[Academic Script]

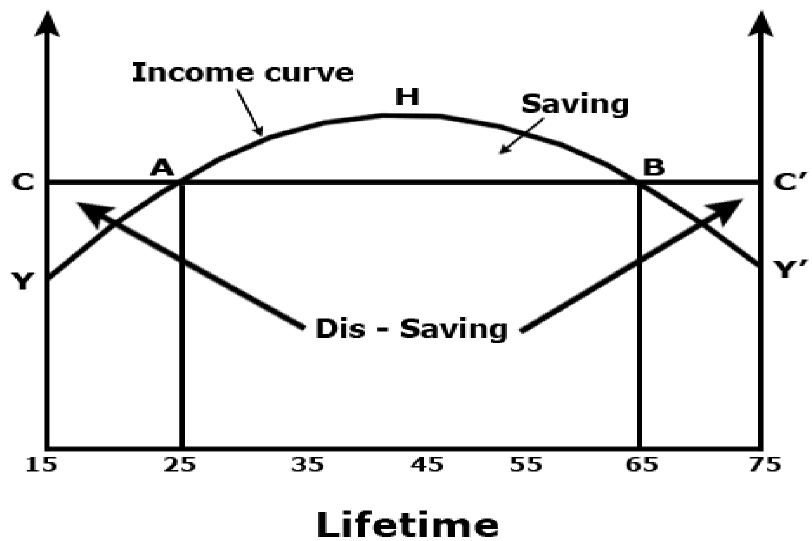
[Theories of Consumption & Investment]

Subject:	Business Economics
Course:	B.A., 4th Semester, Undergraduate
Paper No. & Title:	Paper – 401 Macroeconomics-II
Unit No. & Title:	Unit - 1 Theories of Consumption & Investment
Lecture No. & Title:	1: Theories of Consumption & Investment (Part-II)

Introduction:

According to this theory the consumption in any period is not the function of current income of that period but of whole life time expected income. Thus in this theory the individual is assumed to plan a pattern of consumption expenditure based on expected income in the entire life time. It is further assumed that individual maintains more or less or slightly increasing level of consumption is limited by his expectation of life time income.

Figure:



In this figure, it is taken that the individual would die at the age of 75 years i.e. it is his expected lifetime. It is further assumed in the lifecycle theory that net saving in the entire lifetime is zero, i.e. the savings done by the individual in his working years of life is equal to his dis-savings made by him in early years of his life before he is able to earn income as well as the dis-savings which he makes after retirements. The curve YY' shows income pattern of the whole life time of the individual whereas CC' is the curve of consumption which is assumed to be slightly increasing as the individual grows old. It is assumed that an individual enters into labour at the age of 15 years. It is seen that upto the age of 25 years his income though increasing is less than his consumption i.e. he will be dis-saving during the first 13 years of his working life.

Beyond the age of 25 or point A on income and consumption curves and upto the age of 65 years, his income exceeds his consumption. These savings, he will build-up assets or wealth. Another important motive for savings is to provide for his consumption after retirement when his income drops below his level of consumption. It is observed that beyond pt. B his current income falls short of his consumption and therefore he once again dis-saves. Therefore his savings during the period when he earns more than his consumption expenditure i.e. the shaded area AHB, will be equal to the two areas of dis-savings **CYA + BC'Y'**. He has planned his consumption expenditure over the years that his net savings at the time of death are zero.

A consumer consumes 1/T proportion of his lifetime expected income in 'T' equal installments

$$\frac{\Delta Ct}{\Delta Yt} \quad \text{----------} \ \textbf{(i)}$$

$$\frac{\Delta Ct}{\Delta Yt} = \frac{1}{T} = \frac{1}{50} = 0.02 \text{ this is short term MPC.}$$

If the income increase, the increase in income is expected to present through all the years of his work than average lifetime expected income Y^{1e} will also increase, consumption increase will be much greater.

$$\frac{\Delta Ct}{\Delta Yt} + \frac{\Delta Ct}{\Delta Y} \quad \text{---------} \ \textbf{(ii)}$$

When labour joins, he has low income which results in negative savings, when his income increases there is a positive income.

$$C_t = b_1 Y_t^1 + b_2 Y^{1e} + b_3 A_t \text{------} \ \textbf{(iii)}$$

Where C_t = consumption expenditure in time 't'

b_1 = MPC out of current income Y_t^1

b_2 = MPC out of expected lifetime income Y_t^{1e}

b_3 = MPC out of wealth A_t

In the equation (i) & (ii) we have assumed that consumption of an individual depends on his life expectancy 'T'. But here in this equation (iii) the other factor affecting consumption is also taken into consideration along with his current income Y_t^1 that is, assets he owns A_t and his expected lifetime income Y_t^{1e}.

Criticisms of Life Cycle Hypothesis:

- Gardner Ackley, life cycle hypothesis assumed that in making consumption plans, households have a "definite and conscious vision". Life cycle hypothesis is unrealistic.
- Life cycle hypothesis assumes that households have complete knowledge about
  1. Family's Future size.
  2. Each members life expectancy
  3. Entire lifetime income
  4. Availability of credit
  5. Future emergencies.

  This is also unrealistic.
- Life cycle hypothesis fails to recognize importance of liquidity constraints.
- Consumption may be much more responsive to changes in current income. It is not mechanical.

Permanent Income Hypothesis: It is this long-term expected income which is called by Milton Friedman as a permanent income on the basis of which people make their consumption plans.

It may be noted that the permanent income is earned from both " human and non-human wealth". The income earned from human wealth which is also called **human capital** refers to the return on income derived from selling household's labor services i.e. efforts and abilities of its labor. This is generally referred to as labor income.

Non-Human Wealth consists of tangible assets such as saved money, debentures, equity shares, real estate & consumer durables.

Relationship between Consumption and Permanent Income:

According to permanent income hypothesis, consumption is proportional to permanent income

$$C^P = kY^P$$

Where, Y^P = Permanent Income

C^P = Permanent consumption

k = proportion of permanent income that is consumed.

The proportion of permanent income (k) depends upon the following factors:

1. **Rate of Interest(i):** At a higher rate of interest, the people would tend to save more and their consumption expenditure will decrease. The lowering of ROI will have opposite effect on the consumption.

2. **The proportion of non human wealth to human wealth(w):** The relative amounts of income from physical assets & income from labor also affects consumption expenditure. It is said that greater the amount of wealth held by an individual , the greater would be its propensity to consume and vice-versa.

$$w = \frac{\text{income from non-human wealth}}{\text{income from human wealth}}$$

3. **Desire to add to one's wealth**: Household's preference for immediate consumption as against the desire to add to the stock of wealth also determines the proportion of permanent income to be devoted to consumption. Thus we have,

$$C^P = k(I,w,u)Y^P$$

Permanent and Transitory Income: In addition to transitory income, the individual's income may contain a transitory component that Friedman calls as transitory income. A **transitory income** is a temporary income that is not going to persist in future periods. Ex. A clerk working in an office may get extra income for overtime work in a month which he thinks cannot be maintained. Thus this large overtime income for a month will be transitory component of income. Thus income of an individual consists of two parts-

- Permanent
- Transitory

$$\mathbf{Y^m = Y^p + Y^t}$$

where, Y^m = Measured income

Y^P = Permanent income

Y^t = Transitory income

Measuring permanent income: Permanent income is defined as " the steady rate of consumption a person could maintain for the rest of his life, given the present level of wealth && income now & in the future." Thus permanent income can be measured as-

$$Y^P = Y_{t-1} + a(Y_t - Y_{t-1})$$

where, a = proportion of change in income between last year and this year.

This equation has two features:

a) If $Y_t = Y_{t-1}$, it implies that current year's income is equal to last year. This further means that last year income is being maintained and therefore the individual would expect to earn the same income in the future also. In this case, then permanent income is equal to the current income or last year's income.

b) When income of an individual increases in the current year as compared to the last year, the permanent income will be less than the current year's income. This is because an individual is not sure whether the increase in income will persist in the future & therefore does not immediately revise his estimate of permanent income by the full amount of the increase in the current year.

Permanent Income, Long Run and Short run Consumption Function

The precise relationship between consumption and income are shown in both short run and long run as:

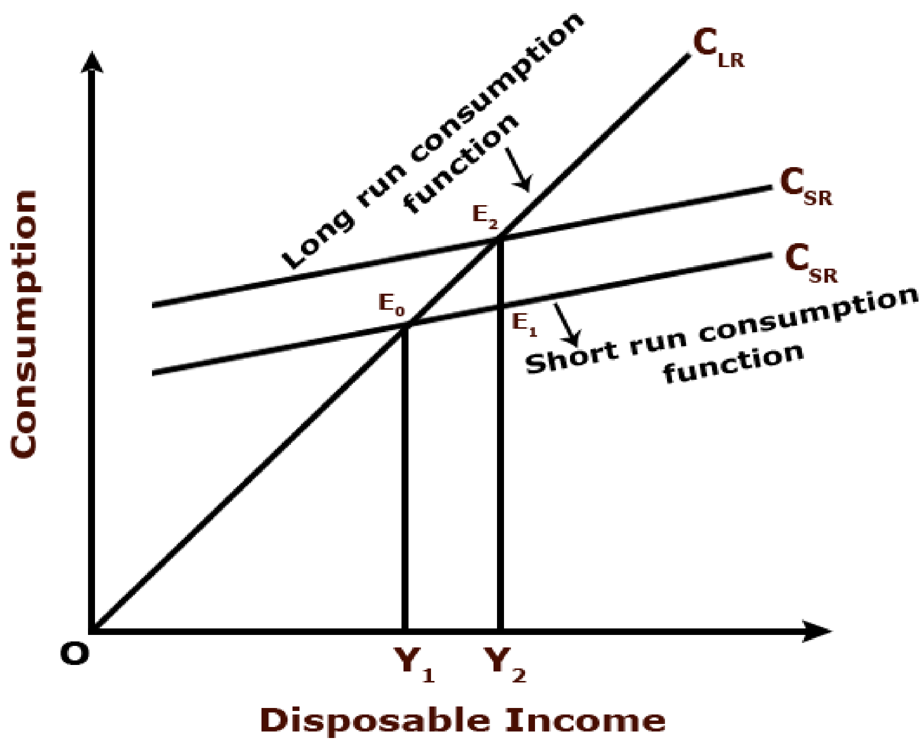
$$C = kY^P$$

$$\text{or, } C = kaY_t + k(1-a)Y_{t-1}$$

where, ka = MPC in the short run which is less than the long run MPC which is equal to k.

According to Friedman's permanent income hypothesis, short run MPC differs from long run MPC, the latter being greater than the former.

FIGURE



C_{LR}= permanent consumption function. It shows proportional relationship.

In accordance with permanent income hypothesis short run consumption function curves are flatter as compared to the long run consumption function curve indicating that the short run MPC is lower than long run MPC. The reason for this is that the individual is not sure whether the increase in income will persist over the longer period which determines the consumption plans of individuals. Therefore the individuals do not fully adjust their consumption expenditure according to their higher current income than would be the case if the current increase in income is expected to be permanent. If the rise in income happens to be permanent, the individual will fully adjust his consumption expenditure to the higher income level.

Criticisms:

- It is assumed that APC of the rich & poor family remains same and constant.
- Friedman's use of permanent, transitory and measured income makes the theory complicated.

Business Fixed, Residential and Inventory Investment

I) Business Fixed Investment :

Business fixed investment means investment in the machines, tools and equipments that business firms purchases for the production of goods and services. These equipments, tools and machines are represented by fixed capital of the firm. These equipments are immovable in nature and are used over a long period of time hence, they are termed as fixed. Thus, commonly known as fixed capital of the firm.

Unlike inventory investment, fixed capital investment is a long-term investment as, its components are used for the years to come. Thus, it is very important decision for any business firm. Business fixed investment plays an important role in two respects:

1. In determining the national income and employment rate, an Investment determines the AD and
2. It affects and creates fluctuations in business cycle.

We are familiar with the fact that investment demand reduces as the interest rate increases. A business firms decision on making long-term investment hence is influenced by the rate of interest in the market.

Firms also face some hurdles in the form of how much cost of capital they can borne in order to carry their long-term plan. Thus, firms decide to invest based on Marginal Efficiency of Capital, that is an increase in output for a unit increase in capital.

Marginal Efficiency of capital: The marginal efficiency of capital is the highest rate of return expected from an additional unit of a capital asset over its cost. The prospective yield is the aggregate net return from an asset during its life time, while the supply price is the cost of producing this asset.

II) Residential Investment: It refers to the expenditure which people make on constructing or buying new houses for the purposes of living or renting. Residential investment varies from 3% to 5% of GDP in various countries. Two important features are:

- Firstly, since the average life of a housing unit is of 40 to 50 years, the stock of existing housing units at a point of time is very large as compared to the new residential investment in a year.
- Secondly, there is a well developed resale market for housing units so that people who construct or own them can sell them in this secondary market.

Residential investment depends on price of existing housing units. The higher the price of existing units, the higher will be investment in constructing and buying new housing units. The price of housing units is determined by demand for housing units which slopes downward and the supply of existing units which is a fixed quantity.

III) Inventory Investment: Firms hold inventories of raw materials, semi-finished goods to be processed into final goods. The firms also hold inventories of finished goods to be hold shortly. The change in the inventories or stocks of these goods with the firms is called inventory investment. The reasons for holding investment are:

a) The first reason is the **smoothing of the level of production.** The firms experience temporary ups and downs in sale of their output. Instead of adjusting their production each time to match the changes in sales of the product they find cheaper to produce goods at a steady rate. With this steady rate of production, when sales are low , the firms will be producing more than they are selling and therefore in these periods they will hold the extra goods produced as inventories. On the other hand, when sales are high with a steady rate of production , they will be producing less than they sell. Therefore in such situations to meet the market demand for goods, they will take out goods from inventories to meet the demand.
b) The second reason is that it is **less costly** for a firm to buy inputs such as raw materials **less frequently in large quantities** to produce goods and therefore it is required to hold inventories of raw materials and other intermediate products.
c) The third reason is to avoid **running out of stock possibilities** when their sale of goods are high and therefore it is profitable to sell at that time.

Summary: In today's session we have studied about the
life cycle hypothesis- It means the consumption in any period is not the function of current income of that period but of the whole lifetime expected income.
Permanent Income Hypothesis: It is this long-term expected income which is called by Milton Friedman as a permanent income on the basis of which people make their consumption plans.
We have also studied about the concepts of Business Fixed, Residential and Inventory Investment.

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Glossary:

Life Cycle Hypothesis: It means the consumption in any period is not the function of current income of that period but of the whole lifetime expected income.

Permanent Income Hypothesis: It is this long-term expected income which is called by Milton Friedman as a permanent income on the basis of which people make their consumption plans.

Residential Investment: It refers to the expenditure which people make on constructing or buying new houses for the purposes of living or renting.

Business Fixed: Business fixed investment means investment in the machines, tools and equipments that business firms purchases for the production of goods and services.

Inventory Investment: Firms hold inventories of raw materials, semi-finished goods to be processed into final goods. The firms also hold inventories of finished goods to be hold shortly. The change in the inventories or stocks of these goods with the firms is called inventory investment.

Human Capital: It refers to the return on income derived from selling household's labor services i.e. efforts and abilities of its labor.

Non- Human Wealth: It consists of tangible assets such as saved money, debentures, equity shares, real estate & consumer durables.

Assignment:

- To explain the concept of life cycle hypothesis.
- To explain the concept of permanent income hypothesis.
- To explain the Business Fixed, Residential and Inventory Investment.

Frequently Asked Questions:

Q: What do you mean by life cycle hypothesis?

It means the consumption in any period is not the function of current income of that period but of the whole lifetime expected income.

Q: Explain in brief permanent income hypothesis?

It is this long-term expected income which is called by Milton Friedman as a permanent income on the basis of which people make their consumption plans.

Q: Define Business Fixed.

It means investment in the machines, tools and equipments that business firms purchases for the production of goods and services.

Q: Define Inventory Investment.

Firms hold inventories of raw materials, semi-finished goods to be processed into final goods. The firms also hold inventories of finished goods to be hold shortly. The change in the inventories or stocks of these goods with the firms is called inventory investment.

Q: What do you mean by Residential Investment?

It refers to the expenditure which people make on constructing or buying new houses for the purposes of living or renting.

MCQs:

1) The theory of Life Cycle has been put forward by

(a) Franco Modigliani **(b)** Albert Ando

(c)Both (a)and (b) **(d)** None of them

2)Individual plan the consumption expenditure based on with expected ______________ which they earn in lifetime.

(a)Income **(b)** Saving

(c) Both (a)and (b) **(d)** None of them

3) The individual maintain the consumption expenditure more or less constant or slightly increasing level of ______.

(a)Consumption **(b)** Saving

(c) Income **(d)** None of them

4) Permanent Income Hypothesis was developed by_______.

(a) Keynes **(b)** Adam Smith

(c) **Milton Friedman** **(d)** None of the above

5) Friedman's theory has one similarity with the life cycle theory, i.e.

(a) **The Consumption** **(b)**Income

(c) saving **(d)** All of the above

6) The __________ is determined by long term expected income rather than current level of income**.**

(a) income **(b)consumption**

(b) saving **(d)**None of the above

7) Examples of business fixed investment are

(a) purchase of bond **(b)** purchase of house

(b) purchase of dealership **(d) all of the above**

8)Residential Investment means purchase of new______ units.

(a) interest **(b)**rent

(b) **housing** **(d)** salary

9)Non-human wealth is________ assets.

(a)tangible **(b)**non-movable

(b) movable **(d)**non-tangible

10) Examples of business fixed investment are

(a) purchase of bond **(b)** purchase of house

(b) purchase of dealership **(d) all of the above**

LORs:

LOR 1:

The income earned from human wealth which is also called human capital refers to the return on income derived from selling household's labor services i.e. efforts and abilities of its labor. This is generally referred to as labor income.

LOR 2:

According to permanent income hypothesis, consumption is proportional to permanent income

$$C^P = kY^P$$

Where, Y^P = Permanent Income

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k = proportion of permanent income that is consumed.

LOR 3:

Firms hold inventories of raw materials, semi-finished goods to be processed into final goods. The firms also hold inventories of finished goods to be hold shortly. The change in the inventories or stocks of these goods with the firms is called inventory investment.

LOR 4:

The marginal efficiency of capital is the highest rate of return expected from an additional unit of a capital asset over its cost. The prospective yield is the aggregate net return from an asset during its life time, while the supply price is the cost of producing this asset.