MANAGERIAL ECONOMICS
MODULE V
NATIONAL INCOME AND BUSINESS CYCLE

NATIONAL INCOME

National Income of any country means the complete value of the goods and services produced by any country during its financial year. It is thus the consequence of all economic activities that are running in any country during the period of one year. It is valued in terms of money. In short one can say that the national income of any country is the total amount of income that is accrued by it through various economic activities in one year. It is also helpful in determining the progress of the country.
It includes wages, interest, rent, profit, received by factors of production like labour, capital, land and entrepreneurship of a nation.

Concept

There are various concepts of National Income including GDP, GNP, NNP, NI, PI, DI, and PCI which explain the facts of economic activities

a. GDP at market price: Is money value of all goods and services produced within the domestic domain with the available resources during a year.
GDP = (P*Q)
Where,
GDP = gross domestic product
P = Price of goods and services
Q= Quantity of goods and services

GDP is made up of 4 Components

a. consumption
b. investment
c. government expenditure
d. net foreign exports of a country

GDP = C+I+G+(X-M)
Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M) =Export minus import

b. Gross National Product (GNP): Is market value of final goods and services produced in a year by the residents of the country within the domestic territory as well as abroad. GNP is the value of goods and services that the country's citizens produce regardless of their location.
GNP=GDP+NFIA or,
GNP=C+I+G+(X-M) +NFIA
Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M) =Export minus import
NFIA= Net factor income from abroad.

c. Net National Product (NNP) at MP: Is market value of net output of final goods and services produced by an economy during a year and net factor income from abroad.
NNP=GNP-Depreciation
or, NNP=C+I+G+(X-M) +NFIA- IT-Depreciation
Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M) =Export minus import

NFIA= Net factor income from abroad.

IT= Indirect Taxes

d. National Income (NI): Is also known as National Income at factor cost which means total income earned by resources for their contribution of land, labour, capital and organisational ability. Hence, the sum of the income received by factors of production in the form of rent, wages, interest and profit is called National Income.
Symbolically or as per the formula
NI=NNP +Subsidies-Interest Taxes
or, GNP-Depreciation +Subsidies-Indirect Taxes
or, NI=C+G+I+(X-M) +NFIA-Depreciation-Indirect Taxes +Subsidies

e. Personal Income (PI): Is the total money income received by individuals and households of a country from all possible sources before direct taxes. Therefore, personal income can be expressed as follows:
PI=NI-Corporate Income Taxes-Undistributed Corporate Profits- Social Security Contribution +Transfer Payments.

f. Disposable Income (DI) : It is the income left with the individuals after the payment of direct taxes from personal income. It is the actual income left for disposal or that can be spent for consumption by individuals.
Thus, it can be expressed as:

DI=PI-Direct Taxes

g. Per Capita Income (PCI): It is calculated by dividing the national income of the country by the total population of a country.
Thus, PCI=Total National Income/Total National Population

Measurement of National Income
There are three methods to calculate National Income:

1. Income Method
2. Product/ Value Added Method

3. Expenditure Method

1. Income Method
In this National Income is measured as flow of income.

We can calculate NI as:

Net National Income = Compensation of Employees+ Operating surplus mixed (w +R +P +I) + Net income + Net factor income from abroad.
Where,

W = Wages and salaries

R = Rental Income

P = Profit

I = Mixed Income

2. Product/ Value Added Method
In this National Income is measured as flow of goods and services.

We can calculate NI as:

NATIONAL INCOME = G.N.P – COST OF CAPITAL – DEPRECIATION – INDIRECT TAXES

3. Expenditure Method
In this National Income is measured as flow of expenditure.

We can calculate NI through Expenditure method as:

National Income=National Product=National Expenditure.

THEORY OF NATIONAL INCOME DETERMINATION

The theory of determination of national income is concerned with finding out the equilibrium level of national income, i.e., the level of national income at which the purchasing and production plans of the economy are synchronized. This occurs at the point of the intersection of the aggregate demand (C + I) schedule and the aggregate supply (C + S) schedule. This is shown by point A in Fig

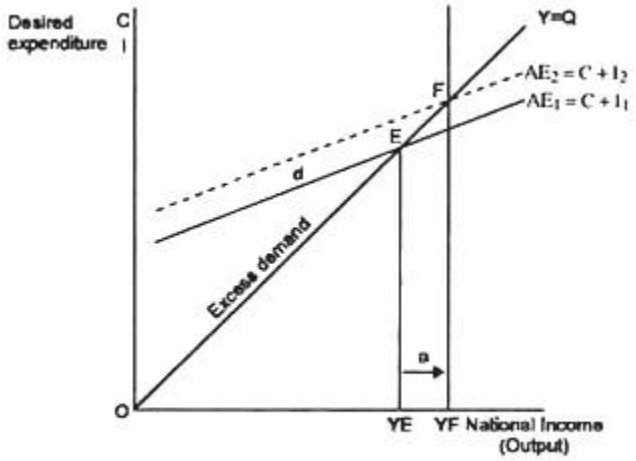


Fig. 3 : Income Determination by $C + I$

National income equilibrium is also reached at the point where total injections exactly equal leakages. In a closed economy without government, the only injection is autonomous investment and the only leakage is saving.

Thus, the leakages-injections approach to national income determination also goes by the name saving-investment approach. In the circular flow of national income model, income – consumption + leakages = C + S and spending (expenditure) = consumption + injections = C + I.

In above figure, equilibrium is achieved where leakages = injections

MULTIPLIER

In economics, a multiplier broadly refers to an economic factor that, when increased or changed, causes increases or changes in many other related economic variables. In terms of gross domestic product, the multiplier

effect causes gains in total output to be greater than the change in spending that caused it.

The term multiplier is usually used in reference to the relationship between government spending and total national income. Multipliers are also used in explaining fractional reserve banking, known as the deposit multiplier.

A multiplier is simply a factor that amplifies or increase the base value of something else. A multiplier of 2x, for instance, would double the base figure. A multiplier of 0.5x, on the other hand, would actually reduce the base figure by half. Many different multipliers exist in finance and economics.

The Fiscal Multiplier

The fiscal multiplier is the ratio of a country's additional national income to the initial boost in spending or reduction in taxes that led to that extra income. For example, say that a national government enacts a $1 billion fiscal stimulus and that its consumers' marginal propensity to consume (MPC) is 0.75. Consumers who receive the initial $1 billion will save $250 million and spend $750 million, effectively initiating another, smaller round of stimulus. The recipients of that $750 million will spend $562.5 million, and so on.

The Investment Multiplier

An investment multiplier similarly refers to the concept that any increase in public or private investment has a more than proportionate positive impact on aggregate income and the general economy. The multiplier attempts to quantify the additional effects of a policy beyond those immediately measurable. The larger an investment's multiplier, the more efficient it is at creating and distributing wealth throughout an economy.

The Earnings Multiplier

The earnings multiplier frames a company's current stock price in terms of the company's earnings per share (EPS) of stock. It presents the stock's market value as a function of the company's earnings and is computed as price per share/earnings per share (commonly called the earnings multiple).

The Equity Multiplier

The equity multiplier is a commonly used financial ratio calculated by dividing a company's total asset value by total net equity. It is a measure of financial leverage. Companies finance their operations with equity or debt, so a higher equity multiplier indicates that a larger portion of asset financing is attributed to debt. The equity multiplier is thus a variation of the debt ratio, in which the definition of debt financing includes all liabilities.

The Keynesian Multiplier Theory

One popular multiplier theory and its equations were created by British economist John Maynard Keynes. Keynes believed that any injection of government spending created a proportional increase in overall income for the population, since the extra spending would carry through the economy. In his 1936 book, "The General Theory of Employment, Interest, and Money," Keynes wrote the following equation to describe the relationship between income (Y), consumption (C) and investment (I):

$$Y=C+I$$

where:

Y=income

C=consumption

I=investment

The equation states that for any level of income, people spend a fraction and save/invest the remainder. He further defined the marginal propensity to save and the marginal propensity to consume (MPC), using these theories to determine the amount of a given income that is invested. Keynes also showed that any amount used for investment would be consumed or reinvested many times over by different members of society.

ACCELERATOR THEORY

The accelerator theory is an economic postulation whereby investment expenditure increases when either demand or income increases. The theory also suggests that when there is excess demand, companies can either decrease demand by raising prices or increase investment to meet the level of demand. The accelerator theory posits that companies typically choose to increase production, thereby increasing profits, to meet their fixed capital to output ratio.

Fixed capital to output ratio states that if one (1) machine was needed to produce a hundred (100) units and demand rose to two hundred (200) units, then investment in another machine would be needed to meet this increase in demand. From a macro-policy point of view, the accelerator effect could act as a catalyst for the multiplier effect, though there is no direct correlation between these two.

The accelerator theory was conceived by Thomas Nixon Carver and Albert Aftalion, among others, before Keynesian economics, but it came into public knowledge as the Keynesian theory began to dominate the field of economics in the 20th century. Some critics argue against the accelerator theory because it removes all possibility of demand control through price controls. Empirical research, however, supports the theory.

This theory is typically interpreted to establish new economic policy. For example, the accelerator theory might be used to determine if introducing tax cuts to generate more disposable income for consumers—consumers who would then demand more products—would be preferable to tax cuts for businesses, which could use the additional capital for expansion and growth. Each government and its economists formulate an interpretation of the theory, as well as questions that the theory can help answer.

The Acceleration Principle:

The implications of induced investment become very clear when we study the acceleration principle. The principle refers to the relationship between increase in total output (income) and the additional investment spending that occurs due to such output (income) increase.

In short, the acceleration principle explains why the increase in national income often results in a more than proportionate increase in investment spending and why the amount of investment studying depends not on the absolute level of business activity but on whether that level is increasing or decreasing.

So, a change in national income or output induces (or leads to) a change in investment. However, a small change in national income or output leads to an accelerated change in investment. The accelerator principle, developed by J.M. Clark, refers to the accelerated effect on investment of a small change in the demand for or output (sales) of consumption goods.

Assumptions:
The acceleration principle is based on three main consumption:
1. First, investment has both autonomous and induced components.

2. Investment depends not on the absolute level of output or demand but on the rate of increase in NNP or in total demand. If the rate of increase is growing, investment spending will increase; if the rate of income is stable, investment will be constant; if the rate of increase declines, investment will fall.

3. The acceleration principle also emphasizes the extreme volatility of investment as compared with other components of aggregate demand. It suggests that any percentage change in aggregate demand may result in much larger percentage changes in investment spending.

Accelerator Theory Example

Consider an industry where demand is continuing to rise at a strong and rapid pace. Firms that are operating in this industry respond to this growth in demand by expanding production and also by fully utilizing their existing capacity to produce. Some companies also meet an increase in demand by selling down their existing inventory.

If there is a clear indication that this higher level of demand will be sustained for a long period, a company in an industry will likely opt to boost expenditures

on capital goods—such as equipment, technology, and/or factories—to further increase its production capacity. Thus, demand for capital goods is driven by heightened demand for products being supplied by the company. This triggers the accelerator effect, which states that when there is a change in demand for consumer goods (an increase, in this case), there will be a higher percentage change in demand for capital goods.

An example of a positive accelerator effect is investment in wind turbines. Volatile oil and gas prices increase the demand for renewable energy. To meet this demand, investment in renewable energy sources and wind turbines increases. However, the dynamic can occur in reverse. If oil prices collapse, wind farm projects may be postponed, as renewable energy is economically less viable.

BUSINESS CYCLE

A business cycle, sometimes called a "trade cycle" or "economic cycle," refers to a series of stages in the economy as it expands and contracts. Constantly repeating, it is primarily measured by the rise and fall of gross domestic product (GDP) in a country. Business cycles are universal to all nations that have capitalistic economies. All such economies will experience these natural periods of growth and declines, though not all at the same time. However, given the increased globalization, business cycles tend to happen at similar times across countries more often than they did before. Understanding the different phases of a business cycle can help individuals make lifestyle decisions, investors make financial decisions, and governments make appropriate policy decisions.

Characteristics or Business Cycles:
Business cycles possess the following characteristics:
1. Cyclical fluctuations are wave-like movements.

2. Fluctuations are recurrent in nature.

3. They are non-periodic or irregular. In other words, the peaks and troughs do not occur at regular intervals.

4. They occur in such aggregate variables as output, income, employment and prices.

5. These variables move at about the same time in the same direction but at different rates.

6. The durable goods industries experience relatively wide fluctuations in output and employment but relatively small fluctuations in prices. On the other hand, nondurable goods industries experience relatively wide fluctuations in prices but relatively small fluctuations in output and employment.

7. Business cycles are not seasonal fluctuations such as upswings in retail trade during Diwali or Christmas.

8. They are not secular trends such as long-run growth or decline in economic activity.

9. Upswings and downswings are cumulative in their effects.

Phases of Business Cycle

Business cycles have shown distinct phases the study of which is useful to understand their underlying causes. These phases have been called by different names by different economists

Generally, the following phases of business cycles have been distinguished:

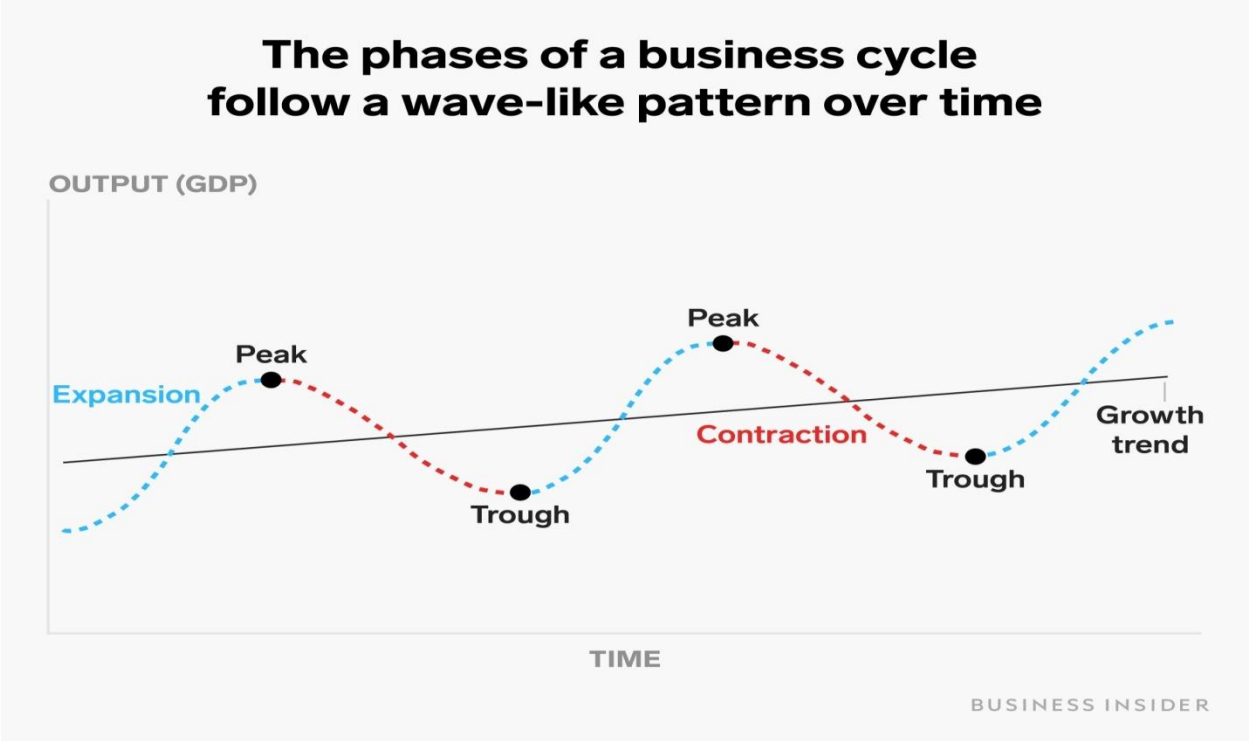
1. Expansion (Boom, Upswing or Prosperity)

2. Peak (upper turning point)

3. Contraction (Downswing, Recession or Depression)

4. Trough (lower turning point)

The four phases of business cycles have been shown in Fig. where we start from trough or depression when the level of economic activity i.e., level of production and employment is at the lowest level.



Expansion: Expansion, considered the "normal" — or at least, the most desirable — state of the economy, is an up period. During an expansion, businesses and companies are steadily growing their production and profits, unemployment remains low, and the stock market is performing well. Consumers are buying and investing, and with this increasing demand for goods and services, prices begin to rise too. When the GDP growth rate is in the 2% to 3% range, inflation is at the 2% target, unemployment is between 3.5% and 4.5%, and the stock market is a bull market, then the economy is considered to be in a healthy period of expansion.

Peak: Once these numbers start to increase outside of their traditional bands, though, then the economy is considered to be growing out of control. Companies may be expanding recklessly. Investors are overconfident, buying up assets and significantly increasing their prices, which are not supported by their underlying value. Everything is starting to cost too much. The peak marks the climax of all this feverish activity. It occurs when the expansion has reached its end and indicates that production and prices have reached their limit. This is the turning point: With no room for growth left, there's nowhere to go but down. A contraction is forthcoming.

Contraction: A contraction spans the length of time from the peak to the trough. It's the period when economic activity is on the way down. During a contraction, unemployment numbers typically spike, stocks enter a bear market, and GDP growth is below 2%, indicating that businesses have cut back their activities.
When the GDP has declined for two consecutive quarters, the economy is often considered to be in a recession.

Trough: As the peak is the cycle's high point, the trough is its low point. It occurs when the recession, or contraction phase, bottoms out and starts to rebound into an expansion phase — and the business cycle starts all over again. The rebound is not always quick, nor is it a straight line, along the way towards full economic recovery.

FACTORS CAUSE SWING IN BUSINESS ACTIVITY

The cyclic pattern of changes that occurs in the economy is caused by many factors in combination. There are internal factors within the economy that may be causing

these changes. And there are also external factors which may lead to a boom or bust of an economy. Let us take a look at all the causes of business cycles.

Internal Causes of Business Cycles

These endogenous factors can cause changes in the phases of the firm and the economy in general. Let us take a look at the internal causes of business cycles.

1] Changes in Demand

Keynes economists believe that a change in demand causes a change in the economic activities. When the demand in an economy increases the firms start producing more goods to meet the demand. There is more output, more employment, more income, and higher profits. This will lead to a boom in the economy. But excessive demand may also cause inflation.

On the other hand, if the demand falls, so does the economic activity. This may lead to a bust, which if it continues for a longer period of time may even lead to depression in the economy.

2] Fluctuations in Investments

Just as fluctuations in demand, fluctuations in investment are one of the main causes of business cycles. The investments will fluctuate on the basis of a lot of factors such as the rate of interest in the economy, entrepreneurial interest, profit expectation, etc. An increase in investment will lead to an increase in economic activities and cause expansion. A decrease in investment will have the opposite effect and may cause a trough or even depression

3] Macroeconomic Policies

The monetary policies and the economic policies of a nation will also result in changes in the phases of a business cycle. So if the monetary policies are looking to expand economic activities by promoting investment, then the economy booms. On

the other hand, if there is an increase in taxes or interest rates we will see a slowdown or a recession in the economy.

4] Supply of Money

There is another belief that says that business cycles are purely monetary phenomena. So changes in the money supply will bring about the trade cycles. An increase of money in the market will cause growth and expansion. But too much money supply may also cause inflation which is adverse. And the decrease in the supply of money will initiate a recession in the economy.

External Causes of Business Cycles

1] Wars

During times of wars and unrest, the economic resources are put to use to make special goods like weapons, arms, and other such war goods. The focus shifts from consumer products and capital goods. This will lead to a fall in income, employment, and economic activity. So the economy will face a downturn during war times. And later post-war the focus will be on rebuilding. Infrastructure needs to be reconstructed (houses, roads, bridges, etc). This will help the economy pick up again as progress is being made. Economic activity will increase as effective demand will increase.

2] Technology Shocks

Some exciting and new technology is always a boost to the economy. New technology will mean new investment, increased employment, and subsequently higher incomes and profits. For example, the invention of the modern mobile phone was the reason for a huge boost in the telecom industry.

3] Natural Factors

Natural disasters like floods, droughts, hurricanes, etc can cause damage to the crops and huge losses to the agricultural sector. Shortage of food will cause a surge in prices and high inflation. Capital goods may see a reduction in demand as well.

4] Population Expansion

If the population growth is out of control that might be a problem for the economy. Basically of the population growth is higher than the economic growth the total savings of an economy will start dwindling. Then the investments will reduce as well and the economy will face depression or a slow down.

MEASURE TO CONTROL BUSINESS CYCLE

Following are the main measure which can be suggested for the effective control of business cycle fluctuation.

1. Monetary Policy
2. Fiscal Policy
3. State Control of Private Investment
4. International Measures to Control of Business Cycle Fluctuation
5. Reorganization of Economic System

1. Monetary Policy A Control of Business Cycle

Monetary policy as measure to control business cycle fluctuation refers to all those measures which are taken with a view to control money and credit supply in the country. When we are in the state of full employment and we are facing inflation, a deflationary policy may be adopted. The central bank can reduced the quantity of money in circulation. The bank can adopt different measures for this purpose, like increase in the bank rate, selling of securities in the market, increasing the reserve ratio of the member banks etc.

On the other hand, in case of deflation the central bank can adopt inflationary monetary policy by lowering the bank rates or purchase of securities. Monetary policy has achieved a very limited success in the past, because central bank has not full power over the supply of money and credit in the country. Moreover, the quantity of money has failed during the world depression of 1930s.

2. Fiscal Policy Measure to Control of Business Cycle Fluctuation

Fiscal policy as measure to control business cycle fluctuation nowadays is considered to be a powerful anti-cycle weapon in the hands of the government. Fiscal policy involves the process of shaping the public finance (income and expenditure) with a view of reduce fluctuations in the business cycle and attainment of full employment without inflation.

In case of inflation the governments reduces the public work programs, imposing heavy taxes on business profits to discourage private investment, reduces purchasers power, taking loans from the people, prepares surplus budget to reduce public debt. All these fiscal measures greatly help in reducing the inflationary trend in the economy.

If the economy facing depression, the government increases it expenditure on public works programs like construction of new canals, new roads, buildings etc. Increase in government expenditure, income, employment, profit and consumption of the people. In order to encourage private investment the government reduces taxes on profit. The government also prepares deficit budget and the deficit is met by loans. All these fiscal measures to control business cycle sets in upswing in the economy.

3. State Control of Private Investment

Some economists have suggested that if a government takes control of private investment is a tool to control of business cycle fluctuations can be controlled within the limits. The other economists, who disagree with the above view state that if a government takes control of private investment, private investment will be discouraged. Low investment will reduce employment and income. J.M Keynes is of the view that if we adopt the middle way we can get control of business cycle fluctuation.

4. International Measures Control of Business Cycle

Today, every country has trade relations with the rest of the world. If there is inflation or deflation in one country, it can be easily carried to other countries. The example of great depression can be given. Business cycle is an international phenomenon and it should be tackled on international level. Different measures

to control business cycle fluctuations have been suggested by some well-known economists these are:

- Control of International Production
- International Bill Stock Control
- International Investment Control

5. Reorganization of Economic System

Some economists suggest that there should be complete reorganization of the whole economic system to control of business cycle fluctuation. The capitalistic system of production should be replaced by the socialistic system of production. In socialistic economy, there are few chances of cyclic fluctuations. In 1930, when all capitalist countries of the world were suffering from depression, it was only socialist countries which were free from such crisis