growth in the short run**.

Other factors such as high rents tend to induce people to purchase a house, which enhances demand for housing and consequently results in higher house prices. Further, many people buy houses not to live in it, but for speculative purposes and/or as a hedge against inflation. When houses are bought for such purposes, it tends to lead to higher house prices. Moreover, there are two key affordability measures, ratio of house prices to average incomes and monthly mortgage payments as a percentage (%) of household disposable income. If average incomes of households rise faster relative to rise in house prices and/or if low or falling interest rates reduce monthly mortgage payments as a percentage (%) of household disposable income, then more people can afford to buy houses, which in turn results in higher demand for houses, which if sustained, puts upward pressure on house prices. Rising consumer confidence also enhances demand for housing, resulting in higher prices.

Lastly, many countries tend to witness substantial inflow of foreign money into their residential property market, due to sound rule of law and good prospects of capital appreciation. This in turn tends to put upward pressure on house prices.

An excellent example is London, UK, where Chinese, Americans, Indians, Europeans, Australians and people of other nationalities purchase houses either for investment purposes or for their own use or to rent the property (in order to earn income). Consequently, house prices are considerably high in London.

Twelfth, house prices are prone to boom and bust cycles, which can have serious repercussions for the macroeconomic and financial stability of a country – i.e. such cycles tends to substantially affect output growth, inflation, unemployment, consumer and business confidence, availability of credit, current account balances and balance sheets of banks (**for example**, collapse of house prices can lead to a serious banking crisis if banks have heavy exposure to mortgage loans). Therefore, central banks try to cool property markets when house prices are rising too fast by raising interest rates (which in turn tends to dampen demand for housing due to more expensive mortgage loans), in order to preserve macroeconomic and financial stability, lower house price inflation to a more moderate level and prevent the boom in house prices from spilling over to higher inflation (above the inflation target of the respective central banks).

On the other hand, central banks tend to lower interest rates (to encourage demand for housing as a result of cheaper mortgage loans) if house prices are falling rapidly, in order to preserve macroeconomic and financial stability, moderate the fall in house prices, prevent inflation from falling too low (i.e. prevent inflation from falling much below the inflation target of the respective central banks) and ward off the threat of deflation or deflationary pressures.

Thirteenth, the most direct impact of a rise or fall in house prices on overall economic activity in an economy is through the channel of private investment in residential construction. **For example**, if in an economy, house prices are rising due to increasing housing demand, it generally tends to encourage builders to undertake new residential construction (i.e. private investment in residential construction increases) to meet rising housing demand (unless an economy is growing too rapidly or is ‘overheating,’ driving interest rates higher – which makes borrowing more expensive for construction companies and also depresses housing demand as mortgage loans become more expensive, which in turn adversely affects house prices). **As a result**, output, incomes (of skilled construction workers), profits (of firms) and employment in the construction sector rises. Further, the rise in output of the construction sector adds directly to GDP growth.

Having stated the above, essentially, if demand for housing is rising (which in turn results in rising house prices), residential construction tends to get a boost - **which in turn directly adds to GDP. Further, an important point needs to be mentioned here with reference to residential construction**; an increase in residential construction by builders tends to have a powerful (indirect) influence on overall economic activity in an economy i.e. a multiplier effect on the rest of the economy. **This is because of two reasons. First**, house building requires output of many other industries such as steel, power, glass, etc. which in turn drives up demand for the same, leading to higher output, employment, incomes and profits in manufacturing industries. **Second**, as new houses are bought by people, they tend to enhance their spending on goods such as furniture, carpeting, home appliances, electronics (TV, refrigerators, AC’s etc) and kitchen related equipment and household related services. As a result, output, employment, profits and incomes in these sectors (i.e. sectors that produce household goods and services) also rises.

Essentially, rising demand for houses, which results in higher house prices, encourages more private investment in residential construction. This in turn has a rippling (upside) effect on overall economic activity in an economy due to the aforesaid (two) reasons.

On the other hand, if house prices fall, due to sluggish, falling or lower demand for housing, builders will be discouraged from undertaking new residential construction projects.

This in turn will result in lower output, incomes (of skilled construction workers) and falling profits in the construction sector - which could result in people losing jobs in this sector. **Consequently**, all this will adversely affect GDP growth. Further, there will be lower demand for output of many other industries that supply material to the construction industry, which in turn will result in lower output, incomes, profits and rising unemployment in these industries. Moreover, sluggish, falling or lower demand for housing - which will be reflected in falling house prices and lower spending on household goods and services (**as mentioned above**) by people - will lead to lower output, profits and incomes in these sectors (i.e. sectors that produce household goods and services) along with rising unemployment.

Having stated the above, you can possibly infer the powerful role of rising or falling housing demand and prices and by extension the potent role (multiplier effect) of rising and falling private investment in residential construction on the overall economic activity in an economy.

Fourteenth, it is important to know that economies (such as the France, Switzerland and Germany) that have predominantly or a higher percentage (%) of fixed rate-mortgage loans do not tend to witness as much fluctuation in house prices i.e. as much house price volatility (for example, house prices do not rise or surge as much), when compared to economies (such as the UK, Australia, Spain and Ireland) where floating or variable rate mortgage loans (i.e. where mortgages revert to a variable rate) are more common or the norm. **Consequently**, in such economies, the 'wealth' effect of rising house prices (on consumer spending, inflation and output) and the adverse effect of a fall in house prices on the overall economy is not as marked or pronounced as in those economies where floating or variable rate mortgage loans are more common or the norm.

Do find out which type of mortgage loans are predominant (fixed or floating/variable rate mortgage loans) in your economy.

Fifteenth, data on house prices in an economy are mostly released monthly (and even quarterly) and in the form of index numbers or average prices. **Essentially**, a house price index measures the average price changes (%) of houses in an economy and enables us to gauge percentage (%) changes in average house prices on a month-on-month, quarter-on-quarter and year-on-year basis and also informs us about the state of the housing market. Such an index also enables us to analyze whether an economy is facing or could face house price bubbles or collapse in the near future.

An excellent example of a house price index is the Nationwide House Price Index in UK or New House Price Index by Statistics Canada. Find out the appropriate measure or index that measures the average price changes (%) of houses in your economy.

If you wish to analyze the overall direction and magnitude of changes (rise or fall) in house prices in an economy, then it is preferable to focus on the annual pace of growth of house prices in the last six months (including the latest month for which data on house prices is available) i.e. focus on the monthly year-on-year growth (i.e. percentage (%) change over 12 months) in house prices for each of the previous six months and analyze if the annual pace of growth of house prices is generally rising or slowing (moderating). Further, see if the pace of rise or slowdown in house prices is too rapid/marked or moderate (sustainable).

If house prices are rising (falling) too rapidly, it is a warning of house price bubbles (collapses) in the near future, which if not checked in time by policy makers can have deleterious or highly adverse effects on economic activity, output and employment in the near future.

Usually, if the annual pace of growth of house prices has generally been slowing (rising) in last six months or has been slowing (rising) for six months in a row, then this is possibly indicative of a weakening or slowing (recovering or expanding) economy, muted or slowing (more rapid) wage growth, weakening (strengthening) labour market and lower (higher) consumer confidence.

Another way to analyze whether house prices are generally rising or falling in an economy and its magnitude is to compare the percentage (%) increase or decrease in the average house price over the latest three months on the previous three months and on the same or corresponding period (i.e. over the latest three months) of the previous year.

You can choose either method of analyzing the underlying trend (upward or downward) in house prices and magnitude of changes in the same.

It might be pertinent to mention here that focusing on month-on-month percentage (%) changes in house prices is not really recommended, as house prices can be volatile. Therefore, relying on month-on-month percentage change (%) in house prices can prevent you from gaining an accurate insight into the underlying direction of house prices in an economy and lead to erroneous conclusions.

19. Car Sales

Car sales (an important indicator of consumer demand and spending in an economy) is a key economic indicator to watch, as increases or decreases in the same provides us with a very valuable and timely view of the overall health of an economy and also enables us to assess the likely direction of the economy in the near future.

Decelerating (rising) car sales over several months is indicative of weak or falling (strong or rising) consumer confidence and is reflective of a slowing (growing or expanding) economy.

Car sales also tend to be a sound and very important **leading indicator** of economic activity in an economy i.e. car sales tend to drop or fall consistently before the economy is heading towards a protracted economic slowdown or recession (consistently falling car sales tend to be a leading indicator of impending recessions) and tend to rise consistently before the economy starts to recover. **In other words**, car sales move up and down several months before a corresponding moving up and down of the overall economy (as measured by the growth rate of GDP).

A key point to note here is that since car sales is a leading economic indicator, it can be used to predict turning points in economic activity in an economy.

Car sales tend to generally peak about **six months** ahead of a peak in GDP and when car sales decline and reach their trough, the corresponding trough in GDP is likely to be reached **around six months later**.

For example, if car sales in an economy peak or reach a high in December 2015, then this in turn would possibly imply a peak in GDP around June 2016 (allowing for the six month lead). **On the other hand**, if car sales in an economy trough or reach its lowest point in December 2015, then this in turn would possibly imply a trough in GDP around June 2016 (allowing for the six month lead).

Statistically speaking, when a change in an economic indicator (for example, 'Car Sales') observed t periods earlier (for example, six months ago) tends to be associated with a change in GDP in the current period (i.e. strongly positively correlated with it), then this indicator is called a **leading economic indicator - as a change in this indicator tends to precede or lead changes in GDP**. Further, it might be noted that **leading economic indicators** tend to attain their peaks and troughs (i.e. turnaround) earlier than GDP.

A.1 Car Sales – Key Points

First, when we refer to car (also called 'auto') sales here, we mean sales of new cars and not used cars.

Second, car sales usually tend to exhibit moderate volatility, though car prices can fluctuate widely through the year – **which impacts demand for cars**. Further, car sales can spike or rise markedly in a given month or months, due to seasonal factors (**for example**, in March, September or January in some economies), temporary excise duty cuts, major holidays, sales people trying to achieve their sales targets, festivals, heavy discounting by car sellers, marked drop in fuel prices and other reasons. Don't mistake such temporary rises in car sales as an upward trend in the same and conclude that the economy is likely to recover or expand in the coming months or in the near future. **Only a persistent or consistent rise in car sales over several months can usually lead us to such a conclusion**.

Third, if car sales in an economy are trending down or people are not buying cars (i.e. there is consistent decrease in car sales), it is usually a sign that the consumers are not confident about their future employment prospects and expected incomes and are also uncertain about the economic outlook of the economy. This in turn is an indication or a signal that people are likely to cut back on other forms of consumer spending to prepare for tougher times ahead.

Further, sometimes car sales fall rapidly or fail to trend upward, due to prevalence of high interest rates in an economy for an extended period of time (car sales are sensitive to interest rate changes). People usually buy cars by taking out loans (usually of 3-5 years duration or even 7 years) which have to be serviced and such loan repayments involve large sums of money that account for a significant share of household disposable income. **Consequently**, high interest rates tend to dampen demand for cars, as it makes loan repayments less affordable.

On the other hand, if people are optimistic about their future employment prospects, expected incomes and the economic outlook of the economy and interest rates are low (resulting in a lower loan repayment burden), then all these factors tend to lead to consistently higher car sales i.e. consistent rise or pick up in car sales over several months or quarters.

Fourth, a significant part of household disposable income goes into servicing of car loans. After purchase of a house, a car is usually the most expensive item of purchase by consumers. Consequently, when consumers/households purchase cars, **it tells us something about how confident they are about their economic and financial future.**

Fifth, when we refer to car sales, we mean the volume of car sales in any particular month i.e. the number of cars sold in any particular month (for example, 100,000 cars sold in May 2015, 120,000 cars sold in June 2015 etc.) in an economy and not their value in any currency units (such as US\$, Euros, Yen etc.). **Further, when we refer to car sales, we mean new car sales and not used car sales.**

Sixth, most economic indicators have strong seasonal patterns and car sales too tend to exhibit seasonal patterns.

Seventh, key economic factors that usually affect car sales in an economy are future employment prospects, future expected incomes (i.e. future expected disposable incomes), near term economic outlook, unemployment rate, current disposable income, rate of growth of earnings from employment, interest rates, consumer confidence (about current and future economic scenario, job security and personal finances), inflation, house prices, stock prices and credit availability for car purchase. So, if you want to know whether car sales in an economy are likely to increase or fall in the near future, track these factors or variables that have a significant or major impact on car sales.

Optimism (pessimism) about future employment prospects, future expected incomes and near term economic outlook, falling (rising) unemployment rate, relatively higher (lower) current disposable income, strong (weak or sluggish) rate of growth of earnings from employment, low (high or rising) interest rates, rising (falling) consumer confidence, low (high or rising) inflation, rising (falling) house and stock prices, and easily (lack of easy) availability of credit tends to result in higher (lower or falling) car sales.

Having said this, it might be noted that income growth, employment prospects and interest rates tend to be or are usually the most important factors affecting car sales in an economy.

Eighth, car sales data in an economy is usually released monthly and the data covers the previous month's sales.

Ninth, car sales to consumers/households are treated as part of overall consumer spending (C). However, car sale to firms/companies/businesses are treated as business investment.

Tenth, when analyzing car sales data of an economy, one must be particularly careful to focus on the underlying trend, rather than place undue emphasis on any single month's car sales data. A sharp spike (or fall) in car sales in a particular month (for example, the latest month for which car sales data is available) does not signal an impending economic upturn (downturn). Instead, a sharp spike (or fall) in car sales in any particular month could be due to several factors.

For example, a sharp spike in car sales in any particular month could be due to factors such as discounting, excise duty cuts, festival season, seasonal factors, easy availability of credit, more flexible car purchase schemes etc. and does not reflect a sustainable upward trend in car sales.

Eleventh, to establish whether car sales are showing an upward or downward trend, try to look out for consistent increase or decrease (i.e. percentage (%) increase or decrease) in car sales over several months (at least, the increase or decrease in car sales over the latest three successive months for which data is available) and also compare it with car sales (i.e. percentage (%) increase or decrease) in similar periods of the previous year. Such analysis should enable you to discern the underlying trend (upward or downward) of car sales and gauge the strength of this trend.

If car sales are increasing (decreasing) successively over several months (at least, over the latest three successive months for which data is available) and are higher (lower) than car sales in similar periods of the previous year, then there is possibly a clear upward (downward) momentum in car sales which indicates that the economy is likely to continue to improve or expand (weaken) in the coming months (i.e. in the near future). Further, if car sales are increasing (decreasing) successively over several months and are higher (lower) than car sales in similar periods of the previous year, it is also reflective of rising (falling) consumer confidence, in addition to providing valuable signals about the likely overall direction of the economy in the near future.

Twelfth, the reason why car sales is such an important economic indicator is that consumer spending (i.e. household spending on durable goods, non-durable goods and services) accounts for around 45-70% of GDP – Expenditure side in most economies (i.e. consumer spending typically accounts for a significant percentage (%) of aggregate demand in an economy) and car purchase accounts for a large part of consumer spending.

20. Retail Sales

Retail sales, which is normally presented in the form of monthly index numbers, is a monthly measurement of sales of goods by retailers (for example, department or chain stores, mail-order etc.) in an economy and is based on a sample survey of large and small retailers of different types. It includes sales of consumer durable and non-durable goods and food services (for example, in restaurants) and is indicative of consumer spending and behaviour at the retail level in an economy.

In other words, retail sales inform us of monthly spending on consumer durable and non-durable goods and food services in any particular month in an economy. **Consequently**, retail sales is an important and timely indicator of spending on retail outlets. It might be noted that retail sales do not include spending on services (except for food services). **Therefore, retail sales usually represent less than half (usually around one-third) of total consumer spending in an economy.**

Since data on retail sales is usually released monthly (unlike GDP, which is usually released quarterly and that too with a lag) and relates to retail sales of the previous month, **it is a timely and leading indicator of consumer confidence and demand and the overall health of an economy** (as consumer spending typically accounts for around 45-70% of aggregate demand and retail sales usually accounts for around one-third of consumer spending – **which is substantial**). **Further**, retail sales tend to provide early indications of underlying economic trends in an economy, due to their timely (monthly) release.

A sustained increase (decrease or deceleration) in retail sales over several months (i.e. an underlying upward (downward) trend in retail sales) signals robust (weak) demand conditions, rising (falling) consumer confidence and demand, likelihood of rise (decrease) in overall consumer spending and an expanding or rapidly growing (slowing) economy.

Retail sales also provide an **early indication** of likely short term economic trends in an economy. **For example**, sustained increase (decrease or deceleration) in retail sales over several months could result in rising (lower) inflation or inflationary pressures, higher (lower) interest rates, optimism (pessimism) about near term economic outlook, possibly greater (lower or falling) corporate profitability, surging (lower) imports, stronger (slower, weaker or stagnant) wage growth due to falling (rising) unemployment, higher production (production cut-backs) by firms (leading to higher (lower) capacity utilization rate (%)) and an increase (decrease or fall) in capital investment by firms **in the near future**.

Having stated the above, view at least three months (i.e. latest three months) of retail sales data (i.e. view percentage change (%) in volume of retail sales of the latest three months) and see if retail sales are growing or decelerating (i.e. slowing down) consistently or in successive months, in order to arrive at your conclusions with reference to the underlying strength or weakness in consumer confidence and demand and to assess whether the economy is expanding or slowing down.

Next, it might be noted that monthly retail sales data, which is normally released in the form of monthly index numbers, can be measured in both volume terms (i.e. retail sales volumes) and also value terms (i.e. retail sales value are measured in nominal currency terms – **for example, retail sales value in millions of US\$ in the US**).

However, it is preferably to analyze the percentage (%) change (increase or decrease) in volume of retail sales, rather than value of retail sales. **This is because retail sales in volume terms are adjusted for inflation, while retail sales in value terms is not.**

Since retail sales in value terms are not adjusted for inflation, it is difficult for us to know whether the increase in retail sales value (expressed in currency units) in any particular month is a reflection of higher demand for retail goods or simply a reflection of higher prices for such goods. **In other words,** if there has been an increase in retail sales value in any particular month, it is difficult to say whether the increase has been due to people purchasing more retail goods (i.e. due to higher or larger volume of retail goods sold) or simply due to retailers charging higher prices for such goods. This is why it is preferable to focus on percentage (%) change in volume of retail sales – **which provides a sound reflection of underlying changes (increase or decrease) in demand for retail goods in an economy.**

It might be noted that when we refer to percentage (%) change in volume of retail sales, we usually refer to month-on-month percentage (%) change (i.e. percentage (%) change in volume of retail sales from the previous month) and year-on-year percentage (%) change (i.e. percentage (%) change in volume of retail sales in a particular month compared to the same month of the previous year) in the volume of retail sales. It might be noted that year-on-year percentage (%) change is analyzed for determination of longer trends in retail sales.

Having stated the above, mentioned below are a few aspects related to retail sales that are worth noting:

First, retail sales, being a leading indicator of consumer confidence, lead changes (i.e. rise or a slowdown) in overall consumer spending in an economy. **For example,** when retailers in an economy endure a torrid time, due to a sharp deceleration or contraction in growth of retail sales, this usually means that growth in aggregate or overall consumer spending is likely to slow down sharply or even contract in the near future as consumer confidence wilts or wanes.

Second, it is very important to note that increase or decrease in year-on-year growth (i.e. year-on-year percentage (%) changes) in retail sales (volumes) and comparing growth rates in retail sales (volumes) of latest 3 months with the previous 3 months and the corresponding 3 months of the previous year provides a more accurate assessment of the underlying performance of the retail sector and of the likely direction of overall consumer spending and the economy in the short run, than month-on-month growth rates (i.e. month-on-month percentage (%) changes) in retail sales (volumes).

This is because volume of retail sales tend to vary considerably during the course of the year. Further, retail sales are highly seasonal. Moreover, monthly retail sales can be distorted and tend to be volatile (i.e. they can spike or drop sharply in a particular month) as consumers are fickle and prone to mood swings – due to factors such as impact of changing weather (extremely cold or hot weather), weather related calamities, transport related disruptions, holidays, festivals, sporting events, unexpected exogenous shocks (such as terrorist attack, financial crisis, oil price shock), promotional activity by retailers (such as providing deep discounts), seasonality of spending (retail sales tend to rise sharply during Christmas or holiday season), fear of rise in indirect taxes in the near future etc. - **which influences their confidence to spend on various categories of retail goods.**

Therefore, analyzing only month-on-month growth rates in retail sales (volumes) can be highly misleading and could lead to erroneous conclusions about the underlying strength or weakness in consumer sentiment or confidence and the likely direction of overall consumer spending and the economy in the short term. **Due to factors mentioned above**, a sharp rise or fall in retail sales (volumes) during any particular month does not signify a rising or falling trend in retail sales respectively, as it is not sustainable.

In essence, due to what has been mentioned above, **do interpret retail sales data with care.**

Third, households tend to spend a significant amount or proportion (generally around one-third) of their disposable income on retail goods. **Consequently**, growth in household disposable income (particularly earnings from employment) has an important impact on the growth of retail sales in an economy. Further, the proportion of household disposable income spent on retail goods usually changes slowly and not drastically.

Fourth the key drivers of higher retail sales are a steady rise in earnings from employment (which presupposes a strong labour market), sustained rise in house prices (relative to incomes), rising stock prices, low interest rates, easier availability of credit and low or moderate inflation (and low or moderate inflationary expectations). **On the other hand**, slower, subdued or stagnant growth in earnings from employment, rising unemployment, falling house and stock prices, high interest rates, lack of availability of credit and sustained rise in inflation (leading to higher inflationary expectations) tend to dampen retail sales.

A prolonged period of low or moderate inflation coupled with sustained economic growth, steady growth in earnings (from employment), robust labour market and rising house and stock prices lead to rising real incomes (and disposable incomes) and increased wealth for the household sector - which in turn encourages more spending on retail goods. Further, rising income and wealth, due to the aforesaid favourable factors, tends to be viewed by households' as 'permanent,' rather than 'temporary.' This in turn bolsters the confidence and ability of households' to borrow substantial amounts against rising value of their property (to splurge) and also dip into savings (resulting in a fall in the household savings ratio) to considerably enhance spending (retail spending) on relatively more expensive items (which are not necessities) such as household furniture, carpets, floor coverings, furnishings, washing machines, TV sets, refrigerators and other durable goods, eating out at restaurants and on other discretionary items.

On the other hand, if an economy is facing a prolonged period of higher or rising inflation, rising unemployment, slower economic growth, slower, subdued or stagnant growth in earnings, fall in house prices and stock prices, then this will tend to result in households' reining in or curtailing their spending on retail goods (particularly on more expensive items such as those mentioned above) rather sharply as they become very cautious. **This is because people start anticipating tough times ahead**, possibly due to rising unemployment and slower economic growth. **Further, in such a scenario**, two other factors that tend to dampen retail sales are a marked curtailment of borrowing against property by households and a rise in savings (resulting in a rise in the household savings ratio) – which have obvious downside implications for retail sales. **When households stop borrowing or borrow less against property (due to fall in house prices or banks more unwilling to lend to them due to fear of higher defaults) and start to save, the first downside impact is usually felt on retail sales.**

Having stated the above, a key point needs to be mentioned here in relation to growth in retail sales:

Two factors in particular tend to impact retail sales – growth of earnings from employment and inflation. The reason why earnings from employment are so important with reference to retail sales is that it accounts for approximately or around 50-75% of household disposable incomes (refer to page 122). **Consequently,** if earnings growth in an economy is consistently sluggish or stagnant (strong), it will have a powerful downside (upside) effect on retail sales.

As far as inflation is concerned, it is self-explanatory; a surge or unexpected rise in inflation tends to engender uncertainty and can result in higher interest rates, greater burden of debt servicing on loans and higher household utility bills – all of which have adverse consequences for the economic well-being of consumers and tend to hammer consumer confidence, with downside implications for retail sales. Moreover, in a milieu of sharply rising inflation, growth in real earnings (from employment) i.e. growth in earnings adjusted for inflation tends to decelerate, stagnate or even turn negative. The downside effect of such a development on the growth of retail sales can be substantial.

Fifth, when an economy is expanding rapidly or performing well and consumers are more confident about their finances, jobs and the economic outlook of the economy, they tend to spend more easily or significantly more on ‘big-ticket’ items such as consumer durables (for example, washing machines, TV’s refrigerators, AC’s etc), feel more confident in eating out at restaurants etc. and indulging in other non-essential spending.

On the other hand, when an economy is facing a slowdown or is in a recession, consumers feel less secure or confident about their finances, jobs and the economic outlook of the economy. **Consequently,** they tend to spend more money on necessities such as food and clothing and tend to cut back first on their spending (rather sharply) on ‘big-ticket’ items such as consumer durables and avoid going to out to eat or spending on other non-essential items, in order to save money. Spending on items such as consumer durables and eating out is essentially discretionary or non –essential spending, which can be avoided in tough economic times.

By analyzing over several months the shifts in spending between necessities, ‘big-ticket’ items (consumer durables), changes in spending on eating out at restaurants and other non-essential spending categories, one can obtain valuable insights into the state of an economy and it’s likely near-term economic outlook. **For example,** if you find that sales of consumers durables are decelerating or falling (rising) over several months, it signals or indicates that the economy is likely to slow down (expand or grow more rapidly) in the near future.

21. Stock Market (A Key Leading Economic Indicator)

Economic policy makers, firms and financial markets are all very interested in knowing where the economy (i.e. the economy they are interested in) is likely to head in the near future and about the turning points (peaks and troughs) of the business cycle (in addition to being interested in gauging the current state of the economy and how it has performed in the recent past). Therefore, they use leading economic indicators for this purpose.

Leading economic indicators are used to predict the future course of the economy or the likely direction of the economy in the near future (i.e. generally 6-12 months ahead or even up to 12-18-24 months ahead) and the turning points (peaks and troughs) of the business cycle.

Since leading economic indicators tend to move up or move down several months before the economy moves up or moves down respectively, these indicators provide valuable early or advance signals of the likely direction or course of the economy (6-12 months or even up to 12-18-24 months ahead). This makes such indicators very valuable for policy makers, firms and financial markets.

Specifically speaking, leading economic indicators are indicators whose cyclical movements (upturns and downturns) tend to lead or move in advance of cyclical movements (upturns and downturns) in GDP (i.e. a turn around in such indicators indicates a later turnaround in GDP) and therefore these indicators are used to predict where the economy is heading in the near future and when the economy is likely to change course (as these indicators provide early signals of turning points in economic activity).

It might be noted that peaks and troughs in a leading indicator occur before corresponding peaks and troughs in GDP (i.e. the peaks and troughs in a leading indicator precede or occur before peaks and troughs in aggregate economic activity i.e. GDP). **Therefore, such indicators can be used to generally identify, indicate or predict turning points (peaks and troughs) of the business cycle well in advance** (generally 6-12 months or even up to 12-18-24 months) before they occur.

The stock market is usually a sound leading economic indicator, as it tends to provide valuable signals about the likely economic scenario of an economy 6-12 months later (i.e. the stock market tends to move 6-12 months ahead of the economy or in other words the lead time is 6-12 months).

More specifically, the stock market usually begins to decline 6-12 months (i.e. two to four quarters) before an economic downturn or a recession and rises 6-12 months before the economy begins to actually recover from an economic slowdown or a recession. Therefore, we often witness the stock market of a country declining 6-12 months prior to economic growth faltering or contracting, and rising sharply or surging 6-12 months prior to the economy recovering from a slump or a recession (as markets expect the economy to recover or improve in the near future). **In other words, since the stock market is a leading indicator of the economy they don't move in tandem.**

Essentially, a **persistent (not a temporary) rise** in stock markets can be interpreted as an advance or early signal that the economy is going to recover and grow rapidly in the near future (along with rising corporate profitability and increasing private investment).

On the other hand, a persistent (not a temporary) fall or decline in stock markets can be interpreted as an advance or early signal that the economy is going to slow down or enter into a recession in the near future (along with falling corporate profitability and drop in private investment).

It might be noted that when people expect an economy to slow down or enter a recession, they hesitate to buy stocks (i.e. shares) and consequently their prices fall (i.e. the stock market index falls). **On the other hand**, if people feel that the economy is going to recover and grow rapidly in the near future, then they tend to buy stocks (i.e. shares) and consequently their prices rise (i.e. the stock market index rises). Further, leading economic indicators like the stock market are important for policy makers, as it enables them to design appropriate macroeconomic policies for stabilizing short run fluctuations in output (GDP) in an economy.

Having stated the above, there are a few points that should be noted about the stock market:

First, watch out for large increases or decreases in stock prices; if in an economy there are large increases in stock prices, then it may be indicating or suggesting that the economy is going to witness robust or strong GDP growth in the near future. **On the other hand**, if there are large decreases in stock prices, it may be indicative of the economy going into recession in the near future.

Second, since current stock prices should be reflective of future earning potential of firms or expected future corporate profitability - which in turn is directly linked to the behaviour of the economy or economic activity, state of the economy or future economic (GDP) growth) - fluctuations in current stock prices are often considered a sound leading indicator of the pace of economic activity that would unfold in the next 6-12 months in an economy i.e. fluctuations in stock prices often lead the direction of the economy.

In essence, since corporate profitability is directly linked to the behaviour of the economy or the pace of economic activity in an economy, therefore, stock prices tend to be affected by expectations about future economic (GDP) growth or expected future pace of economic activity in an economy.

For example, if the economy is expected to fall into a recession, then corporate profits are expected to fall and stock markets will anticipate this, which will result in a fall in stock prices. **On the other hand**, if the economy is expected to recover, expand or grow strongly, then corporate profits are expected to rise and the stock markets will anticipate this, which will result in a rise in stock prices. **From these two examples** you can possibly discern that movements in stock prices tend to provide valuable advance signals of the likely near-term direction of an economy.

Third, stock prices tend to be highly cyclical, as they tend to anticipate an economy's economic turning points and its likely near term direction.

Fourth, since the stock market is a leading economic indicator, you will find that stock markets tend to rise or rally sharply, despite the fact that currently economic data may be highly dismal (i.e. for example, sluggish industrial production and GDP growth, rapid fall in inflation – reflecting weak demand conditions etc). This happens as stock markets tend to be forward looking and consequently they tend to rise even before economic indicators improve.

In essence, stock markets tend to rise when they anticipate an economy recovery in the near future (even if current economic data may not suggest so). **So, don't be surprised when you see such an occurrence.** Similarly, stock markets tend to fall well in advance before economic indicators actually start to deteriorate in marked manner.

Fifth, movements or changes in stock market (as reflected in movements or changes in the stock market indices) tend to be more useful or better leading economic indicators of short-term economic growth (i.e. short term GDP growth) and economic turning points in those economies in which households hold more wealth or savings in the form of stocks directly. This is probably because in such economies changes in household wealth (due to changes or movements in stock prices) tend to have a much more powerful effect on consumer spending (which is typically the largest component of aggregate demand or GDP on the Expenditure side in an economy).

Sixth, stock markets have their own benchmark stock market index, which are used to watch or monitor the movement, fluctuations or changes in stock prices. **For example**, in the US, there is the S&P 500 (which is a broad stock market index) and the Dow Jones Industrial Average (which is a narrow stock market index). The S&P 500 stock market index is an index based on stocks of 500 companies, whereas the Dow Jones Industrial Average is an index based on stocks of 30 companies. Similarly, in the UK, you have a broad stock market index - known as FTSE All Share Index - and, a narrow stock market index – known as FTSE 100. Do try to find out the benchmark stock market indices for your economy or any economy you wish to analyze.

For the purpose of gauging the possible future direction of an economy (whether economic activity is going to slump, recover or grow strongly in the near future), it is preferable to focus on the broad stock market index, rather than the narrow stock market index. It might be noted that a broad stock market index represents overall stock market performance better than the narrow stock market index.

Seventh, since stock markets (global and domestic) are increasingly influencing the macroeconomic performance of economies across the globe, it's important to be aware of some of the key macroeconomic indicators and variables that tend to influence stock markets (i.e. influence stock prices); real GDP growth (%), 'headline' inflation rate (%) using the Consumer Price Index (CPI) measure of inflation, changes in the official 'policy' rate of the central bank, unemployment rate (%) and other labour market indicators, Purchasing Managers Index (PMI) of Manufacturing Sector, current account deficit (as % of GDP), fiscal/budget deficit (as % of GDP) and retail sales growth (%).

An important point with reference to real GDP growth (%), inflation rate (%) and unemployment rate (%) and other labour market indicators is that when you monitor or analyze changes in the same for any economy, always keep in mind where these economic indicators are in relation to the current stage of the business cycle in that economy.

Eighth, persistent rise or rally in stock markets tends to boost **business confidence** and **consumer confidence** in an economy, which in turn is expected to lead to higher investment spending (by firms) and consumer spending (as higher stock prices enhance household wealth). And, higher investment spending (by firms) and consumer spending in turn leads to higher aggregate demand and GDP growth in the short run (which usually results in more people being employed i.e. the unemployment rate (%) tends to go down).

Ninth, while stock markets are usually or often sound leading economic indicators, **however there is a word of caution**; not every rally or surge in share prices is an advance signal or indication of economic recovery 6-12 months later. This is because sometimes stock markets tend to rally or surge temporarily due to a monetary and/or fiscal stimulus (i.e. government induced stimulus to boost growth in the short run) and/or foreign investors purchasing massive amounts (worth millions or billions of US\$) of domestic stocks or equities (due to rock bottom interest rates abroad, which makes investing in domestic stocks or equities more attractive or profitable), in order to get a better or higher rate of return on their investments.

Such types of stock market rallies or surges tend to be temporary and do not really portend an economic recovery 6-12 months later - if current economic data (on GDP growth, inflation, unemployment rate, industrial production etc.) is highly dismal or still on a downward trend or does not give even a glimmer of hope of economic recovery in the near future. **In essence**, be careful of such rallies or surges in stock markets, as they may mislead you into thinking that economic recovery is round the corner.

Tenth, an expansionary (contractionary) monetary policy tends to lead to higher (lower) stock prices and higher (lower) stock prices usually lead to higher (lower) investment spending by firms, which in turn results in an increase (decrease) in aggregate demand and higher (lower) GDP growth. **Essentially**, when stock prices rise (fall), it becomes cheaper (more expensive) for firms to raise resources from the stock market to fund investment spending. Therefore, capital investment by firms rises (falls), which in turn ultimately leads to higher (lower) GDP growth.

End