

Self-Study Material (OLD)



RKDF UNIVERSITY, BHOPAL

Bachelor of Arts (B.A.) Third Semester

Course	Category	Subject	Subject Code
B.A.	Minor	MACROECONOMICS	BA-EC-302
Total Credit: 6		Max.Marks:100 (Internal:40+External:60)	

Course Outcomes (CO):

After completing this course student will be able to:

CO-1: explain the basic concepts of Macroeconomics.

CO-2: utilize employment and national income statistics

CO-3: analyze the economy in quantitative terms

CO-4: apply simple contemporary economic models.

CO-5: describe the interrelationships among prices, income and interest rates.

Units	Topic	Duration (In Hours)	Marks
I National Income and Social Accounts	<p>Meaning of Macro Economics, Circular flow of income in an open economy. Concept and measurement of National Income; National Income identities with government and international trade; incorporation of environmental concerns in national accounts.</p> <p><i>Keywords:</i> Circular flow of income, National Income, National Accounts</p>	18	20
II Output and Employment	<p>Say's Law of Markets and the classical Theory of Employment; Keynes' objection to the classical Theory; Aggregate Demand and Aggregate Supply Functions; The Principle of Effective Demand; <i>Keywords:</i> Say's Law, Classical Theory, AD & AS</p>	18	20
III Consumption Function	<p>Average and Marginal Propensity to consume; factors influencing consumption spending; Psychological Law of Consumption-Long-run Consumption Function-Absolute Income Hypothesis; Friedman's Permanent Income Hypothesis, Duesenberg's Relative income Hypothesis and Ando-Modigliani's Life Cycle Hypothesis.</p> <p><i>Keywords:</i> APC&MPC, Consumption Function, Income Hypothesis</p>	18	20
IV Investment Function	<p>Theory of Investment- Autonomous and Induced Investment; Marginal Efficiency of capital, Investment Multiplier and its effectiveness in LDC's; The concept of Accelerator; Samuelson and Hicks Multiplier- Accelerator Interaction Model.</p>	18	20
V Trade Cycles	<p>Nature, characteristics and types; Hawtrey's Monetary Theory; Hayek's Over-investment Theory; Keynesian view on Trade cycles; control of trade cycles. Inflation, Deflation and Reflation- definition, types, causes and effect of inflation on different sectors on the economy. Measures to control, trade-off between inflation and unemployment.</p> <p><i>Keywords:</i> Hawtrey's Theory, Hayek's Over-investment Theory, Inflation</p>	18	20

Part- C Learning Resource

Text Books, Reference Books, Other Resources

Suggested Readings:

Textbooks, Reference Books, Other Resources

Suggested Readings:

Textbooks:

1. Jhigan, M.L, "Macro Economic Theory, Vrindha Publication, New Delhi 13th Edition, 2019
2. Ahuja, H.L, Macro Economics Theory and Policy, S Chand Publication New Delhi, 2010

Reference Books:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition,2010.
2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition,2010.
3. Olivier Blanchard, Macroeconomics, Person Education, Inc.,5th edition,2009
4. Richard T.Froyen, Macroeconomics, Person Education Asia, 2nd edition, 2005
5. Andrew B.Abel and Ben S. Bernanke, Macroeconomics, Person Education, Inc., 7th edition,2011.
6. Errol D'Souza, Macroeconomics, Pearson education,2009.
7. Paul R.Krugman, Maurice Obstfeld & Marc Melitz, International Economics, Person Education Asia.

Suggestive digital platforms web links

1. <https://epgo.inflibnet.ac.in/Home/viewSubject?Catid=11>
2. <https://vidyamitra.inflibnet.ac.in/index.php/search?subject%5B%D=F%5D=Fundamentals+of+microeconomic+theory&domain%5B%D=Social+Sciences>
3. <https://www.swayamprabha.gov.in/index.php/channel/profile/profile/7>

Suggested equivalent online courses:: <http://www.mcafee.cc/Introecon/IEA2007.pdf>.

National Income and Social Accounts

Meaning of Macro Economics

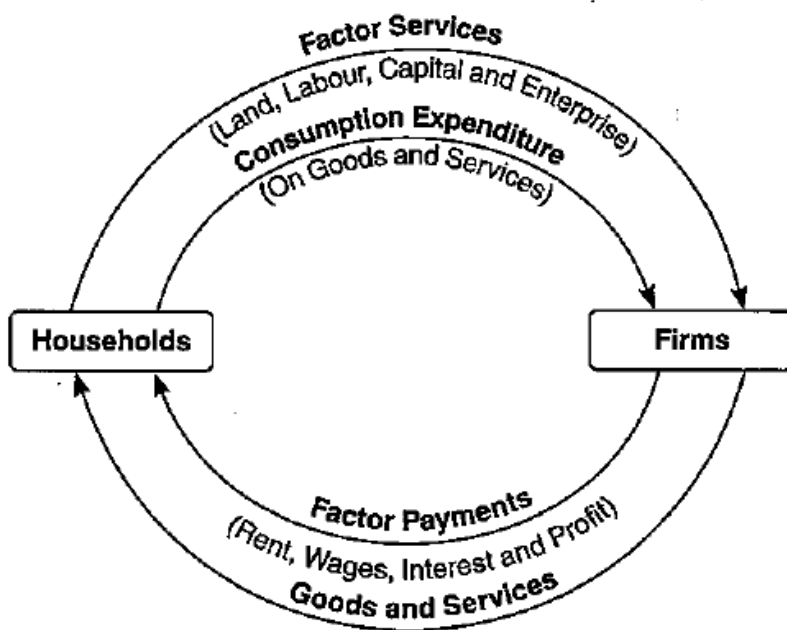
Economics is the study of the production, consumption, and transfer of wealth. There are two branches of economics: macroeconomics and microeconomics. Macro is the Greek root meaning large, and micro is the Greek root meaning small. The **macroeconomics** definition is the branch of economics studying the overall economy on a large scale. Macroeconomics means studying inflation, price levels, economic growth, national income, gross domestic product (GDP), and unemployment numbers. Microeconomics studies things on an individual level, such as a single person, a household, or one industry.

Macroeconomics is a branch of economics that depicts a substantial picture. It scrutinizes itself with the economy at a massive scale and several issues of an economy are considered. The issues confronted by an economy and the headway that it makes are measured and apprehended as a part and parcel of macroeconomics. When one speaks

of the issues that an economy confronts, inflation, unemployment, increasing tax burden, etc., are all contemplated. This makes it apparent that macroeconomics focuses on large numbers.

Circularflow of income in an open economy

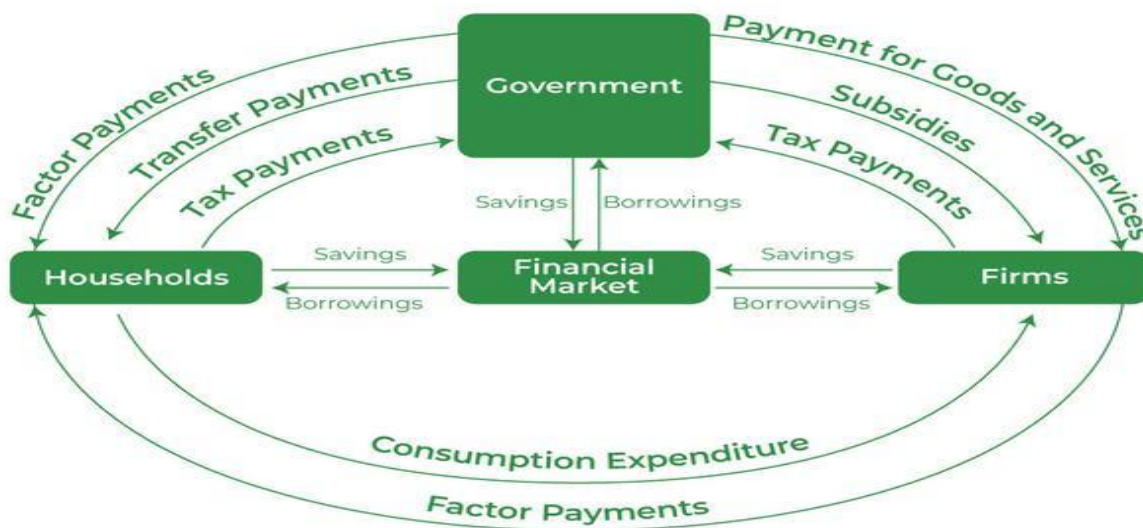
The **circular flow model** is a method for understanding how money travels throughout an economy and a society as a whole. Once money is introduced into the economy, it circulates in a number of different ways allowing individuals, **firms**, organizations, and the government to obtain goods and services that they need in order to function properly. The circular flow model shows how money helps to transform the **factors of production** into **goods and services** that are then traded to **consumers** in exchange for even more money. This money allows firms to continue to produce these goods and services and to also increase its output and ability to make a profit. In addition to consumers and firms, the money is also circulated through the government in the form of taxes, subsidies, etc. This model is ordinarily represented by a visual depiction known as a **circular flow chart**.



The circular flow means the unending flow of production of goods and services, income, and expenditure in an economy. It shows the redistribution of income in a circular manner between the production unit and households.

These are **land, labour, capital, and entrepreneurship**.

- The payment for the contribution made by fixed natural resources (called land) is known as rent.
- The payment for the contribution made by a human worker is known as wage.
- The payment for the contribution made by capital is known as interest.
- The payment for the contribution made by entrepreneurship is known as profit.



Concept and measurement of National Income

What is National Income?

The value of the commodities and services a nation produces in a fiscal year is referred to as national income. As a result, it represents the sum of all economic activity carried out in a nation over the course of a year and is measured in monetary terms. The terms national dividend, national production, and national expenditure are sometimes used interchangeably with the ambiguous concept of national income.

The equation to calculate national income is as follows:

$$\text{National Income} = C + I + G + (X - M)$$

Where,

- C stands for consumption.
- I stand for total investment expenditure
- G stands for the expense made by the government
- X stands for exports and
- M stands for imports.

The positions of X and M are interchangeable depending on whether the trades are trade surplus or deficit.

•It is the sum of income earned by its residents from the factor services rendered to the production units, both within and outside the geographical boundaries of the country.

The total value of final goods and services produced by the normal residents during an accounting year, after adjusting depreciation.

- It is Net National Product (NNP) at Factor Cost (FC)
- It does not include taxes, depreciation and non-factor inputs (raw materials)

Domestic Income – Total value of final goods and services produced within a domestic territory during an accounting year, after adjusting depreciation.

- It is NDP at FC
- Both NNP and NDP can be measured at constant prices (real income) or market prices (nominal income)
- Domestic Income + NFIA = National Income

National: It refers to the residents whose economic interests lie within the country in which they live.

Factor Income: It is the income derived from factors of production such as Land, Labour, Capital and Entrepreneurship.

National income is the value of the aggregate output of the different sectors during a certain time period. In other words, it is the flow of goods and services produced in an economy in a particular year. Thus, the measurement of National Income becomes important.

Measurement of National Income – Income Method

Estimated by adding all the factors of production (rent, wages, interest, profit) and the mixed-income of self-employed.

1. In India, one-third of people are self-employed.
2. This is the 'domestic' income, related to the production within the borders of the country

Measurement of National Income – Production Method

Estimated by adding the value added by all the firms.

Value-added = Value of Output – Value of (non-factor) inputs

1. This gives GDP at Market Price (MP) – because it includes depreciation (therefore 'gross') and taxes (therefore 'market price')
2. To reach National Income (that is, NNP at FC)
 - Add Net Factor Income from Abroad: $GNP \text{ at MP} = GDP \text{ at MP} + NFIA$
 - Subtract Depreciation: $NNP \text{ at MP} = GNP \text{ at MP} - Dep$

- Subtract Net Indirect Taxes: $NNP \text{ at FC} = NNP \text{ at MP} - NIT$

Measurement of National Income – Expenditure Method

The expenditure method to measure national income can be understood by the equation given below:

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

where Y = GDP at MP, C = Private Sector's Expenditure on final consumer goods, G = Govt's expenditure on final consumer goods, I = Investment or Capital Formation, X = Exports, I = Imports, X-M = Net Exports

Any of these methods can be used in any of the sectors – the choice of the method depends on the convenience of using that method in a particular sector

National income accounting

National income accounting refers to the set of methods and principles that are used by the government for measuring production and income, or in other words economic activity of a country in a given time period.

The various measures of determining national income are GDP (Gross Domestic Product), GNP (Gross National Product), and NNP (Net National Product) along with other measures such as personal income and disposable income.

National income accounting equation

National income accounting equation is an equation that shows the relationship between income and expense of an economy and other categories. It is represented by the following equation:

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

Where

Y = National income

C = Personal consumption expenditure

I = Private investment

G = Government spending

X = Net exports

M = Imports

The most important metrics that are determined by national income accounting are GDP, GNP, NNP, disposable income, and personal income. Let us know more about these concepts briefly in the following lines.

Gross Domestic Product (GDP)

The most important metric that is determined by national income accounting is GDP or the gross domestic product. GDP is defined as the total monetary or the market value of all the final goods and services that are produced within the geographical boundaries of a country.

GDP works as a scorecard that reflects the economic health of a country. It is calculated on an annual basis. GDP helps in estimating the growth rate of a country. GDP can be calculated using the three methods, which are expenditures method, production method, and income method.

The other indicators of national income are derived from GDP.

GDP can be calculated by the following two methods:

1. Expenditure approach
2. Income approach

Calculation of GDP by expenditure approach is,

$$\text{GDP} = C + I + G + (X - M)$$

Where

GDP = Gross domestic product

C = Personal consumption expenditure

I = Private investment

G = Government spending

X = Net exports

M = Imports

Income approach calculation

$$\text{GDP} = \text{Private consumption} + \text{Gross investment} + \text{Government investment} + \text{Government spending} + (\text{Exports} - \text{Imports})$$

Gross National Product (GNP)

Gross national product or GNP is a measure of the total value of all the finished goods and services that is produced by the citizens of a country irrespective of their geographic location. It calculates only the final or finished goods.

It signifies how much the citizens of a country are contributing to the economy. It does not include income earned by foreign nationals within the country.

GNP is calculated using the following formulae:

$$\text{GNP} = C + I + G + X + Z$$

Where

C = Consumption

I = Investment

G = Government

X = Net exports

Z = Net factor income from abroad

Net National Product (NNP)

Net national product or NNP is the total value of all goods and services that are produced in a country during a given period of time minus the depreciation. It is represented as follows:

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

Methods of National Income Accounting

There are three methods of measuring national income. They are as follows:

1. **Product method:** In this method, a country's national income can be calculated by adding the output of all the firms in the economy to determine the nation's output.
2. **Income method:** This method is used to calculate incomes generated by production. It includes income from employment, rent obtained for buildings, patents, and copyrights, return on capital from the private sector and public sector, depreciation, etc.
3. **Expenditure method:** In this method, the national income is calculated by adding all the expenditures that are done for purchasing the national output.

Functions of National Income Accounting

The basic functions of national income accounting are as follows:

1. To determine the economic status of a country.
2. To provide a basis of evaluation and reviewing of policies that are under implementation.

Uses of National Income Accounting

Uses of national income accounting are as follows:

1. It reflects the economic performance of an economy and shows its strengths and weaknesses.
2. It helps to determine the structural changes that are appearing in the economy.
3. It helps in comparing nations based on national income.
4. It shows the contribution of each sector towards the growth of the economy.

Output and Employment

Say's Law of Markets

Say's Law of Markets states that supply creates demand, and each supply of goods or items creates an equivalent amount of demand for the goods. It works on the idea one good can increase demand for another. The law thus denies a possible scarcity of aggregate demand.

Say's law of market was given by a French economist Jean - Baptiste Say in the chapter xv , of the Demand or Market for Products in his book Treatise on Political Economy. Say's law of markets is the core of the classical theory of employment. J.B. Say, enunciated the proposition that "supply creates its own demand." Therefore, there cannot be general overproduction and the problem of unemployment in the economy.

On the other hand, if there is general overproduction in the economy, then some labourers may be asked to leave their jobs. There may be the problem of unemployment in the economy for some time. In the long-run, the economy will automatically tend toward full employment. In Say's words, "It is production which creates markets for goods. A product is no sooner created than it, from that instant, affords a market for other products to the full extent of its own value. Nothing is more favourable to the demand of one product, than the supply of another." This definition explains the following important facts about the law: - **Production Creates Market (Demand) for Goods:** When producers obtain the various inputs to be used in the production process, they generate the necessary income. For example, producers give wages to labourers for producing goods. The labourers will purchase the goods from the market for their own use. This, in turn, causes the demand for goods produced. In this way, supply creates its own demand.

Barter System as its Basis: In its original form, the law is applicable to a barter economy where goods are ultimately sold for goods. Therefore, whatever is produced is ultimately consumed in the economy. In other

words, people produce goods for their own use to sustain their consumption levels. Say's law, in a very broad way, is, as Prof. Hansen has said, "a description of a free-exchange economy. So conceived, it illuminates the truth that the main source of demand is the flow of factor income generated from the process of production itself. Thus, the existence of money does not alter the basic law." General Overproduction Impossible: If the production process is continued under normal conditions, then there will be no difficulty for the producers to sell their products in the market. According to Say, work being unpleasant, no person will work to make a product unless he wants to exchange it for some other product which he desires. Therefore, the very act of supplying goods implies a demand for them. In such a situation, there cannot be general overproduction because supply of goods will not exceed demand as a whole. But a particular good may be over produced because the producer incorrectly estimates the quantity of the product which others want. But this is a temporary phenomenon, for the excess production of a particular product can be corrected in time by reducing its production. **Saving-Investment Equality:** Income accruing to the factor owners in the form of rent, wages and interest is not spent on consumption but some proportion out of it is saved which is automatically invested for further production. Therefore, investment in production is a saving which helps to create demand for goods in the market. Further, saving-investment equality is maintained to avoid general overproduction. Rate of Interest as a Determinant Factor: Say's law of markets regards the rate of interest as a determinant factor in maintaining the equality between saving and investment. If there is any divergence between the two, the equality is maintained through the mechanism of the rate of interest. If at any given time investment exceeds saving, the rate of interest will rise to maintain the equality, saving will increase and investment will decline. On the contrary, when saving is more than investment, the rate of interest falls, investment increases and saving declines till the two are equal at the new interest rate. Labour Market: Prof. Pigou formulated Say's law in terms of labour market. By giving minimum wages to labourers, according to Pigou, more labourers can be employed. In this way, there will be more demand for labour. As pointed out by Pigou, "with perfectly free competition...there will always be at work a strong tendency for wage rates to be so related to demand that everybody is employed." Unemployment results from rigidity in the wage structure and interferences in the working of the free market economy. Direct interference comes in the form of minimum wage laws passed by the state.

The Classical Theory of Employment

Introduction: John Maynard Keynes in his General Theory of Employment, Interest and Money published in 1936, made a frontal attack on the classical postulates. He developed a new economics which brought about a revolution in economic thought and policy. The General Theory was written against the background of classical thought. By the "classicists" Keynes meant "the followers of Ricardo, those, that is to say, who adopted and perfected the theory of Ricardian economics." They included, in particular, J.S. Mill, Marshall and Pigou. Keynes repudiated traditional and orthodox economics which had been built up over a century and which dominated economic thought and policy before and during the Great Depression. Since the Keynesian Economics is based on the criticism of classical economics, it is necessary to know the latter as embodied in the theory of

employment.

The Classical theory of Employment. The classical economists believed in the existence of full employment in the economy. To them, full employment was a normal situation and any deviation from this regarded as something abnormal. According to Pigou, the tendency of the economic system is to automatically provide full employment in the labour market when the demand and supply of labour are equal. Unemployment results from the rigidity in the wage structure and interference in the working of free market system in the form of trade union legislation, minimum wage legislation etc. Full employment exists “when everybody who at the running rate of wages wishes to be employed.” Those who are not prepared to work at the existing wage rate are not unemployed because they are voluntarily unemployed. Thus full employment is a situation where there is no possibility of involuntary unemployment in the sense that people are prepared to work at the current wage rate but they do not find work. The basis of the classical theory is Say’s Law of Markets which was carried forward by classical economists like Marshall and Pigou. They explained the determination of output and employment divided into individual markets for labour, goods and money. Each market involves a built-in equilibrium mechanism to ensure full employment in the economy.

Assumptions

The classical theory of output and employment is based on the following assumptions:

- There is the existence of full employment without inflation.

There is a laissez-faire capitalist economy without government interference.

→ It is a closed economy without foreign trade.

→ There is perfect competition in labour and product markets.

→ Labour is homogeneous

→ Total output of the economy is divided between consumption and investment expenditures.

→ The quantity of money is given and money is only the medium of exchange.

→ Wages and prices are perfectly flexible.

→ There is perfect information on the part of all market participants.

→ Money wages and real wages are directly related and proportional.

→ Savings are automatically invested and equality between the two is brought about by the rate of interest

Keynes' objection to the Classical Theory

1. Unrealistic Assumption of Full Employment Condition:

Keynes considered the fundamental classical assumption of full employment equilibrium condition as unrealistic. To him, there is the possibility of equilibrium condition of underemployment as a normal phenomenon. Keynes regarded it as a rare phenomenon. Keynes in fact considered the underemployment condition of equilibrium to be more realistic.

2. Undue Importance to the Long Period:

Keynes opposed the classical insistence on long-term equilibrium; instead, he attached greater importance to short-term equilibrium. To him, “in the long run, we are all dead.” So, it is no use to say that in the long run everything will be all right.

3. Keynes’ Denial of Say’s Law of Markets:

Classical economists rest on Say’s Law which blindly assumed that supply always creates its own demand and affirmed the impossibility of general overproduction and disequilibrium in the economy. Keynes totally disagreed with this view and stressed the possibility of supply exceeding demand, causing disequilibrium in the economy and pointed out that there is no automatic self-adjustment in the economy.

He further pointed out the weakness of Say’s Law maintaining that all the income earned by the agents of production during the process of production would not necessarily be used to purchase the goods produced; hence there can be a deficiency of aggregate demand.

Unemployment, according to him, is the result of deficiency of aggregate demand. He conceived that the entire part of money income which is not spent on consumption goods by individuals, need not necessarily be spent on the purchase of producers’ goods or investment goods; money saved is often hoarded by individuals to increase their cash balances. Therefore, there can be shortage of aggregate demand. Evidently, additional supply does not necessarily mean additional demand.

Further, Say’s Law laid down that supply and demand would always be in equilibrium and the process of equilibrium was automatic and self-balancing. Keynes refuted this too. He pointed out that the structure of modern society rests on two principal classes — the rich and the poor — and there is unequal distribution of wealth between them.

The haves have too much of wealth all of which cannot be consumed by them and the have-nots too little even to meet their minimum consumption, which means a deficiency in aggregate demand in relation to additional supply, and this results in general overproduction and unemployment.

Thus, Keynes pointed out the error of the classicists in denying general overproduction and unemployment. He also pointed out that the economic system in reality is never self-balancing in character. He, therefore, maintained that State intervention is necessary for adjustment between supply and demand in the economy.

4. Attack on Money Wage Cut Policy:

Keynes objected to the classical formulation of employment theory, particularly, Pigou’s notion that unemployment will disappear if the workers will just accept sufficiently low wage rates (i.e., a voluntary cut in money wage). He rejected Pigou’s plea for wage flexibility as a means of promoting employment at a time of depression.

According to Pigou, employment in the society can be increased by a device of money wage cuts and noted that by following a policy of wage-cuts, costs would fall, resulting in the expansion of demand, greater production, and therefore, greater investments and employment. Keynes refuted Pigou's view that flexible wage rates will cure unemployment on two counts, practical and theoretical.

On the practical side, Keynes pointed out that trade unions are an integral part of the modern industrial system and they could certainly resist a wage-cut policy. Strikes and labour unrest are the bad consequences of such a policy.

Similarly, there is welfare legislation regarding minimum wage and unemployment insurance in a Welfare State. Dillard remarks: "Therefore, it is bad politics even if it should be considered good economics to object to labour unions and to liberal labour legislation." Thus, in modern times, money wage cut is not a practical proposition.

On the theoretical ground, Keynes observed that a general wage cut would reduce the purchasing power in the hands of the workers which means a cut in their consumption, i.e., effective demand for the products of industry. A decline in aggregate effective demand will obviously lead to a decrease in the level of employment. According to Keynes, thus, a general wage cut would reduce the volume of employment.

Keynes, thus, maintained that the volume of employment is determined by the effective aggregate demand and not by the wage bargain between workers and employers as the classicists had explained. The wage cut policy of the classicists appeared both immoral and unsound.

5. Keynes' attack on Interest Rate to be strategic variable:

Keynes also attacked the classical theory in regard to saving and investment. He objected to the classical idea of saving and investment equilibrium through flexible rates of interest. To him saving and investment equilibrium are obtained through changes in income rather than in the interest rate.

6. Keynes' Attack on Laissez-faire Policy:

Keynes strongly attacked the classicists for their unrealistic approach to the problems of contemporary capitalist economic system. Pigou's plea for a return to free perfect competition to solve the problem of unemployment seemed 'obsolete' in the changed conditions of the modern world.

Pigou grieved at the modern State's intervention with the free working of the economic system because it causes unemployment. He also condemned the activities of the trade unions which prevent the falling of wage level and thereby cause increase in unemployment. Keynes pointed out that the trade unions are an integral part of modern society and they will grow further.

Besides, a progressive Welfare State will not refrain from accepting or adopting the principle of fixation of minimum wages. Keynes wanted governmental action to bring about adjustment in the economic system, because the modern economic system is not self-adjusting in character as assumed by the classicists.

In short, classical theory, in Keynes' view, is unrealistic and irrelevant to the present conditions and out of date, and, thus, cannot be a guide to the solution of modern economic problems. Thus; the basic need is for a theory which will diagnose the ills of the modern economic system and furnish a guide for the solution of problems like unemployment, business cycles, inflation and other economic ills.

Aggregate Demand and Aggregate Supply Functions

Introduction

In order for a macroeconomic model to be useful, it needs to show what determines total supply or total demand for the economy and how total demand and total supply interact at the macroeconomic level. We have a model like this! It's called *the* aggregate demand/aggregate supply model.

Aggregate supply and demand refers to the concept of supply and demand but applied at a macroeconomic scale. Aggregate supply and aggregate demand are both plotted against the aggregate price level in a nation and the aggregate quantity of goods and services exchanged at a specified price.

Aggregate Supply

The aggregate supply curve measures the relationship between the price level of goods supplied to the economy and the quantity of the goods supplied. In the short run, the supply curve is fairly elastic, whereas, in the long run, it is fairly inelastic (steep). This has to do with the factors of production that a firm is able to change during these two different time intervals.

In the short run, a firm's supply is constrained by the changes that can be made to short run production factors such as the amount of labor deployed, raw material inputs, or overtime hours. However, in the long run, firms are able to open new plants, expand plants or adopt new technologies, indicating that maximum supply is less constrained.

Aggregate Demand

Since consumer demand does not face the same constraints faced by suppliers, there is no relative change in the elasticity of demand itself. Rather, the steepness of the demand curve depends on the price elasticity of demand for the good. Thus, the aggregate demand curve follows a consistent downward slope, whose elasticity is subject to change due to factors such as:

- Changing consumer preferences
- New literature about certain products
- Changes in the rate of inflation
- Changes in interest rates
- Changes in the level of household wealth
- Foreign currency risk

Equilibrium in the aggregate demand/aggregate supply model

Let's begin by looking at the point where aggregate supply equals aggregate demand—the equilibrium. We can find this point on the diagram below; it's where the aggregate supply, AS, and aggregate demand, AD, curves intersect, showing the equilibrium level of real GDP and the equilibrium price level in the economy.

At a relatively low price level for output, firms have little incentive to produce, although consumers would be willing to purchase a high quantity. As the price level for outputs rises, aggregate supply rises and aggregate demand falls until the equilibrium point is reached.

The Principle of Effective Demand

Keynes's Principle of Effective Demand:

The principle of 'effective demand' is basic to Keynes' analysis of income, output and employment. Economic theory has been radically changed with the introduction of this principle. Stated briefly, the Principle of Effective Demand tells us that in the short period, an economy's aggregate income and employment are determined by the level of aggregate demand which is satisfied with aggregate supply.

Total employment depends on total demand. As employment increases, income increases. A fundamental principle about the propensity to consume is that as the real income of the community increases, consumption will also increase but by less than income.

Therefore, in order to have enough demand to sustain an increase in employment there must be an increase in real investment equal to the gap between income and consumption out of that income. In other words, employment can't increase, unless

We can generalize and say; a given level of income and employment cannot be maintained unless investment is sufficient to absorb the saving out of that level of income. This is the core of the principle of effective demand.

Meaning of Effective Demand:

Effective demand manifests itself in the spending of income. It is judged from the total expenditure in the economy. The total demand in the economy consists of consumption goods and investment goods, though consumption goods demand forms a major part of the total demand.

Consumption goes on increasing with increase in income and employment. At various levels of income there are corresponding levels of demand but all levels of demand are not effective. Only that level of demand is

effective which is fully met with the forthcoming supply so that entrepreneurs neither have a tendency to reduce nor to expand production.

Effective Demand is the demand for the output as a whole; in other words, out of the various levels of demand, the one which is brought in equilibrium with supply in the economy is called effective demand. It was this theory of effective demand which remained neglected for more than 100 years and came into prominence with the appearance of Keynes' General Theory.

Keynes was interested in the problem of how much people intended to spend at different levels of income and employment, as it was this intended spending that determined the level of consumption and investment. Keynes's view was that people's intentions to spend were translated into aggregate demand. Should aggregate demand, said Keynes, fall below income businessmen expect to receive, there will be cut backs on production of goods resulting in unemployment. On the opposite, should aggregate demand exceed expectations, production will be stimulated.

In any community, effective demand represents the money actually spent by- people on goods and services. The money which the entrepreneurs receive is paid to the factors of production in the form of wages, rent, interest and profit. As such, effective demand (actual expenditure) equals national income which is the sum of the income receipts of all members of the community.

It also represents the value of the output of the community because the total value of the national output is just the same thing as the receipts of the entrepreneurs from selling goods. Further, all output is either consumption goods or investment goods; we can therefore say that effective demand is equal to national expenditure on consumption plus investment goods.

Thus, effective demand (ED) = national income (Y) = value of national output = Expenditure on consumption goods (C) + expenditure on investment goods (I).

Therefore, $ED = Y = C + I = 0 = \text{Employment}$.

Importance of the Concept of Effective Demand:

The principle of effective demand occupies an integral position in the Keynesian theory of employment. The general theory has the basic observation that total demand determines total employment. A deficiency of effective demand causes unemployment. The Principle of Effective Demand has its importance on the following counts.

In the first place, it can be said that it is with the help of the concept of effective demand that Say's Law of Markets has been repudiated. The concept of effective demand has established beyond doubt that whatever is produced is not automatically consumed nor is the income spent at a rate which will keep the factors of production fully employed.

Secondly, an analysis of effective demand also shows the inherent contradictions in Pigou's plea that wage cuts will remove unemployment. In Keynes' view, as level of employment depends upon the level of effective demand, wage cuts may or may not increase employment.

Thirdly, the Principle of Effective Demand could explain as to how and why a depression could come to stay. Keynes explained that Effective demand consists of consumption and investment. As employment increases, income also increases leading to a rise in consumption but by less than the rise in income. Thus, consumption lags behind and becomes the chief reason of the gap that comes to exist between total income and total expenditure therefore, in order to maintain effective demand at earlier (or original) level, real investment, equal to the gap between income and consumption, must be made. In other words, employment cannot expand unless investment expands. Therein has the all most importance of the principle of effective demand. It makes clear that investment rules the roost.

Fourthly, it puts the spotlight on the demand side. In contrast to the classical emphasis on the supply side, Keynes placed major emphasis on demand side and traced fluctuations in employment to changes in demand. The theory of effective demand makes clear how and why aggregate demand becomes deficient in a capitalist economy and how deficiency of effective demand generates depression.

Determinants of Effective Demand:

For an understanding of Keynes' theory of employment and how an equilibrium level of employment is established in the economy, we must know its determinants the aggregate demand function and the aggregate supply function and their inter-relationship.

1. Aggregate Demand Function, and

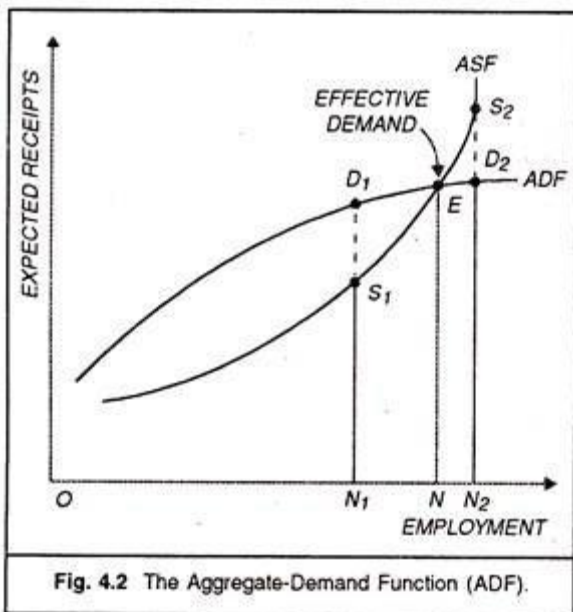
2. Aggregate Supply Function.

1. Aggregate Demand Function:

Aggregate Demand Function relates any given level of employment to the expected proceeds from the sale of production out of that volume of employment. What the expected sale proceeds will be depends upon the expected expenditures of the people on consumption and investment. Every producer in a free enterprise economy tries to estimate the demand for his product and calculate in anticipation the profit likely to be earned out of his sale proceeds.

The sum-total of income payments made to the factors of production in the process of production constitutes his factor costs. Thus, the factor costs and the entrepreneur's profit added to them give us the total income or proceeds resulting from a given amount of employment in a firm. Keynes carried this idea into macro-economics. We can calculate the aggregate income or total sale proceeds. This aggregate income or aggregate proceeds expected from a given amount of employment is called the "**Aggregate Demand Price**" of the output of that amount of employment, i.e., it represents expected receipts when a given volume of employment is offered to workers.

Entrepreneurs make decisions about the amount of employment they will offer to labour on the basis of the expectations of sales and expected profit which, in turn, depend upon the estimate of the total money (income) they will receive by the sale of goods produced at varying levels of employment. The sale proceeds which they expect to receive are the same as they expect the community to spend on their production.



A schedule of the proceeds expected from the sale of outputs resulting from varying amounts of employment is called the aggregate demand schedule or the aggregate demand Junction. The aggregate demand function shows the increase in the aggregate demand price as the amount of employment and hence output increases. Thus, the aggregate demand schedule is an increasing function of the amount of employment.

Consumption Function

Average and Marginal Propensity to Consume

Marginal Propensity To Consume (MPC)

In economics, the marginal propensity to consume (MPC) is defined as the proportion of an aggregate raise in pay that a consumer spends on the consumption of goods and services, as opposed to saving it. Marginal propensity to

consume is a component of Keynesian macroeconomic theory and is calculated as the change in consumption divided by the change in income.

Average Propensity to Consume?

Average propensity to consume (APC) measures the percentage of income that is spent rather than saved. This may be calculated by a single individual who wants to know where the money is going or by an economist who wants to track the spending and saving habits of an entire nation.

Propensity to Consume vs. Propensity to Save

The sum of the average propensity to consume and the average propensity to save is always equivalent to one. A household or a nation must either spend or save all of its income.

The inverse of the average propensity to consume is the average propensity to save (APS). That figure is simply the total of income minus spending. The result is known as the savings ratio.

Notably, the savings ratio is normally based on its percentage of disposable income, or after-tax income. An individual determining personal propensities to consume and save should probably use the disposable income figure as well for a more realistic measure.

In either case, the propensity to consume can be determined by dividing average household consumption, or spending, by average household income, or earnings.

Factors influencing consumption spending

The objective and subjective factors affecting consumption spending.

Objective Factors:

The most important objective factors are the following:

1. The Rate of Interest:

Saving directly depends on interest. When the rate of interest rises saving will increase and consumption will fall. In other words, at high rates of interest people often curtail their consumption voluntarily to save more. Thus the rate of interest affects the consumption spending indirectly.

2. Sales Efforts:

Through various sales promotion measures, such as advertising, it is possible to increase the demand for consumer goods. In practice, advertising has the effect of shifting consumer demand from one product to another.

An increase in total demand from one good may be at the expense of another good, but an increase or decrease in the amount of selling effort may effect the total volume of consumer expenditure, given a fixed level of income.

3. Relative Price:

Changes in relative price can only shift demand from one product to another. But, in some cases, relative price changes might affect aggregate consumption.

4. Capital Gains:

Keynes pointed out that, consumption spending might be influenced by capital gains. This implies that real consumption is influenced by the stock of wealth. The rise in American consumption spending in the late 1920s reflected the realised and unrealised capital gains which were being made in the stock market. In fact, an increase in the perceived wealth of the community might stimulate consumption spending.

5. The Volume of Wealth:

The total wealth of consumer is a possible influence on consumer expenditure. This point has been made by A. C. Pigou. He argued that, current utility depends on consumer wealth, current and future (the larger the current wealth the larger, *cet. par.* will be future wealth, too). The larger the stock of wealth the lower is the marginal utility, and, therefore, the less the strength of desire to add to future wealth through reducing current consumption.

Some economists even argued that, a change in consumers' money holding which represents a mere change in the composition of a given total of wealth might affect consumption. For example, in times of depression and unemployment the central bank can make open market purchase of securities and get money in exchange. More money holding implies more consumption.

Subjective Factors:

Keynes discussed various motives for consumption such as enjoyment, short-sightedness, generosity, miscalculation, ostentation and extravagance. He calls these subjective factors which were liable to significant change in the short run.

Expectations and attitudes:

People's expectations and attitudes also affect consumption spending. A consumer, who expects an increase either in his income or in the price level, should consume more than one who

Continuously rising prices engender strong expectations of further rise, causing consumers to increase their spending, leading to increased aggregate demand, further upward movement of prices, more positive expectations do not affect aggregate consumption.

It is so because different people have different expectations which cancel one another out. Nevertheless, consumer spending can thus fluctuate independently (without having any relation to income) on the basis of consumers' perception to attitudes and expectations.

The consumers' general feeling of security or insecurity, their satisfaction or lack of satisfaction with recent economic or political developments, their longer term prognosis for general business conditions (including the like-hood of a severe depression) all enter into their willingness to make other than routine expenditures.

Psychological Law of Consumption-Long-run Consumption Function

Keynes's Psychological Law of Consumption:

Further, Keynes put forward a psychological law of consumption, according to which, as income increases consumption increases but not by as much as the increase in income.

In other words, marginal propensity to consume is less than one.

$$1 > \Delta C / \Delta Y > 0$$

While Keynes recognized that many subjective and objective factors including interest rate and wealth influenced the level of consumption expenditure, he emphasized that it is the current level of income on which the consumption spending of an individual and the society depends.

To quote him:

“The amount of aggregate consumption depends mainly on the amount of aggregate income. The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience is that men (and women, too) are disposed, as a rule and on an average to increase their consumption as their income increases, but not by as much as the increase in their income”

In the above statement about consumption behaviour, Keynes makes three points. First, he suggests that consumption expenditure depends mainly on absolute income of the current period, that is, consumption is a positive function of the absolute level of current income. The more income in a period one has, the more is likely to be his consumption expenditure in that period.

In other words in any period the rich people tend to consume more than the poor people do. Secondly, Keynes points out that consumption expenditure does not have a proportional relationship with income. According to him, as the income increases, a smaller proportion of income is consumed. The proportion of consumption to

income is called average propensity to consume (APC). Thus, Keynes argues that average propensity to consume (APC) falls as income increases.

The Keynes' consumption function can be expressed in the following form:

$$C = a + bY_d$$

where C is consumption expenditure and Y_d is the real disposable income which equals gross national income minus taxes, a and b are constants, where a is the intercept term, that is, the amount of consumption expenditure at zero level of income. Thus, a is autonomous consumption. The parameter b is the marginal propensity to consume (MPC) which measures the increase in consumption spending in response to per unit increase in disposable income. Thus

$$MPC = \Delta C / \Delta Y$$

It is evident from Fig. 9.1 and 9.3 the behaviour of consumption expenditure as perceived by Keynes implies that marginal propensity to consume (MPC) which is measured by the slope of consumption function curve CC at a point is less than average propensity to consume (APC) which is measured by the slope of the line joining a point on the consumption function curve CC to the origin (that is, $MPC < APC$).

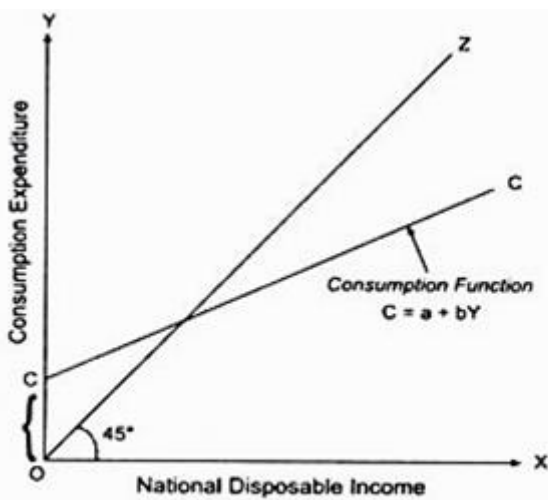


Fig. 9.1. Keynesian Linear Consumption Function

This is because as income rises consumption does not increase proportionately and as income falls consumption does not fall proportionately as people seek to protect their earlier consumption standards. This can be seen from Fig. 9.3 the slope of consumption function curve CC' measuring MPC and the slopes of lines OA and OB which give the APC (i. e C/Y) at points A and B respectively are falling whereas slope of the linear consumption function CC' remains constant.

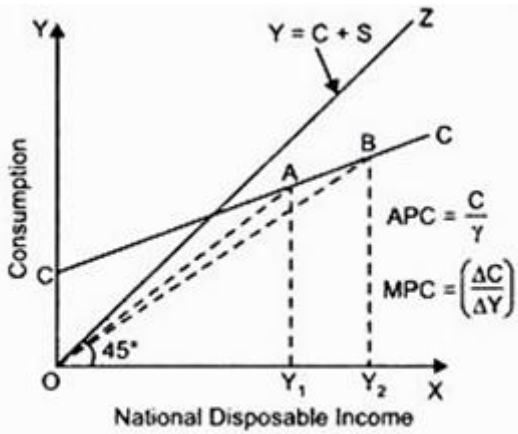


Fig. 9.3. Keynes's Consumption Function: Declining Average Propensity to Consume

In Fig. 9.3 we have shown a linear consumption function with an intercept term. In this form of linear consumption function, though marginal propensity to consume ($\Delta C/\Delta Y$) is constant, average propensity to consume (C/Y) is declining with the increase in income as indicated by the slopes of the lines OA and OB at levels of income F_1 and F_2 respectively.

The straight line OB drawn from the origin indicating average propensity to consume at higher income level F_2 has a relatively less slope than the straight line OA drawn from the origin to point t at lower income level F_1 . The decline in average propensity to consume as the income increases implies that the proportion of income that is saved increases with the increase in national income of the country.

This result also follows from the studies of family budgets of various families at different income levels. The fraction of income spent on consumption by the rich families is lower than that of the poor families. In other words, the rich families save a higher proportion of their income as compared to the poor families.

The assumption of diminishing average propensity to consume is a significant part of Keynesian theory of income and employment. This implies that as income increases, a progressively larger proportion of national income would be saved. Therefore, to achieve and maintain equilibrium at full-employment level of income, increasing proportion of national income is needed to be invested.

If sufficient investment opportunities are not available, the economy would then run into trouble and in that case it would not be possible to maintain full-employment because aggregate demand will fall short of full-employment output.

On the basis of this increasing proportion of saving with the increase in income and, consequently, the emergence of the problem of demand deficiency, some Keynesian economists based the theory of secular stagnation on the declining propensity to consume.

Absolute Income Hypothesis

The absolute income theory states that consumption is primarily a function of absolute level of the current disposable income. The functional relationship between consumption and income is of such a nature that when current income rises, consumption expenditure also rises, but not in the same proportion as the increase in income. Thus, the fraction of increased income that is devoted to consumption declines with successive increases in the level of absolute disposable income. In technical terms it means the marginal propensity to consume would be less than 1 or

$$MPC = \Delta C / \Delta Y < 1$$

Keynes' consumption function has come to be known as the 'absolute income hypothesis' or theory. His statement of the relationship between income and consumption was based on the 'fundamental psychological law'. He said that consumption is a stable function of current income (to be more specific, current disposable income—income after tax payment). Because of the operation of the 'psychological law', his consumption function is such that $0 < MPC < 1$ and $MPC < APC$. Thus, a non-proportional relationship (i.e., $APC > MPC$) between consumption and income exists in the Keynesian absolute income hypothesis. His consumption function may be rewritten here with the form $C = a + bY$, where $a > 0$ and $0 < b < 1$. It may be added that all the characteristics of Keynes' consumption function are based not on any empirical observation, but on 'fundamental psychological law', i.e., experience and intuition.

Propositions of the Law

Proposition 1 When the aggregate income increases, consumption expenditure increases but by a somewhat smaller amount. After the fulfillment of intense wants there is less and less pressure to raise consumption in proportion to the increase in income. $\Delta C < \Delta Y$ $MPC < 1$ MPC is positive but less than unity ($0 < MPC < 1$) his proposition is the core of Keynes psychological law of consumption.

Proposition 2 An increase in income is divided in some proportion between consumption expenditure and saving. It means that income increases will be partially consumed and partially saved. This proposition is corollary to the first proposition, because what is not spent is saved. $\Delta Y = \Delta C + \Delta S$.

Proposition 3 With the increase in income, both consumption and savings go up. This means that increase in aggregate income will never lead to fall in consumption or saving than before. It therefore, emphasizes the short run stability of the consumption function.

Freidman's Permanent Income Hypothesis

The Permanent Income Hypothesis

The permanent income hypothesis is a theory of consumer spending stating that people will spend money at a level consistent with their expected long-term average income. The level of expected long-term income then becomes thought of as the level of “permanent” income that can be safely spent. A worker will save only if their current income is higher than the anticipated level of permanent income, in order to guard against future declines in income.

Understanding the Permanent Income Hypothesis

The permanent income hypothesis was formulated by the Nobel Prize-winning economist Milton Friedman in 1957. The hypothesis implies that changes in consumption behavior are not predictable because they are based on individual expectations. This has broad implications concerning economic policy.

Under this theory, even if economic policies are successful in increasing income in the economy, the policies may not kick off a multiplier effect in regards to increased consumer spending. Rather, the theory predicts that there will not be an uptick in consumer spending until workers reform expectations about their future incomes.

Milton believed that people will consume based on an estimate of their future income as opposed to what Keynesian economics proposed; people will consume based on their in the moment after-tax income. Milton's basis was that individuals prefer to smooth their consumption rather than let it bounce around as a result of short-term fluctuations in income.

Duisenberg's Relative Income Hypothesis

The relative income hypothesis puts forth the idea that an individual’s utility regarding consumption and saving depends on their income and income relative to other people rather than its absolute value about the standard of living.

According to this theory, people are more concerned with their income and consumption compared to those around them than with their past income and consumption patterns. Therefore, lower-income people may spend more of their earnings than their peers of higher socioeconomic status to reduce the disparity in their consumption levels and quality of living.

Relative Income Hypothesis Consumption Function

The below mentioned article provides quick notes on the relative income hypothesis.

Under the relative income hypothesis, consumption is a function of current income relative to the highest level of income previously attained.

Several versions of the relative income hypothesis exist.

Since that formulated by James S. Duesenberry has received the most attention, we shall concentrate on it. Duesenberry says strong tendencies exist in our society for people to emulate their neighbours and to strive toward a higher standard of living.

Consequently, if the incomes of individuals increase so as to leave the distribution of income unchanged, consumption increases in proportion to the increase in income. Given these drives and the fact that income increases in the long run, the relevant consumption function is that previously labelled the long-run function. Thus, under the relative income hypothesis, the basic function is the long-run function.

The short-run consumption function is produced by cyclical movements in income. Suppose, in Figure 6.14, income has increased steadily to F_0 and consumption has increased to C_0 . Now suppose income falls to, say, Y_1 . Instead of consumption falling to C_1 people who had a standard of living afforded by income Y_0 try to maintain that standard by consuming relatively more of their income.

Consequently, consumption falls, but only to C_1 . Should income fall still further, say, to Y_2 , the same phenomenon occurs. Instead of consumption falling to C_2 on the long-run function, it falls to C_2' as people try to maintain their previous standard of living.

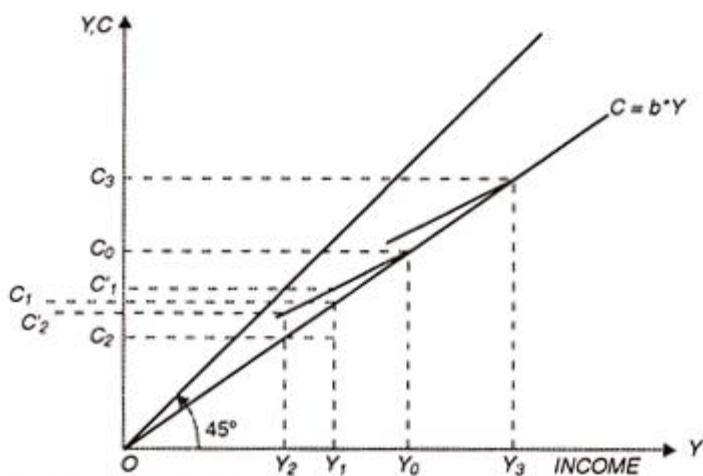


Fig. 6.14 The Relative Income Hypothesis and the Consumption Function.

Suppose income now starts to increase; consumption increases along the short-run or cyclical consumption function until the long-run consumption function is reached. Once the previous peak income (and consumption) is attained, consumption increases along the long-run function as income increases. Suppose, however, income reaches F_3 with consumption level C_3 .

If income falls, consumption decreases along the short-run consumption function. Thus, cyclical movements in income produce the short-run consumption function. If there were no business cycles, only the long-run consumption function would be observed.

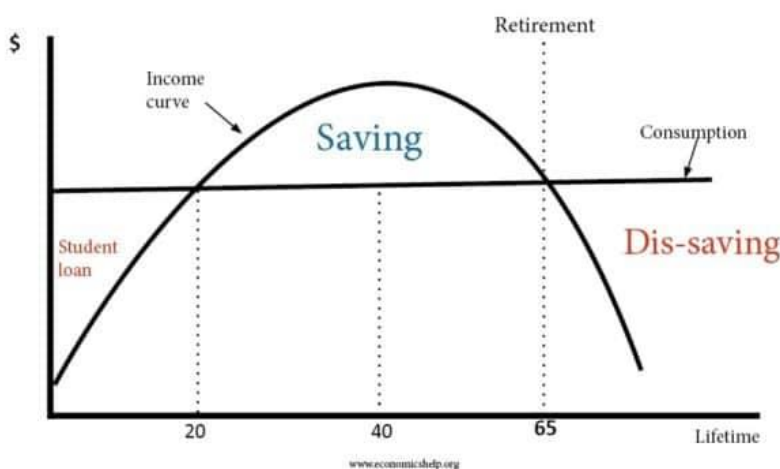
We have considered two hypotheses, the absolute and relative income hypotheses, which purport to explain consumer behavior. In terms of the analysis of multiplier, the implications of the hypotheses differ. For example, under the absolute income hypothesis, the marginal propensity to consume is constant. Consequently, the values of the multipliers do not vary with the business cycle.

This is not so under the relative income hypothesis. If the economy is in a recession, the marginal propensity to consume is less than when the economy's income is increasing to new, higher levels of income. As the marginal propensity to consume varies over the business cycle, so will the values of the multipliers. For policy reasons, it is important to know whether the multipliers are constant or variable over the business cycle. Thus, it is desirable to determine which hypothesis better explains consumer behavior.

Empirical evidence can be cited to support both hypotheses; consequently, it is difficult to accept one hypothesis and to reject the other. Moreover, there is empirical evidence to support other hypotheses, particularly, the permanent income hypothesis.

Ando-Modigliani's Life Cycle Hypothesis.

Definition: The Life-cycle hypothesis was developed by Franco Modigliani in 1957. The theory states that individuals seek to smooth consumption over the course of a lifetime – borrowing in times of low-income and saving during periods of high income.

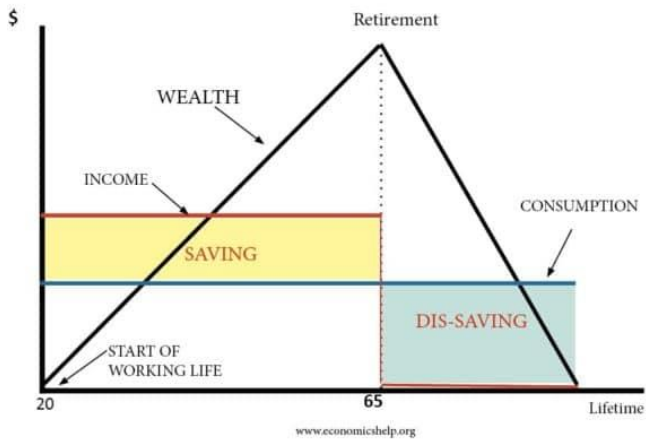


The graph shows individuals save from the age of 20 to 65.

- As a student, it is rational to borrow to fund education.
- Then during your working life, you pay off student loans and begin saving for your retirement.
- This saving during working life enables you to maintain similar levels of income during your retirement.

It suggests wealth will build up in working age, but then fall in retirement.

Wealth in the Life-Cycle Hypothesis



The theory states consumption will be a function of wealth, expected lifetime earnings and the number of years until retirement.

Consumption will depend on

$$C = \frac{W + RY}{T}$$

- C= consumption
- W = Wealth
- R = Years until retirement. Remaining years of work
- Y = Income
- T= Remaining years of life

It suggests for the whole economy consumption will be a function of both wealth and income.

$$C = aW + bY,$$

The implication is that if we have an ageing population, with more people in retirement, then wealth/savings in the economy will be run down.

Prior to life-cycle theories, it was assumed that consumption was a function of income. For example, the Keynesian consumption function saw a more direct link between income and spending.

However, this failed to account for how consumption may vary depending on the position in life-cycle.

Motivation for life-cycle consumption patterns

- Diminishing marginal utility of income. If income is high during working life, there is a diminishing marginal utility of spending extra money at that particular time.
- Harder to work and earn money, in old age. Life Cycle enables people to work hard and spend less.

Does the Life-cycle theory happen in reality?

Mervyn King suggests life-cycle consumption patterns can be found in approx 75% of the population. However, 20-25% don't plan in the long term. (NBER paper on economics of saving)

Reasons for why people don't smooth consumption over a lifetime.

- **Present focus bias** – People can find it hard to value income a long time in the future
- **Inertia and status quo bias.** Planning for retirement requires effort, forward thinking and knowledge of financial instruments such as pensions. People may prefer to procrastinate – even though they know they should save more – and so saving gets put off.

Criticisms of Life Cycle Theory

- It assumes people run down wealth in old age, but often this doesn't happen as people would like to pass on inherited wealth to children. Also, there can be an attachment to wealth and an unwillingness to run it down. See: Prospect theory and the endowment effect.
- It assumes people are rational and forward planning. Behavioural economics suggests many people have motivations to avoid planning.
- People may lack the self-control to reduce spending now and save more for future.
- Life-cycle is easier for people on high incomes. They are more likely to have financial knowledge, also they have the 'luxury' of being able to save. People on low-incomes, with high credit card debts, may feel there is no disposable income to save.
- Leisure. Rather than smoothing out consumption, individuals may prefer to smooth out leisure – working fewer hours during working age, and continuing to work part-time in retirement.
- Government means-tested benefits for old-age people may provide an incentive not to save because lower savings will lead to more social security payments.
-

Investment Function

Autonomous and Induced Investment

Autonomous Investment

The investment on which the change in income level does not have any effect and is induced only by profit motive is known as Autonomous Investment. Autonomous Investment is **income inelastic**. It means that if there is a change in income (increase/decrease), the autonomous investment will remain the same. In general, autonomous investments are made by the Government in infrastructural activities.

An autonomous investment is when a government or other body makes an investment in a foreign country without regard to its level of economic growth or the prospects for that investment to generate positive returns. These investments are made primarily for purposes of geopolitical stability, economic aid, improving infrastructure, national or individual security, or humanitarian goals.

The investment which depends upon the profit expectations and has a direct influence of income level on it is known as Induced Investment. Induced Investment is **income elastic**. It means that the induced investment increases when income increases and vice-versa

Autonomous Investment vs. Induced Investment

Autonomous investments stand in contrast to induced investments, which increase or decrease in response to economic growth levels. Induced investments aim to generate a profit. Since they respond to shifts in output, they tend to be more variable than autonomous investments; the latter act as an important stabilizing force, helping to reduce volatility in induced investment.

Marginal Efficiency of Capital, Investment

The marginal efficiency of capital is equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal to its supply price.”

– J.M.Keynes, General Theory, Chapter 11.

The marginal efficiency of capital displays the expected rate of return on investment, at a particular given time.

The marginal efficiency of capital is compared to the rate of interest.

This theory suggests investment will be influenced by:

1. The marginal efficiency of capital
2. The interest rates

Generally, a lower interest rate makes investment relatively more attractive.

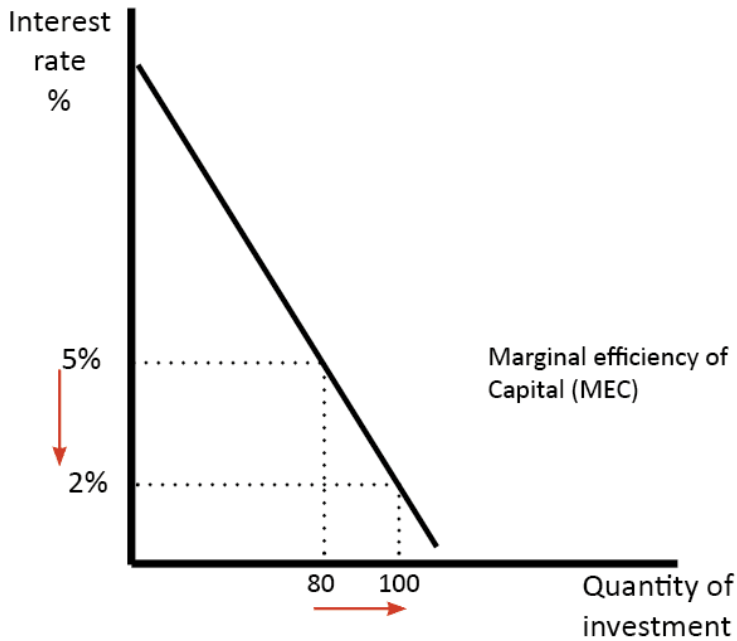
If interest rates, were 3%, then firms would need an expected rate of return of at least 3% from their investment to justify the investment.

If the marginal efficiency of capital was lower than the interest rate, the firm would be better off not investing, but saving the money.

Why are interest rates important for determining the marginal efficiency of capital?

To finance investment, firms will either borrow or reduce savings. If interest rates are lower, it's cheaper to borrow, or their savings give a lower return making investment relatively more attractive.

Marginal Efficiency of Capital

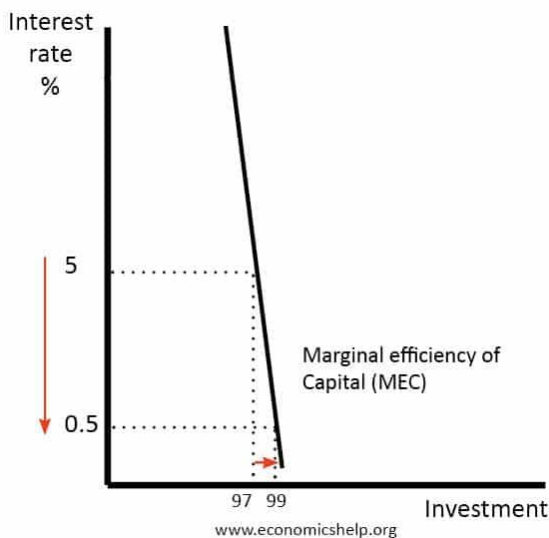


- A cut in interest rates from 5% to 2% will increase investment from 80 to 100.
- The alternative to investing is saving money in a bank; this is the opportunity cost of investment.

If the rate of interest is 5%, then only projects with a rate of return of greater than 5% will be profitable.

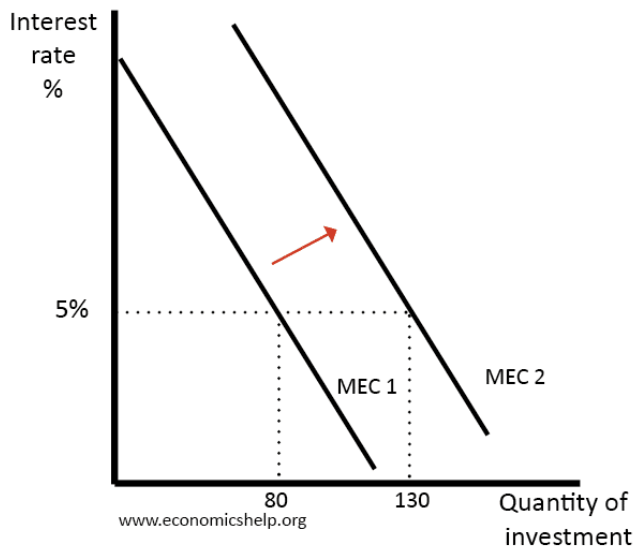
How responsive is investment to interest rates?

In Keynesian investment theory, interest rates are one important factor. However, in a liquidity trap, investment may be unresponsive to lower interest rates. In some circumstances, demand for investment is very interest inelastic.



In a liquidity trap, business confidence may be very low. Therefore, despite low-interest rates, firms don't want to invest because they have low expectations of future profits.

Factors which shift the marginal efficiency of capital



At the same rate of interest rate – more investment projects are demanded. This could reflect an improvement in economic circumstances, which encourage firms to invest.

Factors that can affect investment schedule

- 1. The cost of capital.** If capital is cheaper, then investment becomes more attractive. For example, the development of steel rails made railways cheaper and encouraged more investment.
- 2. Technological change.** If there is an improvement in technology, it can make investment more worthwhile.
- 3. Expectations and business confidence.** If people are optimistic about the future, they will be willing to invest because they expect higher profits. In a recession, people may become very pessimistic, so even lower interest rates don't encourage investment. (e.g. during recession 2008-12, interest rates were zero, but investment low)
- 4. Supply of finance.** If banks are more willing to lend money investment will be easier.
- 5. Demand for goods.** Higher demand will increase the profitability of capital investment.
- 6. The rate of Taxes.** Higher taxes will discourage investment. Sometimes, governments offer tax breaks to encourage investment.

Marginal efficiency of investment, in economics, expected rates of return on investment as additional units of investment are made under specified conditions and over a stated period of time. A comparison of these rates with the going rate of interest may be used to indicate the profitability of investment. The rate of return is computed as the rate at which the expected stream of future earnings from an investment project must be discounted to make their present value equal to the cost of the project.

As the quantity of investment increases, the rates of return from it may be expected to decrease because the most profitable projects are undertaken first. Additions to investment will consist of projects with progressively lower rates of return. Logically, investment would be undertaken as long as the marginal efficiency of each additional investment exceeded the interest rate. If the interest rate were higher, investment would be unprofitable because the

cost of borrowing the necessary funds would exceed the returns on the investment. Even if it were unnecessary to borrow funds for the investment, more profit could be made by lending out the available funds at the going rate of interest.

The British economist John Maynard Keynes used this concept but coined a slightly different term, the marginal efficiency of capital, in arguing for the importance of profit expectations rather than interest rates as determinants of the level of investment.

Multiplier and its effectiveness in LDC's

Multiplier in an Underdeveloped Economy – Explained!

Multiplier is an important tool of analysis in Keynesian economics. It is the basis of the theory of income generation and the mechanism through which income gets propagated.

Multiplier is the ratio between an initial increment in investment and the final increment in income. The higher the margin propensity to consume, the higher the value of multiplier. It works vigorously in the earlier stages in the cycle, when the economy shows an upward trend and life MPC is high. Thus, in advanced economies, multiplier has been given a key role in the process of revival and then as the main engine that lifts the economy out of depression and places it on the threshold of full employment.

Once the existing capacity is fully utilized, the multiplier works in combination with the accelerator to utilize all the available real resources. From this, one may presume that since MPC is very high in underdeveloped economies, a Small initial investment will result in a much higher increase in income. But the proem of income multiplication does not work so smoothly in an underdeveloped economy. This is because the main instrument, the multiplier, does not work in the simple fashion visualized by Keynes, primarily for the industrial economies.

For an efficient working of the multiplier, the Keynesian assumptions—of involuntary unemployment, of excess capacity, of elastic supply of labour and capital—must be fulfilled. These conditions are obtained in advanced economies only. In an underdeveloped economy a large part of the unemployed labour force is found in the agricultural sector, which is unskilled. Labourers are tied to their family farms and seem to enjoy a real income which gives them probably the same satisfaction as they would get when fully employed.

This type of disguised unemployment can hardly be called involuntary and cannot be removed through employment at the current wage rate. Therefore, higher wages along with other incentives are needed to remove them from their farms. In other words, it means that more output obtained only at a high cost. To the extent additional labour is not available at the current money wage rate, increases in employment cannot

follow from an initial increase in investment and to that extent the absence of involuntary unemployment reduces the magnitude of multiplier in underdeveloped economies.

In an underdeveloped economy, the secondary and tertiary effects on income output and employment do not follow as a result of an initial increase in investment, even though the MPC is very high. Whenever additional investment is made, it leads to a rise in the demand for food and cheap industrial consumer goods amongst the working force and to increased demand of luxury imports amongst the 'rich classes. Agricultural output is inelastic, as least in the short period, whatever little increase in output takes place, it is consumed on the farm itself and is not brought to the market.

Thus, an increase in investment increases income of the farmers in the primary sector in the first round and not in secondary and tertiary sector. Increased investment expenditures result in a contraction of the marketable surplus of the most essential consumables and generate a price spiral. Money incomes may multiply but real incomes do not increase much. The real income multiplier turns into a price multiplier. Therefore, "the income multiplier is much higher in money terms than in real terms, and to that extent prices rise much faster than an increase in aggregate real income the multiplier principle, therefore, works with reference to money income but not with reference to real income of employment."

The line of argument presented above is quite convincing and does corroborate at least Indian experience during the last 20 years. However, it does not mean that the concept of multiplier itself is useless. Contemporary literature on growth economies has made use of many variants of the concept. If we take the case of developing economies, in the long run setting, much of the criticism of the concept seems misplaced. The critics have viewed the operation of the multiplier process in a completely static setting and as a purely short period concept, whereas the very rationale of economic development is long-run dynamic change.

When we take into account longer periods of time, the capacity creating aspect of investment also becomes relevant. The operation of multiplier is only subject to a lag varying from industry to industry. The wider the range of industries over which investment is undertaken, the more pronounced will be the multiplier effect, for the rounds of expenditures emanating from investment in any one industry could draw upon the output capacity created in a variety of industries.

Multiplier operates in economies where the rate of growth is fast enough to generate capacity at the rate at which demand increases. These economies are developing economies in a state of transition. Here the supply of consumer goods (food, textiles, or small industry consumer goods) is not inelastic as is generally assumed. Rather, immediate production potential lies in this very sector and hence multiplier process will operate.

The multiplying demand has some acceleration effects also, both in the backward and forward direction, called 'linkage effects'. In fact, the whole process of development has to be viewed as an interaction of one

type of investment on another type of investment and of investment on national income, with the result that in a developing economy the ultimate multiplicative effect of an initial act of investment on real output would be far higher than the original outlay on investment itself.

The Concept of Accelerator (Samuelson and Hicks Multiplier Accelerator)

Meaning of Accelerator:

The multiplier and the accelerator are not rivals: they are parallel concepts. While multiplier shows the effect of changes in investment on changes in income (and employment), the accelerator shows the effect of a change in consumption on private investment.

Hayek explained the central idea of this principle in these words:

“Since the production of any given amount of final output usually requires an amount of capital several times larger than the output produced with it during any short period (say a year) any increase in final demand will give rise to an additional demand for capital goods several times larger than the new final demand.”

The Principle of Acceleration states that if the demand for consumption goods rises, there will be an increase in the demand for the equipment, say machines, which produce these goods. But the demand for the machines will increase at a faster rate than the increase in demand for the product.

The accelerator, therefore, makes the level of investment a function of the rate of change in consumption and not of the level of consumption. In other words, the accelerator measures the changes in investment goods industries as a result of long-term changes in demand in consumption goods industries.

The idea underlying the accelerator is of a functional relationship between the demand for consumption goods and the demand for machines which make them. The acceleration coefficient is the ratio between induced investments to a given net change in consumption expenditures.

$$v = \Delta I / \Delta C$$

Symbolically where v stands for acceleration coefficient; ΔI denotes the net changes in investment outlays; and ΔC denotes the net change in consumption outlays. Suppose an additional expenditure of Rs. 10 crores on consumption goods leads to an added investment of Rs. 20 crores in investment goods industries, then the accelerator is 2. The actual value of the accelerator can be one or even less than that.

In actual world, however, increased expenditures on consumption goods always lead to increased expenditures on capital goods. Hence acceleration coefficient is usually greater than zero. Where a good deal of capital equipment is needed per unit of output, the acceleration coefficient is very much more than unity.

In exceptional cases, the accelerator can be zero also. Sometimes it so happens that production of increased consumer goods (as a result of a rise in their demand) does not lead to an increase in the demand for capital equipment producing these goods.

The existing machinery also wears out on account of over use, with the result that the increased demand for consumer goods cannot be met. It actually happened in India and Turkey during the Second World War.

Additional investment funds were not available. In the absence of induced investment and acceleration effects, the increased demand for consumption levelled off and the accelerator, which measures the effects of induced investment (in investment goods industries) as a result of changes in consumption did not seem to work during all-these years.

The factual basis of the acceleration principle is the knowledge that fluctuations in output and employment in investment goods industries are greater than those in consumption goods industries. Accelerator has greater applicability to the industrial sector of the economy; and as such it seeks to analyse the problem as to why fluctuations in employment in the capital goods industries are more pronounced than those in the consumption goods industries.

There would be no acceleration effects in an economy which used no capital goods. But that situation is very rare. The more capitalized the methods of production are, the greater must be the value of accelerator.

The principle of acceleration is basically a concept related to net investment. Therefore, we must derive an expression linking the accelerator with net investment. We know that gross investment has two components: net investment plus replacement of capital wearing out due to depreciation. We can write

$$\text{Gross Investment} = I_{gt} = V(Y_t - Y_{t-1}) + R$$

which means that the quantum of gross investment in period t depends upon the value of acceleration effects of the change in income in the previous period and the need for replacement of capital.

$$I_{net} = V(Y_t - Y_{t-1})$$

Thus, net investment in period t is which means that net investment depends only on the rate of change of income and the accelerator (V).

Multiplier and Accelerator Distinguished:

For a clear grasp of the concept of accelerator, it is useful to distinguish between multiplier and accelerator. Multiplier shows the effect of a change in investment on income and employment whereas accelerator shows

the effects of a change in consumption on investment. In other words, in the case of multiplier, consumption is dependent upon investment, whereas in the case of accelerator investment is dependent upon consumption.

Further, multiplier depends upon the propensity to consume and accelerator depends upon durability of the machines. In other words, the former is dependent upon psychological factors, while the latter is dependent upon technological factors. However, even accelerator is psychological in its origin because it is linked to induced investment but it becomes highly technical on the operational plane. The accelerator shows the reaction (effect) of changes in consumption on investment and the multiplier shows the reaction of consumption to increased investment.

Further, another very important point of difference between the multiplier and accelerator is in their working backwards. Multiplier works as rigorously in the reduction of income as it does in its increase. But the working of the accelerator is restricted in the downward direction to the rate of replacement of capital because businessmen can at the most disinvest to the extent of not replacing the wearing-out capital.

Working of the Accelerator:

It is interesting to analyse the working of the Principle of Acceleration.

Accelerator depends primarily upon two factors:

- (i) The capital-output ratio, and
- (ii) The durability of the capital equipment.

A numerical example will clarify the dependence of acceleration value on the durability of the machine, capital-output ratio being given.

- (i) Given the same percentage change in consumption, the percentage change in induced investment depends directly on the durability of the machine. Greater is the life (durability) of the machine, greater the value of the accelerator;
- (ii) Accelerator does not depend upon the change in the absolute level of consumption; it depends upon the rate of change of consumption.

In Case I in the Table, we assume that we need 100 machines to produce 1000 consumer goods (capital-output ratio being 1:10). Further we presume that the life of the machine (durability) is 10 years. Thus, after 10 years, the machine has to be replaced and 10 machines have to be replaced in each period in order to maintain the flow of 1000 consumer goods. This is called 'Replacement Demand.'

Now suppose there are 10% rise in the demand for consumer goods in period I (as shown in case I); the change in consumption will be of 100 such goods and we will need 110 machines to produce these goods (at the constant capital- output ratio of 1: 10). Thus, we need 20 machines in all, 10 machines being the addition to the stock of capital and 10 machines for replacement.

Thus, a 10% rise in the demand for consumer goods leads to a 100% rise in the demand for investment goods (machines). This is what the principle of acceleration is intended to show. Accelerator shows that a small increase in consumption is likely to result in manifold increase in investment (called induced investment).

The theory of accelerator is based upon the idea that income and the stock of capital goods increase in flexible proportion. This is not the case where fundamental changes in technology are changing both the capital-output ratio and durability of the machines. Economic growth, furthermore, is not only dependent on capital. The accelerator is not adequate to explain changes in aggregate investment.

Only under special circumstances and in the short run there is a proportional relationship between output and the stock of capital goods. The acceleration principle is less general in application than the multiplier; whereas the latter operates in both the forward and backward directions, the accelerator is effective only in the upward direction (in the downward direction it works only to the extent that replacement investment is not provided for).

Thus, it is clear that at least three basic conditions must operate for a 'pure' accelerator model:

- (i) Existing capacity is fully utilised,
- (ii) Finances are adequate to permit satisfaction of accelerator-generated demand,
- (iii) The change in output is thought to be non-temporary.

Such requirements obviously limit the generality of the principle.

Trade cycle

Nature, characteristics and types; Hawtrey's Monetary Theory

According to Hawtrey, "The trade cycle is a purely monetary phenomenon because general demand is itself a monetary phenomenon."

Hawtrey was of opinion that in every deep depression, monetary factors play a critical role. He made the classical quantity theory of money the basis of his theory of the trade cycle. In his view, changes in flow of money are the sole and sufficient cause of changes in economic activity.

His argument can be put down briefly as follows:

The flow of money approximately equals consumer outlay which can be written as MV . where V is the income-velocity of circulation of the total money m . If the quantity of money is expanded, demand exceeds anticipated supply; stocks of goods proving insufficient, additional orders have to be placed.

This brings about a rise in output, factor incomes, costs and hence prices. In the opposite situation, a reduction in the quantity of money causes reduction in demand for goods which leads to fall in output, income, employment and price.

Hawtrey's theory highlights the role of three monetary factors in generating up-wings and down wings in economic activity:

(a) The strategic role of merchants in determining the level of economic activity in response to changes in the discount rate.

(b) Changes in the flow of total monetary demand.

(c) The role of the so-called external drain and recall of bank reserves.

The three factors, when combined under different conditions can together cause the uprising or downturn in economic activity. Take, for example, the expansion or upswing in the economic system. It has been contended that when banks accumulate excess reserves with them, they liberalise the terms of credit.

They can do so in different ways:

(1) Banks may be less strict in insisting on the security offered.

(2) They may extend the maximum time period of lending.

(3) The banks may not discriminate among the purposes for which they lend.

(4) They may reduce the rate of discount for bills. This last factor particularly induces the merchants to borrow much more than before. The merchant group makes its profit as a small fractional mark upon the value of a large and rapidly moving stock of goods. Therefore, even a small reduction in the discount rate and consequent changes in the interest rates leads to substantial increase in their profit.

Easy bank credit leads to a process of cumulative expansion. A reduction in the rate of discount of bills by commercial banks induces the wholesalers to help bigger stocks. They give heavier orders to the manufacturers who in turn pay more to the factors of production in terms of wages, rents, interest and profit.

This increases incomes and hence consumers' outlay on goods and services. Increased expenditure on goods and services reduces the stock of merchants to a sub-normal level.

They, in turn, try to secure more credit, order more stocks and thus push up production of goods and services. Thus Hawtrey observes: **“Increased activity means increased demand and increased demand means increased activity. A vicious circle is set up, a cumulative expansion of productive activity.”**

Once started, the process of expansion feeds on itself. When prices rise under the pressure of demand and rising costs, dealers have a further inducement to borrow in order to meet the need for higher investments on the same stock. Further, the instability of the velocity of circulation of money raises investment demands. This also feeds the fire of expansion. A boom feeds on itself.

During the later stages of a boom, the banks come to realise that they have reduced their reserves to a dangerously low level. Further extension of credit is stopped and outstanding loans are recovered on schedule. This not only stops further expansion but also reverses the process.

A process of contraction ensues, because prices assume a downward trend. “The downward tendency of prices is sufficient to maintain the process of contraction, even though the rate of interest is no longer high according to the ordinary standards.

The process of contraction becomes cumulative owing to the restrictions on credit. The firms, in order to repay their earlier loans, are forced to sell parts of their stocks. When all the firms try to do so, the prices tend to fall further; since firms suffer losses, they curtail production and lay-off workers.

Falling factor incomes reduce consumer outlays which depress the sales and causes the stocks to accumulate. Thus, the downturn in prices plunges the economy into deep depression.

As depression sets in, loans are liquidated. Money flows back to replenish bank reserves. Soon bank reserves rise above the normal level. The rate of interest may go very low. Yet the falling prices and growing pessimism among firms detract the firms from borrowing.

Hawtrey called this state of affairs a ‘credit deadlock’. In such a situation, the central bank of a country might try to purchase securities from the commercial banks so as to pump more money into the system.

This strengthens the liquidity position of banks. So the banks might try to give liberal loans to intending borrowers. But this does not start a process of recovery, for the new credit may be utilized by the firms to pay old debts. Thus, a liberal credit policy during depression may lead only to a change in the composition of assets of banks. It often fails to encourage investments.

We can conclude Hawtrey's theory by saying that it is based mainly on the assumptions:

- (1) That changes in the rate of interest are a powerful force in directing the economic system, and
- (2) That the interest rate changes influence mainly the volume of inventories, not fixed capital.

The direct policy implication of Hawtrey's theory is that anti-depression policy must aim to stabilise, not the price level of commodities, but the prices of the factors of production. Stability of factor incomes would ensure stable consumer outlays which would stabilise the economy.

Hayek's Over-- investment Theory

Let us make an in-depth study of Hayek's monetary overinvestment theory of trade cycle.

Hayek based his theory of the trade cycle on Wicksell's theory of the income determination.

Wicksell had analyzed the equilibrium of the economic system with the help of a distinction between the natural rate and money rate of interest. Natural rate of interest is that at which the demand for loanable funds equals the supply of loanable funds.

Natural rate of interest shows the equilibrium state of the economy Money rate of interest, on the other hand, is that which actually prevails in the market at a particular time. While the natural rate is the result of operation of the long term factors, both monetary' and real, the money rate of interest is the result of monetary forces over a short period.

Wicksell had proposed that when the money rate diverges from the real rate of interest, there is disequilibrium in the economic system.

The two rates must be brought into equality if equilibrium is to prevail. If the money rate is above the natural rate of interest, there is contraction. If the money rate happens to be less than the natural rate, there is expansion of the economic system.

Hayek's theory is called 'monetary' overinvestment theory' because it considers 'overinvestment' of the economy's resources in the capital goods sector as the sole cause of the business cycle, and the overinvestment takes place when there is too much expansion of money; cheaper money encourages the producers to introduce more roundabout (capital-intensive) methods of production because these have lower cost of production and hence give a higher rate of profit to them.

If the productive structure of the economy is to be kept in balance, then there must be an equilibrating proportion of the resources devoted between consumer goods and capital goods production. Producers decide to invest resources in their individual capacity.

They have no regular plan at the economy level for maintaining the desired proportion. Thus unplanned changes in the structure of production of the economy brought about by the divergence between the money rate and the natural rate of interest are considered to be the main cause of instability of the system.

The boom in the economy is considered in this theory to be the result of money rate being brought substantially below the natural rate of interest through an increased supply of money. Easier availability of credit and the low interest rate encourage the producers to introduce more roundabout methods of production.

As a result, the process of production is considerably lengthened. This means a rise in the prices of producer goods relative to those of consumer goods.

The increased purchasing power in the hands of the producers enables them to attract productive resources away from the consumer goods sector to the production of capital goods. If full-employment of resources already prevailed in the economy, additional resources into the producer-goods industries can come only from reduced supplies of the resources to consumer-goods industries.

Thus, the output of producer goods would increase at the expense of the output of consumer goods. Reduced output of consumer goods would raise the prices of these goods and discourage consumption. A cut in consumption means forced saving.

This forced saving serves to expand the producer goods output. In addition to this, forced saving is the extra saving of the class of persons having contractual incomes like rents and salaries. These savings also go into the production-goods sector. Thus, the boom is fed by monetary overinvestment of resources in the production of capital goods.

How does the boom end into a collapse of the system? Hayek argues that as the capital-goods output expands, consumer goods become scarce and their prices start rising fast. Profit-margins in the production of consumer-goods go up.

Therefore, entrepreneurs in the consumer-goods sector also try to bid for resources in competition to the producer-goods sector. This raises costs of production and reduces profit-margin in the producer-goods sector.

The process of rise in costs and reduction of profit in this sector will continue all the normal and natural ratio of consumer goods to producer's goods prevails in the economy. But the process of contraction in the producer-goods sector becomes cumulative because of the slump in the natural rate of interest.

At the same time, banking system may also clamp restriction on the flow of credit to the producer-goods industries. Falling profit margins and shortage of credit would compel the firms to switch back to the less roundabout processes of production which employ less capital and more labour. New projects would not be executed and old ones may be abandoned.

Since the demand for producer goods of a roundabout nature falls, their prices crash and the firms having such stocks suffer losses. This is the onset of recession. How does the recession lead to a depression? The answer is fall of the natural rate of interest below the money rate of interest as a result of the shortening of the processes of production both in the capital-goods sector and the consumer-goods sector.

Since consumers are able to revert to their level of consumption they had before the boom started, the prices of consumer goods do not fall as much as the prices of producer goods. Producers try to shift resources from producer-goods to consumer-goods production but the process of shifting is painfully slow.

This is because the rate of absorption of labour and materials by consumer-goods industries is much lower than the rate at which these are released by the producer-goods sector. The result is a rising number of the unemployed.

Under the pressure exerted by unemployment, low wages, reduced profit margins in the capital goods industries and restricted credit facilities, less roundabout methods of production are used in the production of consumer goods.

Since the producers become pessimistic in the process of restructuring production, the system contracts even beyond the level at which the natural rate of interest would be the same as the market or money rate. As a consequence, the depression becomes unnecessarily prolonged and recovery much more difficult.

How does the recovery ultimately come about? During depression, commodity prices typically fall faster than money wages. The rising level of real wages during the slump phase brings about a revival of investment. This revival occurs through what has been called 'capital deepening'.

Since real wages tend to rise during the slump, producers have a tendency to adopt more durable machines which are supposed to replace labour by capital. The rising demand for capital goods for capital deepening begins to offset the decline in induced investment. Thus, recovery starts which eventually leads to an upswing and so on.

Keynesian view on Trade Cycles

According to Keynes, business cycle is caused by variations in the rate of investment caused by fluctuations in the Marginal Efficiency of Capital. The term 'marginal efficiency of capital' means the expected profits

from new investments. Entrepreneurial activity depends upon profit expectations. In his business cycle theory, Keynes assigns the major role to expectations.

Business cycles are periodic fluctuations of employment, income and output. According to Keynes, income and output depend upon the volume of employment. The volume of employment is determined by three variables: the marginal efficiency of capital, the rate of interest and the propensity to consume.

In the short period the rate of interest and the propensity to consume are more or less stable. Therefore, fluctuations in the volume of employment are caused by fluctuations in the marginal efficiency of capital.

The Phases:

The course of a business cycle, according to the Keynesian theory, runs as follows. During the period of expansion the marginal efficiency of capital is high. Businessmen are optimistic; investment goes on at a rapid pace; employment is high; and incomes are rising, each increment of investment causing a multiple increase of income.

Towards the end of the period, the high marginal efficiency of capital receives a setback from two directions:

(i) The cost of production of new capital assets increases as shortages and bottlenecks of materials and of labour arise, and

(ii) Owing to the abundance of output, profits are lowered below expectation.

Soon business optimism gives way to scepticism and then to pessimism. The marginal efficiency of capital collapses with catastrophic suddenness. When businessmen find the investment expected to yield 10% yield only 3%, reducing incomes still further.

The downward movement proceeds cumulatively, because every decrement of investment causes a multiple decrement in income. The economy proceeds towards a crisis and depression. Recovery begins when confidence revives, that is, when the marginal efficiency of capital again increases.

This will happen after the period of time necessary for (i) the wearing out and obsolescence of part of the durable capital and (ii) the exhaustion of excess stock of consumer goods accumulated during the depression. Gradually the growing scarcity of capital goods and consumer goods increases profits and expectation of profits.

The marginal efficiency of capital revives and expansion commences. The time period of a cycle is fairly regular because the average time required for the wearing out, obsolescence and exhaustion of capital and consumer goods is more or less the same in every epoch.

Criticisms:

However, Keynes' theory is not free from defects. Its main weaknesses are listed below:

1. Keynes based his theory only on internal causes of a trade cycle. Moreover, he has developed his explanation with the help of multiplier principle alone. He has ignored induced investment and the acceleration effect. A complete explanation of a trade cycle must consider external causes of a trade cycle and the role of the accelerator in causing investment and income fluctuations.
2. Keynes has not explained clearly the determinants of 'marginal efficiency of capital' which influence the investment decisions of entrepreneurs.
3. Keynes does not attach due importance to the rate of interest. He considers the rate of interest only as an item of the cost of production of goods. He, on the other hand, holds that rate of interest does not exercise any influence on investment decisions.
4. The periodical aspect or the phases of the business cycle is left in darkness in Keynes' theory. Keynes has mainly discussed the problems of economic depression, with which he was primarily concerned.

Deflation and Reflation definition

DEFLATION

To understand "what is deflation", first, we need to understand what inflation is and why deflation is its opposite. Deflation is referred to as a decline in the general price of goods as well as the services in any given economy. It is considered a harmful situation in an economy. It can be a direct or indirect result of certain actions like government spending, corporate investment, money supply, and consumer spending.

Deflation takes place only when the rate of inflation falls even below zero percent, thus pointing out a negative rate of inflation. The outcome of such a situation is an increase in the actual value of money relative to services and goods.

What is deflation: that can be explained using examples only? Deflation is a situation that is caused by a decline in aggregate demand or a hike in the supply of certain goods and services, or if there is a lack of funds. When the prices of certain goods and services react by falling lower than the last point, the consumers of such goods and

services tend to restrain their expenditure until the prices fall. This leads to lower production of goods at the factories, a deflationary spiral, and a lesser amount of investment. An example of deflation is when the situation that took place in the US Great Depression, where the demand for services and goods dropped at the same moment, and the money supply was in decline. It can cause the movement of the wealth of people far away from the borrowers, which most of the people are, and can cause under efficient investment because of the confusing pricing signals.

Deflation can be countered in a lot of different ways and techniques, but the methods still stay debatable among all the economic camps. At the core of the subject, introducing more and more capital into a given economy will generally reverse the effects of this situation since it points out the only controllable part of such an equation.

REFLATION

The word Reflation refers to a monetary or fiscal policy that is designed to increase the output, diminishing the stains of deflation and stimulating spending. Examples of conditions like this include printing more money, lowering the interest rates at which money is granted, and lowering the taxes on goods and services provided by private firms and the government. It can also be used to give a detailed description of the first phase of the economic healing, which follows the contraction.

The reflation trade usually involves buying cyclical stocks by selling government bonds since they benefit a lot from the economic growth, which is almost the opposite of deflation. This is what had been going on until the day of the Fed's announcement on the date 16th of June, which prompted the traders of that time to jump from these reflation trades. They were worried because they thought that the tightening of the monetary policy could be a hurdle in the global economic recovery of the state. This resulted in situations where commodities plunged, energy stocks underperformed, flattening the yield curve and gold sank.

STAGFLATION

Out of all the others, this situation is the most dangerous of all, and it is caused by the result of a typical supply shock. It signifies stagnant economic output as well as high inflation at one particular time. It is harmful because, with slow economic growth and a high amount of unemployment, the people residing in that economy would not be able to earn enough money to afford the increased prices of goods and services. This type of phenomenon was observed in the 1970s, and even with the prevailing economic theories, it is difficult to explain.

HYPERINFLATION

Hyperinflation is described as the excessive, control, and rapid growth of general prices in an economy. It is a very rapidly growing inflation that scales up more than 50% per month. It is a very rare phenomenon in developed economies, and it has occurred many times in world history in countries like Argentina, Germany, Hungary, Russia,

and China. A situation like this occurs when there is a more than 50% hike in price every month throughout a certain time. It results in the increased expenditure of money by businesses and consumers due to higher prices.

DISINFLATION

It is the slowing of the rate of inflation temporarily, and it is used to give details on cases where the inflation rate has been reduced over a short period. A GDP deflator is used to measure inflation. Deflation is mostly used by the Federal Reserve to show a period of slowing inflation, and it should not be confused with the term deflation.

Conclusion

The above information explains deflation, stagflation, Hyperinflation, Reflation, and disinflation. These terms are extremely important for you to know. They can help you understand the economic situation in the country as well as how your money is getting affected.

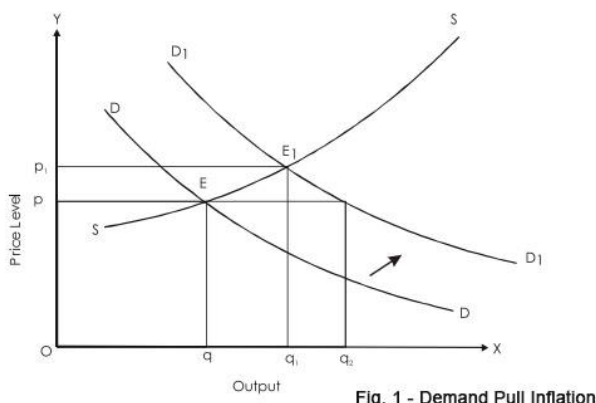
Types, causes and effect of inflation on different sectors on the economy

Inflation is when the prices of goods and services keep increasing over a certain period. It results in a decline in the purchasing power of customers. It aims to gauge the effect of increasing prices on the economy in a financial year.

Demand Pull Inflation

This is when the aggregate demand in an economy exceeds the aggregate supply. This increase in the aggregate demand might occur due to an increase in the money supply or income or the level of public expenditure.

This concept is associated with full employment when altering the supply is not possible. Take a look at the graph below:



In the graph above, SS is the aggregate supply curve and DD is the aggregate demand curve. Further,

- O_p is the equilibrium price
- O_q is the equilibrium output

Exogenous causes shift the demand curve to the right to D_1D_1 . Therefore, at the current price (O_p), the demand increases by qq_2 . However, the supply is O_q .

Hence, the excess demand for qq_2 puts pressure on the price, increasing it to O_{p_1} . Therefore, there is a new equilibrium at this price, where demand equals supply. As you can see, the excess demand is eliminated as follows:

- The price rises which leads to a fall in demand and a rise in supply.

Learn more about the Impact of Inflation here in detail.

Cost-Push Inflation

Supply can also cause inflationary pressure. If the aggregate demand remains unchanged but the aggregate supply falls due to exogenous causes, then the price level increases. Take a look at the graph below:

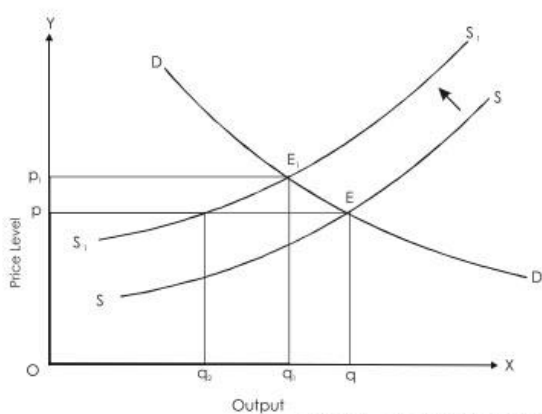


Fig. 2 - Cost-Push Inflation

In the graph above, the equilibrium price is O_p and the equilibrium output is O_q . If the aggregate supply falls, then the supply curve SS shifts left to reach S_1S_1 .

Now, at the price O_p , the demand is O_q but the supply is O_{q_2} which is lesser than O_q . Therefore, the prices are pushed high till a new equilibrium is reached at O_{p_1} .

At this point, there is no excess demand. Hence, you can see that inflation is a self-limiting phenomenon.

Open Inflation

This is the simplest form of inflation where the price level rises continuously and is visible to people. You can see the annual rate of increase in the price level.

Repressed Inflation

Let's say that there is excess demand in an economy. Typically, this leads to an increase in price.

However, the Government can take some repressive measures like price control, rationing, etc. to prevent the excess demand from increasing the prices.

Hyper-Inflation

In hyperinflation, the price level increases at a rapid rate. In fact, you can expect prices to **increase every hour**. Usually, this leads to the demonetization of an economy.

Creeping and Moderate Inflation

- **Creeping** – In this case, the price level increases very slowly over an extended period of time.
- **Moderate** – In this case, the rise in the price level is neither too fast nor too slow – it is moderate.

True Inflation

This takes place after the full employment of all the factor inputs of an economy. When there is full employment, the national output becomes perfectly inelastic. Therefore, more money simply implies higher prices and not more output.

Semi-Inflation

Even before full employment, an economy might face inflationary pressure due to bottlenecks from certain sectors of the economy.

Inflation is an economic indicator that indicates the rate of rising prices of goods and services in the economy. Ultimately it shows the decrease in the buying power of the rupee. It is measured as a percentage. This quantitative economic measures the rate of change in prices of selected goods and services over a period of time. Inflation indicates how much the average price has changed for the selected basket of goods and services. It is expressed as a percentage. Increase in inflation indicates a decrease in the purchasing power of the economy.

Effects of Inflation

When there is inflation in the country, the purchasing power of the people decreases as the prices of commodities and services are high. The value of currency unit decreases which impacts the cost of living in the country. When the rate of inflation is high, the cost of living also increases, which leads to a deceleration in economic growth.

However, a healthy inflation rate (2-3%) is considered positive because it directly results in increasing wages and corporate profitability and maintains capital flowing in a growing economy.

Measures to control Inflation

- The government adopts various measures to control the increase in the price of goods and services. In India, the Reserve Bank of India (RBI) is responsible for controlling inflation. Inflation targeting and to keep inflation within the set target is the responsibility of RBI.
- However, the RBI through its monetary policies can only control demand and pull inflation to a limited extent. The RBI can only control credit flow in the economy by taking away surplus money from the banking system. However, in this process economic growth is affected. The RBI cannot control that part of inflation which is driven by black money.
- In case the public expenditure (expenditure of the government) remains high and the monetary policies become ineffective. At the same time, in controlling cost push inflation and structural inflation the role of government and state government is more important as compared to the RBI. Hence, inflation can be controlled only through the combined efforts of the RBI, the central government as well as state governments.

Monetary Policy Measures

- There is a close link between the money supply and inflation, Therefore, controlling money supply with the help of monetary policy can be controlled.
- Using contractionary monetary policy, the money supply in the economy can be decreased. This leads to decrease in aggregate demand in the market and thereby reduces inflation.
- Decrease in supply of money → rate of interest increases → Investment decreases → Aggregate demand decreases → prices decline → rate of inflation is lower
- Similar process follows when CRR, SLR, Repo Rates are increased and decreased.
- Rates like CRR, SLR, Repo Rate and Reverse Repo Rate are increased to impact the money supply in the economy by the RBI to control inflation.

Fiscal Policy Measures

- Fiscal Policy refers to the revenue and expenditure policy of the government. y Contractionary Fiscal Policy can be useful to tackle high inflation rates.
- The process is as follows: Increased taxes (keeping government spending constant) → disposable personal income decreases → consumption decreases → aggregate demand decreases → prices decline → rate of inflation is lowered y Similar process follows if the government cuts down on its expenditures without raising taxes (or reduces its deficit/ increases surplus).
- Some of the fiscal policy measures are – reducing import duties, banning exports or Imposing minimum export prices, suspending the futures trading of commodities, raising the stock limit for commodities, etc.

Supply Measurement Measures

- Supply Management Measures aims to increase the competitiveness and efficiency of the supply chain, putting downward pressure on long-term costs.
 - Some of the supply management measures taken are-
1. Restricting exports of commodities in short supply and increasing their imports.
 2. Effective implementation of the Essential Commodities Act, 1952 to prevent hoarding and speculation.
 3. Incentivizing the increase in production of commodities through tax concessions, subsidies, institutional support etc.
 4. Higher MSP has been announced to incentivize production and thereby enhance the availability of food items which may help moderate prices.
 5. Fixing the ceiling prices of the commodities and taking measures to control the black marketing of those goods.
 6. Reforming the supply chain through infrastructure development, foreign investments etc.

Constraints in Controlling Inflation

- India imports more than 80 percent of its oil requirements. Oil prices are volatile owing to the various Political and Economic events in the international arena.
- Long overdue supply-side reforms. y Inefficiencies in the monetary policy transmission.
- Limited control of Government and RBI in controlling rupee depreciation.
- Political compulsion in reducing expenditure and fiscal deficit.
- Populist measures of the government.

Trade-off between inflation and unemployment

What Is the Phillips Curve?

The Phillips curve is an economic theory that inflation and unemployment have a stable and inverse relationship. Developed by William Phillips, it claims that with economic growth comes inflation, which in turn should lead to more jobs and less unemployment.

The original concept of the Phillips curve has been somewhat disproven due to the occurrence of stagflation in the 1970s, when there were high levels of both inflation and unemployment.

Understanding the Phillips Curve

The concept behind the Phillips curve states the change in unemployment within an economy has a predictable effect on price inflation. The inverse relationship between unemployment and inflation is depicted as a downward sloping, convex curve, with inflation on the Y-axis and unemployment on the X-axis. Increasing inflation decreases unemployment, and vice versa. Alternatively, a focus on decreasing unemployment also increases inflation, and vice versa.

The belief in the 1960s was that any fiscal stimulus would increase aggregate demand and initiate the following effects: Labor demand increases, the pool of unemployed workers subsequently decreases, and companies increase wages to compete and attract a smaller talent pool. The corporate cost of wages then increases and companies pass along those costs to consumers in the form of price increases.

This belief system caused many governments to adopt a "stop-go" strategy where a target rate of inflation was established, and fiscal and monetary policies were used to expand or contract the economy to achieve the target rate. However, the stable trade-off between inflation and unemployment broke down in the 1970s with the rise of stagflation, calling into question the validity of the Phillips curve.

The reasoning behind the Phillips Curve makes intuitive sense since a tight labor market generates higher inflation, and unemployed people don't typically spend much money. In practice though, people are resilient, updating their expectations until the economic paradigm shifts and assumptions are reevaluated.

Tradeoff between unemployment and inflation

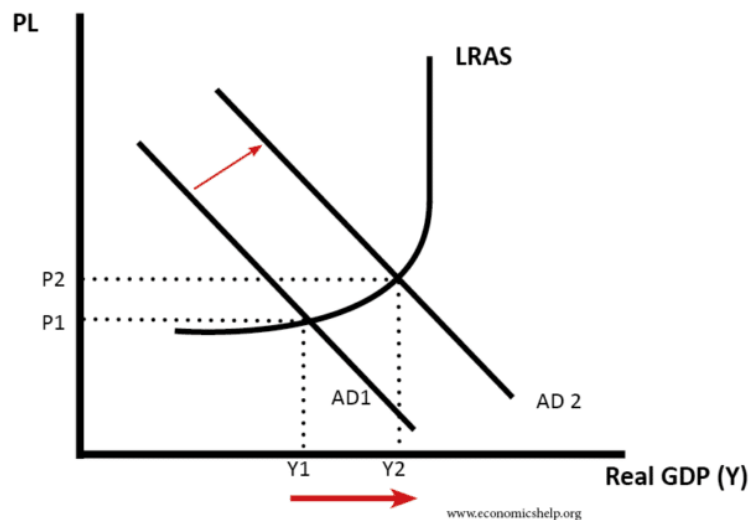
A look at the extent to which policymakers face a trade-off between unemployment and inflation. The Phillips curve suggests there is a trade-off between inflation and unemployment, at least in the short term. Other economists argue the trade-off between inflation and unemployment is weak.

Why is there a trade-off between Unemployment and Inflation?

- If the economy experiences a rise in AD, it will cause increased output.

- As the economy comes closer to full employment, we also experience a rise in inflation.
- However, with the increase in real GDP, firms take on more workers leading to a decline in unemployment (a fall in demand deficient unemployment)
- Thus with faster economic growth in the short-term, we experience higher inflation and lower unemployment.

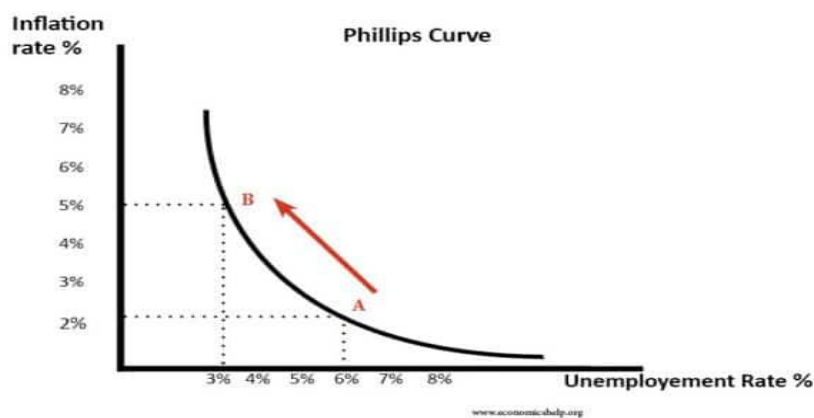
Increase in AD causing inflation



This Keynesian view of the AS curve suggests there can be a trade off between inflation and demand deficient unemployment.

If we get a rise in AD from AD1 to AD2 – we see a rise in real GDP. This rise in real output creates jobs and a fall in unemployment. However, the rise in AD also causes a rise in the price level from P1 to P2. (inflation)

Phillips Curve Showing Trade-off between unemployment and inflation



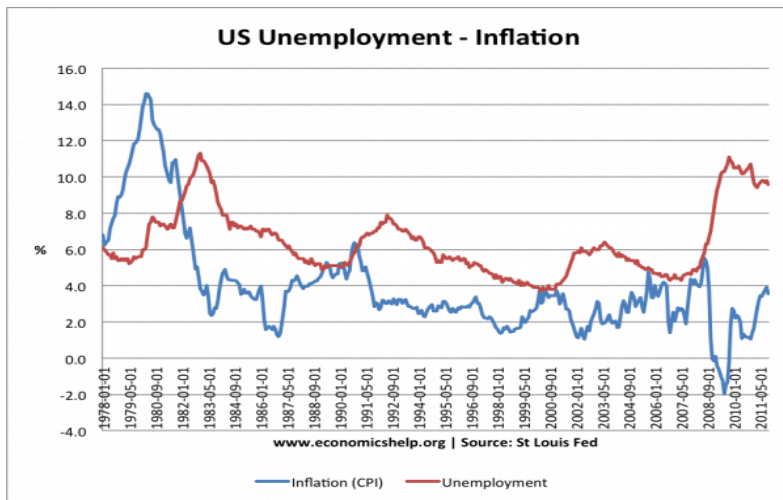
In this Phillips curve, the increase in AD has caused the economy to shift from point A to point B. Unemployment has fallen, but a trade-off of higher inflation. If an economy experienced inflation, then the Central Bank could raise interest rates. Higher interest rates will reduce consumer spending and investment leading to lower aggregate demand. This fall in aggregate demand will

lead to lower inflation. However, if there is a decline in Real GDP, firms will employ fewer workers leading to a rise in unemployment.

Empirical evidence behind trade-off

The Phillips Curve is based on the findings of A.W. Phillips in *The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861–1957*. Note: originally Phillips looked at the link between unemployment and nominal wages

This graph shows unemployment and inflation rate for the US economy.



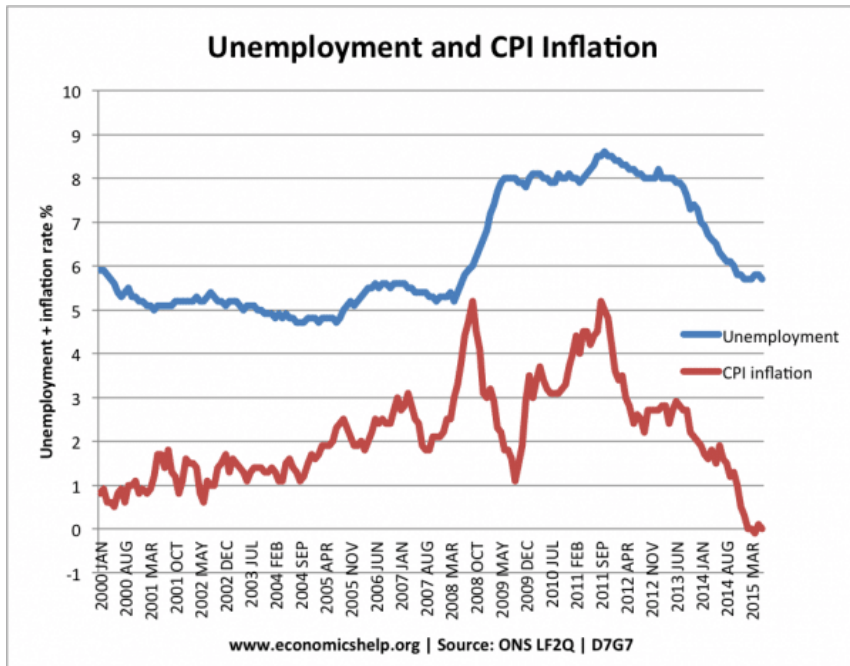
There are occasions when you can see a trade-off.

- For example, between 1979 and 1983, we see inflation (CPI) fall from 15% to 2.5%. During this period, we see a rise in unemployment from 5% to 11%.
- In the late 1980s, inflation falls from 6.5% to 2.8%. But unemployment rises from 5% to 8%
- In 2008, we saw inflation fall from 5% to 2%. During this time, we see a sharp rise in unemployment from 5% to over 10%.

This suggests there can be a trade-off between unemployment and inflation.

However, equally you can look at other periods, and the trade-off is harder to see.

UK Evidence – Unemployment v Inflation



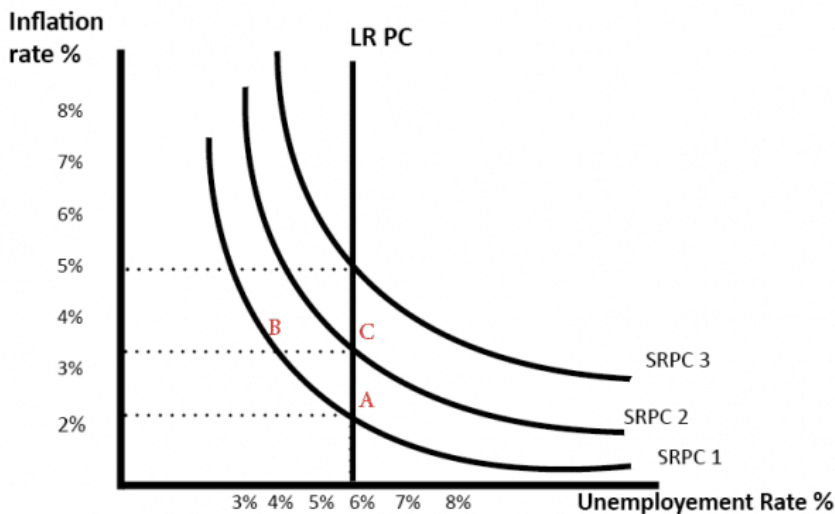
% annual change in inflation and unemployment.

Monetarist View

The Phillips curve is criticised by the Monetarist view. Monetarists argue that increasing aggregate demand will only cause a temporary fall in unemployment. In the long run, higher AD only causes inflation and no increase in real GDP in the long term.

Monetarists argue LRAS is inelastic and therefore Phillips Curve looks like this:

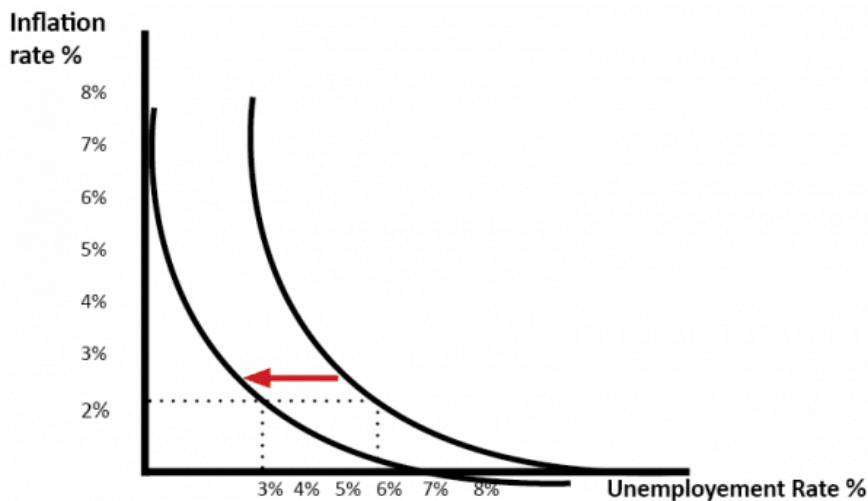
Monetarist Phillips Curve Diagram



Rational expectation monetarists believe there is no trade-off even in the short-term. They believe if the government or Central Bank increased the money supply, people would automatically expect inflation, so there would be no improvement in real GDP.

Falling Inflation and Falling Unemployment

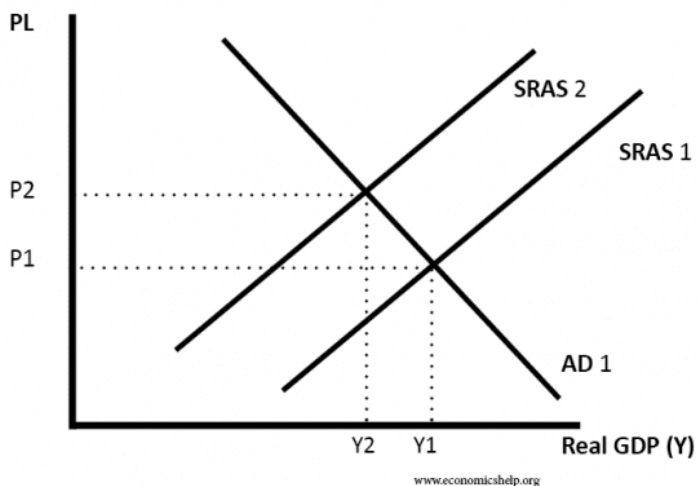
In some periods, we have seen both falling unemployment and falling inflation. For example, in the 1990s, unemployment fell, but inflation stayed low. This suggests that it is possible to reduce unemployment without causing inflation.



However, you could argue there is still a potential trade-off except the Phillips curve has shifted to the left, because there is now a better trade-off.

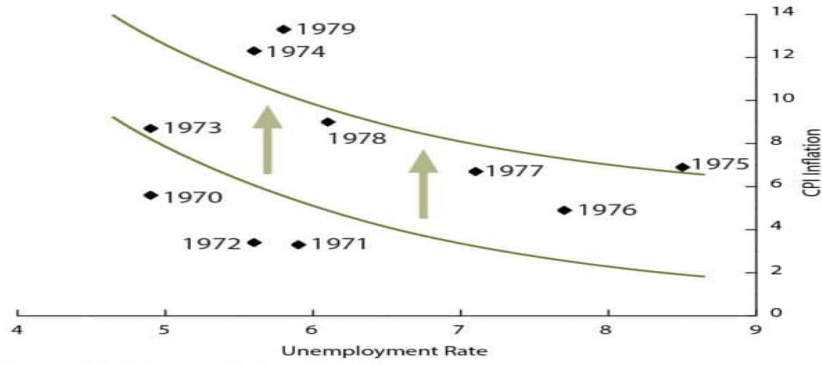
It also depends on the role of Monetary policy. If monetary policy is done well, you can avoid some of the boom and bust economic cycles we experienced before, and enable sustainable low inflationary growth which helps reduce unemployment.

Rising Inflation and Rising Unemployment



It is also possible to have a rise in both inflation and unemployment. If there was a rise in cost-push inflation, the aggregate supply curve would shift to the left; there would be a fall in economic activity and higher prices. For example, during an oil price shock, it is possible to have a rise in inflation (cost-push) and rise in unemployment due to lower growth. However, there is still a trade-off. If the Central Bank sought to reduce the cost-push inflation through higher interest rates, they could. However, it would lead to an even bigger rise in unemployment.

Chart 5: The Phillips Curve Shifts, 1970-79



Source: U.S. Bureau of Labor Statistics

In 1970s, a period of cost-push inflation led to breakdown of Phillips Curve – or at least gave a worse trade-off.

