[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-I)

Introduction:

Consumption expenditure is the major constituent of aggregate demand in any economy. Keynes however, assumed that in the short run, real consumer spending is primarily determined by current real personal disposable income. That is the rise in income will lead to rise in consumption.

Fundamental Psychological Law of Consumption:

The psychological law of consumption is based on the following propositions:

- As income increases consumption expenditure increases but less proportionately.
- Income is always bifurcated in two spending and savings
- Increase in income will increase the savings.

Thus, Keynes' law is limited by the following assumptions:

- Constancy of Psychological and Institutional Factors
- Normal Economic conditions
- Laissez-faire Policy

Definition of Consumption Function:

Consumption function is defined as the schedule detailing the relationship between aggregate **consumption expenditure** and **gross national income**.

Therefore, $C=f(Y)$, $f>0$

Where C represents consumption and Y represents income. Thus the equation C = f (Y) shows the functional relationship between C & Y, where C is the depended on Y and Y is independent variable, i.e. C is determined by Y.

The consumption function can also be written as

$C = a + bY$

Where a is the autonomous consumption, i.e. even when income is zero, the constant amount of consumption a person has. b is the propensity to consume which depends on income Y, i.e. as the income increases there is increase in the consumption at a constant rate. Thus b is known as Marginal Propensity to Consume which lies between 0 and 1, and is constant for any level of income. The consumption function can be represented as in the figure below:

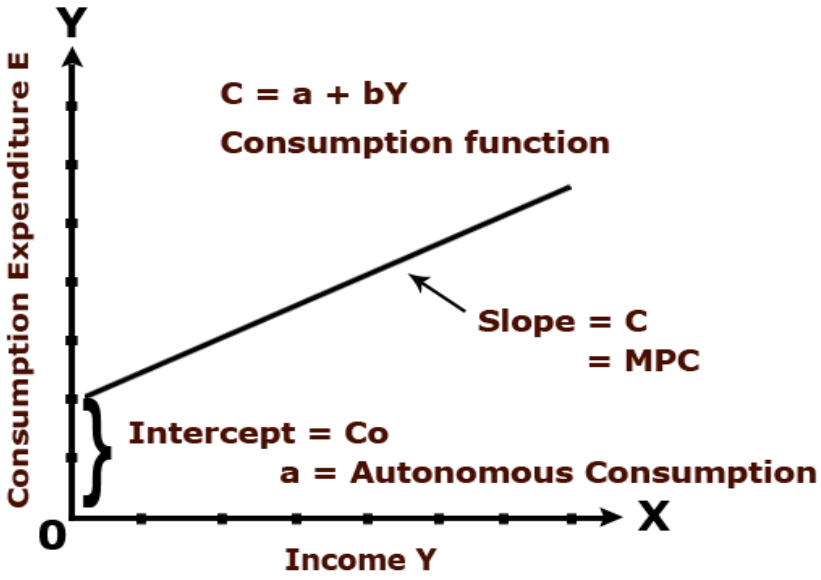


Figure:

Let us understand consumption function with the help of a figure. Here we can see that the y-axis shows consumption expenditure 'E', while the x-axis shows income 'Y'. The slope 'C' represents marginal propensity to consume i.e. MPC. In this fig. we also represent that C= a+ bY which is the consumption function.Here, the line is linear because MPC is constant.

Saving Function:

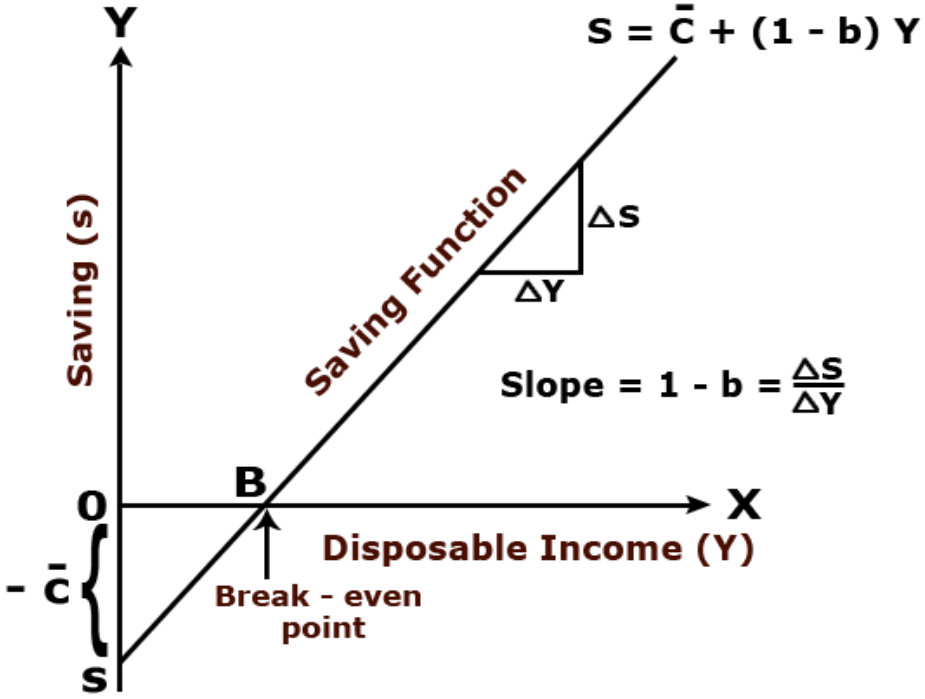
The **saving function** is just disposable income minus the consumption **function**. It is also equal to the amount of induced **saving** minus autonomous consumption.

Thus, **S = –a – b(Y)**

Like consumption, saving is also a function of income, i.e., saving also depends upon the level of income. Saving is the excess of income over consumption expenditure. Saving

function refers to the functional relationship between saving and national income. Let us understand with the help of figure:

Figure:



Let us understand the saving function with the help of a fig. In this fig. y-axis represents savings, while the x- axis represents disposable income. SS line is the saving function which is negatively sloping and where the slope is 1-b=change in S. Point B represents the break-even point. change in Y

Thus, the line is linear because MPS is constant.

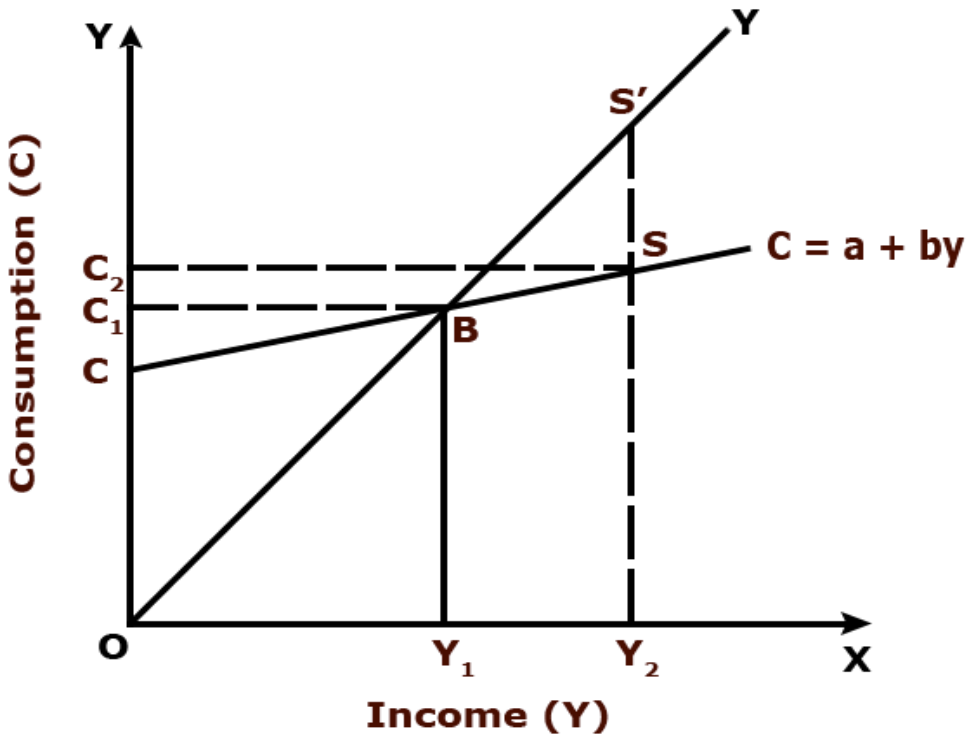
Schedule of the Propensity to Consume:

Income (Y) In crores of rupees	Consumption (c) In crores of rupees
10	20
20	25
30	30
40	35
50	40
60	45

Now let us understand the schedule of propensity to consume with the help of an example. With the income of Rs. 10 crores we have a consumption of Rs. 20 crores. As the income increases by Rs. 10 Crores, the consumption increases by Rs. 5 crores and this continues till we reach the income to Rs. 60 crores and the consumption to Rs. 45 crores. Here we get to see that the income increases by Rs. 10 crores each time and the consumption by Rs. 5 crores.

Now let us understand this with the help of a figure.

Figure:



In this figure, a line OY with the X-axis has been drawn. Because line OY meets with the X-axis every point on it is equidistant from both the X-axis and Y-axis depicts the income line. The CC curve represents the consumption schedule. It is evident from this figure that the consumption function curves CC deviates from the line OY. At lower levels of income, the consumption function curve CC lies above the OY line, signifying that at these lower levels of income consumption is greater than the income. With increase in the income from y_1 to y_2 the consumption increases but less proportionate, as evident from the figure i.e y_1y_2 is less than c_1c_2. Also as income increases we can see there is provision for savings too. With increase in income a part of income is saved i.e. SS'.

Average Propensity to Consume (APC):

The average propensity to consume is defined as the ratio of aggregate or total consumption to aggregate income in a given period of time. Thus, the value of average propensity to consume for any income level, may be found by APC = $\frac{C}{Y}$.

Therefore, APS = $\frac{S}{Y} = 1 - \frac{C}{Y}$

Thus, APC is required to tell us what proportion of the total cost of a given output from planned employment may be expected to be recovered from selling consumer goods.

Where in APS, tells us what proportion of the total cost of a given output will have to be recovered by the sale of capital good.

Income In crores of rupees	Consumption In crores of rupees	Average Propensity to Consume	Marginal Propensity to Consume
(Y)	(C)	APC = $\frac{C}{Y}$	MPC = $\frac{\Delta C}{\Delta Y}$

30	30	$\frac{30}{30} = 100\%$	-
40	35	$\frac{35}{40} = 87.5\%$	$\frac{5}{10} = 0.50$
50	40	$\frac{40}{50} = 80\%$	$\frac{5}{10} = 0.50$
60	45	$\frac{45}{60} = 75\%$	$\frac{5}{10} = 0.50$

In the table shown, an increase in income by Rs. 10 crore, the amount of consumption has risen by Rs. 5 crore and the remaining amount has been saved. The same applies to further inc. in income and consumption. In this table while MPC remains constant at Rs. 5 crore, APC is falling with the inc. in income. It is noted that this is termed as the Keynesian consumption function and it is linear as MPC which measures the slope of the consumption function curve is constant. While MPC is constant, APC falls with inc in NI. The fall in APC with the inc. in income has an important implication that increase in consumption is not proportional to inc. in income. MPC is less than APC at various levels of income.

Marginal Propensity to Consume:

MPC = $\frac{\Delta C}{\Delta Y} < 1$

MPC is constant when consumption function is linear, but in case of non-linear consumption function MPC will not be constant.

However, MPC is always positive but less than one.

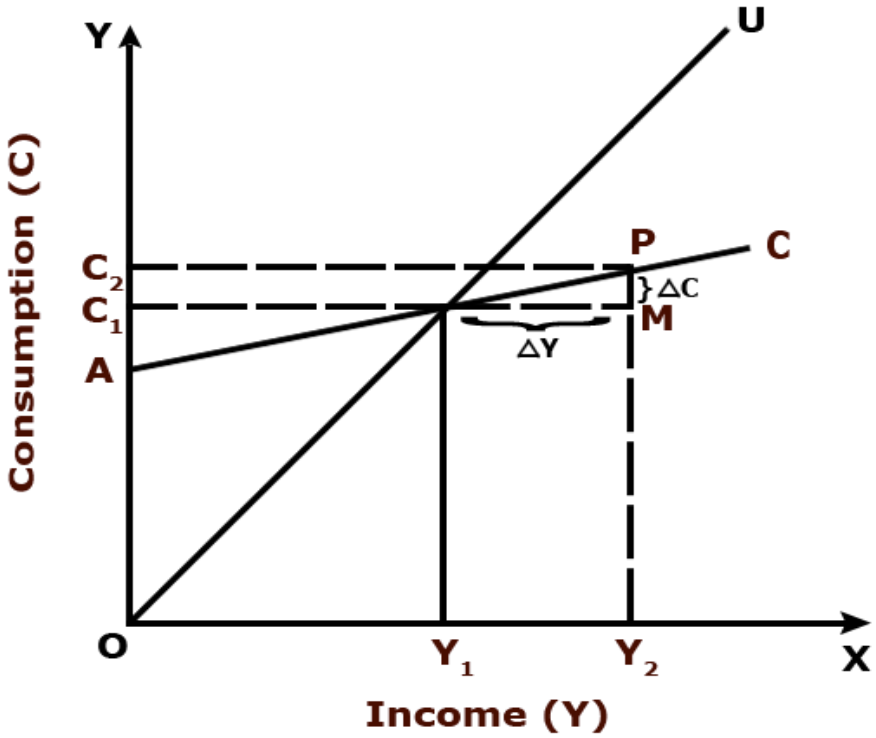
According to Keynes, the propensity to consume is a fairly stable function of income with the marginal propensity to consume being *positive but less than unity*. Keynes, however, did not state what would be the exact nature of the MPC within the limits laid down.

- The MPC may rise, fall or remain constant between the limits set.
- However, he implicitly stated that the MPC will *not* be constant when cyclical fluctuations cause change in objectives factors determining the propensity to consume.

Graphical Measurement of APC and MPC:

Diagrammatically, the average propensity to consume is measured at a single point on the C curve. In Figure below, it is determined at Point A (where C/Y gives APC).

Figure:



The marginal propensity to consume, on the other hand, is measured by the slope or gradient of the C curve, i. e., the consumption function schedule or curve. To ascertain the slope of the C curve, we draw a horizontal line through A, the previous consumption Income point, and then measure vertically to the tangent P, the changed consumption-income point. We shall find that the ratio of the vertical length PM to the horizontal length AM is 0.8.

Empirical relationship between APC and MPC:

The two consumption propensities are closely inter-related:

- When the MPC is constant, the consumption function is linear, i.e., a straight line curve. The APC will also be constant only if the consumption function passes, through the origin. When it does not pass through the origin, the APC will not be constant.
- As income rises, the MPC also falls, but it falls to greater extent than the APC.

- As income falls, the MPC rises. The APC will also rise but at a slower rate.

Fisher's Inter-temporal Choice Model:

Irving Fisher developed the theory of inter-temporal choice in his book *Theory of interest* (1930). Fisher's model showed how rational forward looking consumers choose consumption for the present and future to maximize their lifetime satisfaction.

According to Fisher, an individual's impatience depends on four characteristics of his income stream:

- the size,
- the time shape,
- the composition and
- risk.

Besides this, foresight, self-control, habit, expectation of life, and bequest motive (or concern for lives of others) are the five personal factors that determine a person's impatience which in turn determines his time preference.

As the selection of consumers change over time we take consumption in one period as a composite commodity. Suppose there is one consumer, '**N**' commodities, and two periods. Preferences are given by

$$\mathbf{U = (x_1, x_2)}$$

where $x_t = (x_{t1}, \ldots x_{tN})$.

Income in period t is Y_t. Savings in period 1 is S_1, spending in period t is C_t, and r is the interest rate. If the person is unable to borrow against future income in the first period, then he is subject to separate budget constraints in each period:

$$\mathbf{C_1 + S_1 \leq Y_1} \quad \ldots\ldots\ldots\ldots\text{(i)}$$

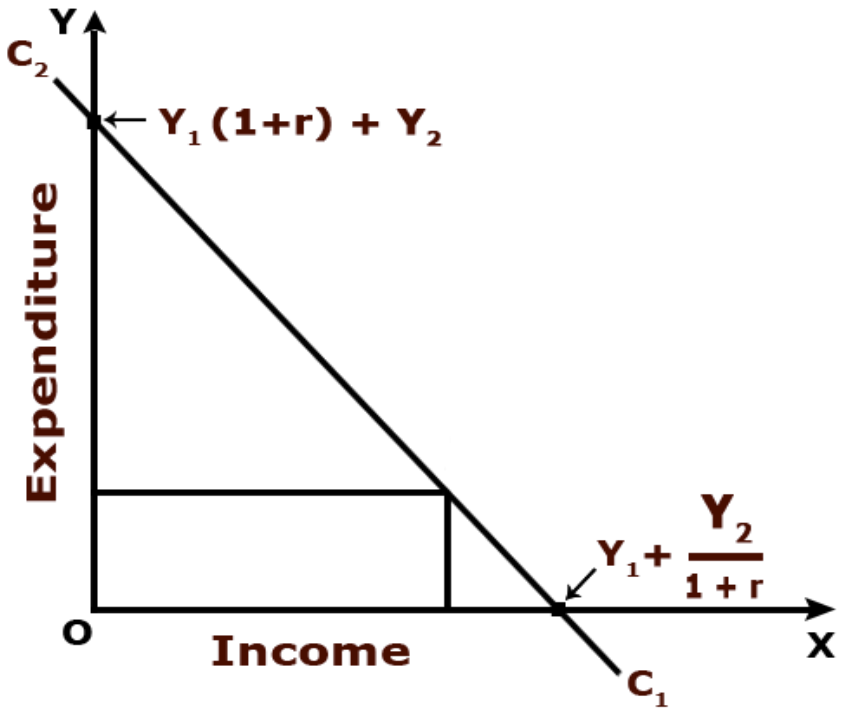
$$\mathbf{C_2 \leq Y_2 + S_1(1+r)} \quad \ldots\ldots\ldots\ldots\text{(ii)}$$

On the other hand, if such borrowing is possible then the person is subject to a single inter-temporal budget constraint:

$$\mathbf{C_1 + C_2/1+r = Y_1 + Y_2/1+r} \quad \ldots\ldots\ldots \text{(iii)}$$

The left hand side shows the present value of expenditure and right hand side depicts the present value of income. Multiplying the equation by (1+ r) would give us the corresponding future values.

Figure:



In this fig. the y-axis represents C_2 and the x- axis represents C_1. The st. line linear curve has two points which cuts the y-axis at the eqn. $y_1(1+r)+y_2$ and the x-axis at $y_1+y_2/1+r$

Now the consumer has to choose a C_1 and C_2 so as to

Maximize

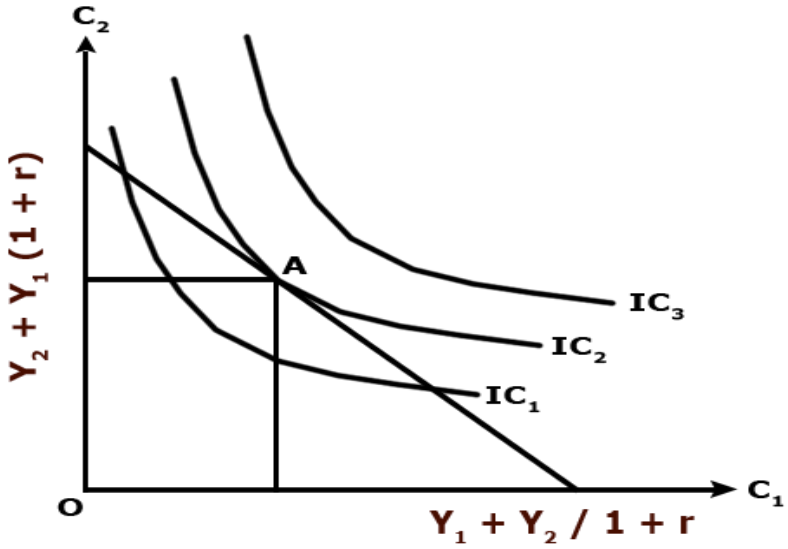
$U = C_1 + C_2$ subject to

$C_1+C_2/1+r = Y_1+Y_2\ (1+r)$

A consumer may be a net saver or a net borrower. If he is initially at a level of consumption where he's neither a net borrower nor a net saver, an increase in income may make him a net saver or a net borrower depending on his preferences.

We can understand this with the help of a fig.

Figure:



In this fig. we can see that x-axis represents C_1 and y-axis represents C_2. In the straight line curve which is $y_2+y_1(1+r)$ which touches $y_1 + y_2/1+r$. In this fig. three indifference curves are seen and the equilibrium point seen is point A.

If the consumer is a net saver, he will save more in the current period due to the substitution effect and consume more in the current period due to the income effect. The net effect thus becomes uncertain If the consumer is a net borrower, however, he will tend to

consume less in the current period due to the substitution effect and income effect thereby reducing his overall current consumption.

Summary:

In today's session we have studied about the basics of

consumption function- It is defined as the relationship between real disposable income and consumer spending.

saving function- The saving function is just disposable income minus the consumption function. It is also equal to the amount of induced saving minus autonomous consumption.

average propensity to consume- The ratio of aggregate or total consumption to aggregate income in a given period of time.

The marginal propensity to consume (MPC)- It is the proportion of an aggregate raise in pay that a consumer spends on the consumption of goods and services, as opposed to saving it.We also studied the relationship between APC and MPC. We have also studied about the Fisher's Inter-temporal Choice Model during this session.

References:

- Ahuja H.L, Macroeconomics: Theory and Policy S.Chand Publications, New Delhi.
- Blanchard, O & Johnson (2005) "Macroeconomics - (6th Edition)", Pearson Education, New Delhi.
- Dornbusch and Fischer "Macroeconomics",6th Edition, McGraw Hill, Inc. Newyork.
- Website Links

https://www.boundless.com/economics

http://www.yourarticlelibrary.com/economics/consumption-function-meaning-properties-and-other-details-keynesian-economics/29147/

https://en.wikipedia.org/wiki/Marginal_propensity_to_consume

Glossary:

Consumption function: It is defined as the relationship between real disposable income and consumer spending.

APC: The ratio of aggregate or total consumption to aggregate income in a given period of time.

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

Assignments:

- To explain the concept of consumption function.
- To explain the concept of APC and MPC.
- To explain Fisher's inter-temporal choice model.

Frequently asked questions:

Q: Define consumption function.

The consumption function or propensity to consume refers to income consumption relationship. It is a "functional relationship between two aggregates, i.e., total consumption and gross national income."

Q: State the two propositions of consumption function.

- As income increases consumption expenditure increases but less proportionately.
- Rate of Increase or decrease in savings will depend on the increase or decrease of income.

Q: Explain APC.

The average propensity to consume refers to the percentage of income that is spent on goods and services rather than on savings

Q: Define MPC.

The concept that the increase in personal consumer spending (consumption) occurs with an increase in disposable income.

Q: Relationship between APC and MPC.

- As income rises, the MPC also falls, but it falls to greater extent than the APC.
- As income falls, the MPC rises. The APC will also rise but at a slower rate.

MCQs:

1. The proportion between total income and total consumption is called:

a. **Average propensity to consume**
b. Marginal propensity to save
c. Marginal propensity to consume
d. Average propensity to save

2. The proportion between incremental income and incremental consumption is called:

a) APC
b) MPS
c) APS
d) **MPC**

3. APC + APS is equal to:

a) 0
b) **1**
c) >0
d) <0

4. 1- MPC is called:

a) APC
b) MPC
c) APS
d) **MPS**

5. As income increases consumption also increases, but:

a) Proportionately
b) Equally
c) More than income
d) **Less than income**

6. Income is always bifurcated in two _____&_____.

a) **Consumption & Savings** b) Expenditure and Income

c) Saving & Investment d) Consumption and expenditure

7. As income falls, the MPC _____. The APC will also _____ but at a_____ rate.

a) **Rises, rise & slower** b) rises, falls & higher

c) Falls, falls & higher d) Falls, rise & slower

8. Consumption expenditure directly varies with:

a) Savings b) **Disposable income**

c) Investment d) Rate of interest

9. Keynes strongly argued for:

a) Free Trade b) Laissez-faire

c) Non-intervention of Government d) **Governmental intervention**

10. As income rises, the MPC also _____, but it _____ to _____ than the APC.

a) Rises, falls & less **b) Falls, falls & greater**

c) Falls, rises & greater **d)** Rises, rises & greater

LORs:

LOR 1:

The psychological law of consumption is based on the following propositions:

- As income increases consumption expenditure increases but less proportionately.
- Rate of Increase or decrease in savings will depend on the increase or decrease of consumption.

LOR 2:

According to Fisher, an individual's impatience depends on four characteristics of his income stream:

- the size,
- the time shape,
- the composition and
- risk.

LOR 3:

The average propensity to consume is defined as the ratio of aggregate or total consumption to aggregate income in a given period of time. Thus, the value of average propensity to consume for any income level, may be found by APC = $\frac{C}{Y}$

LOR 4:

The two consumption propensities are closely inter-related:

- When the MPC is constant, the consumption function is linear, i.e., a straight line curve. The APC will also be constant only if the consumption function passes, through the origin. When it does not pass through the origin, the APC will not be constant.
- As income rises, the MPC also falls, but it falls to greater extent than the APC.

As income falls, the MPC rises. The APC will also rise but at