
CHAPTER II

CONSUMPTION FUNCTION: CONCEPTUAL ISSUES AND THEORIES

CONSUMPTION FUNCTION: CONCEPTUAL ISSUES AND THEORIES

“Consumption is the sole end and purpose of all production.”

- (Smith, 1776, p. 363)

2.1 INTRODUCTION

A pertinent microeconomic question that each household faces is what part of their income they must consume and what part must they save. The answers to this gives insight into the decision making of individuals and a congregation of these responses also has macroeconomic consequences. Households’ consumption decisions have significant impact on the way economy as a whole behaves both in long and short run.

Consumption refers to the final purchase of goods and services by individuals or households. A deep study of consumption is important for two significant reasons. Firstly, consumption is a major constituent of aggregate demand and accounts for 58% (Database on Indian Economy, RBI, 2014-15) of the aggregate demand and thus it is important to understand what determines consumption. Secondly, income that is not consumed is saved and savings have a huge bearing on the growth of an economy.

GDP of an economy as the name suggests is the sum total of goods and services produced and the yearly growth rate of GDP is the major yardstick or benchmark to judge the economic growth of the country. The major constituents of the GDP growth are (a) Consumption, (b) Government Spending, (c) Investments (d) Net exports. Out of all these factors responsible for GDP growth, consumption is dominant part contributing to GDP growth.

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

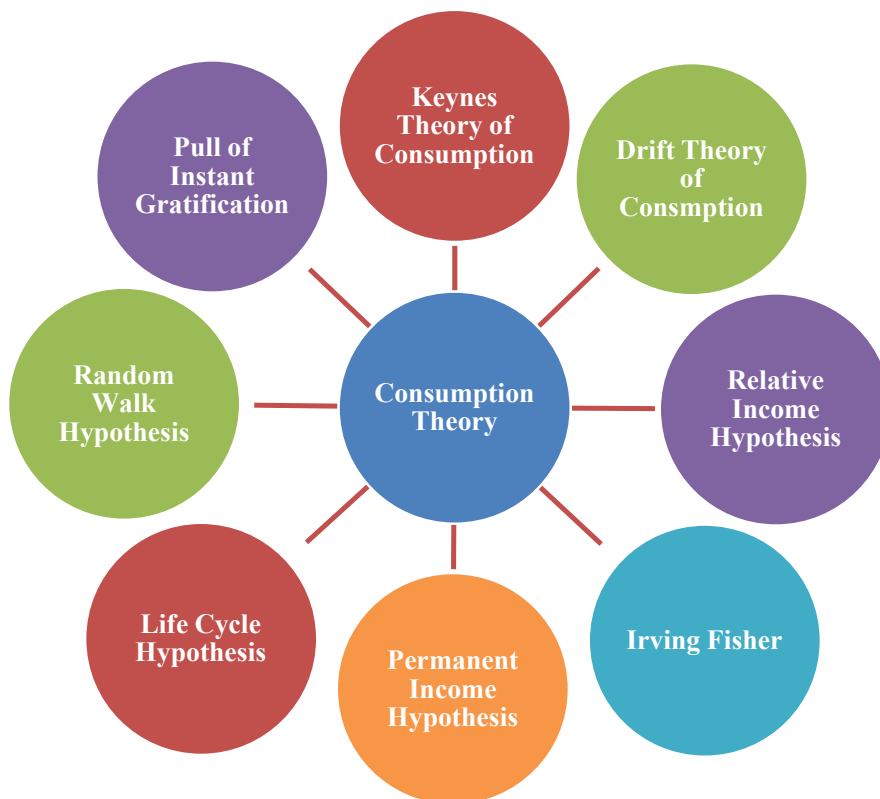
where, C = Consumption, I = Investment, G = Government Spending, X= Export and M = Import

This chapter is further divided into four sections. In Section 2.2, we will study Keynes Psychological law of consumption, its propositions, determinants, assumptions, importance or implications, its conjectures, empirical study including early empirical

study and Kuznets puzzle. Section 2.3 presents the reconciliation of short run and long run consumption function, this section goes on to look at the drift theory of consumption, relative income hypothesis, Irving Fisher hypothesis, permanent income hypothesis and life cycle hypothesis. Further Section 2.4 studies the other theories on consumption i.e. Robert E. Hall’s Random Walk Hypothesis and David Laibson Pull of Instant Gratification. Section 2.5 will summarize the chapter.

Thus this chapter will focus on the theories as presented in Figure 2.1.

Figure 2.1 Consumption Theories



Source: Researcher’s own Compilation.

2.2 CONCEPTUAL FRAMEWORK OF KEYNES CONSUMPTION FUNCTION

2.2.1 Concept of Consumption Function

The consumption function refers to income consumption relationship. It is a “functional relationship between two aggregates, i.e., total consumption and gross national income.” Symbolically, the relationship is represented as, $C = f(Y)$, where C is consumption, Y is income, and f is the functional relationship. Thus the consumption

function indicates a functional relationship between C and Y, where C is the dependent and Y is the independent variable, i.e., C is determined by Y. This relationship is based on the *ceteris paribus* (other things being equal) assumption, as such only income consumption relationship is considered and all possible influences on consumption are held constant.

2.2.2 Properties or Technical Attributes of the Consumption Function

The consumption function has two technical attributes or properties:

- (i) the average propensity to consume (APC), and
- (ii) the marginal propensity to consume (MPC).

2.2.2.1 Average Propensity to Consume

“The average propensity to consume may be defined as the ratio of consumption expenditure to any particular level of income.” It is found by dividing consumption expenditure by income, or $APC = C/Y$, where C = Consumption and Y = Income. It is expressed as the percentage or proportion of income consumed.

Table 2.1 Average and Marginal Propensity to Consume

(Rs. Crores)					
Income (Y)	Consumption (C)	APC (C/Y)	APS (1-APC)	MPC ($\Delta C/\Delta Y$)	MPS (1-MPC)
200	200	$200/200 = 1$	0	-	-
300	280	$280/300 = 0.93$	0.07	$80/100 = 0.8$	0.2
400	360	$360/400 = 0.9$	0.1	$80/100 = 0.8$	0.2
500	440	$440/500 = 0.88$	0.12	$80/100 = 0.8$	0.2
600	520	$520/600 = 0.87$	0.13	$80/100 = 0.8$	0.2

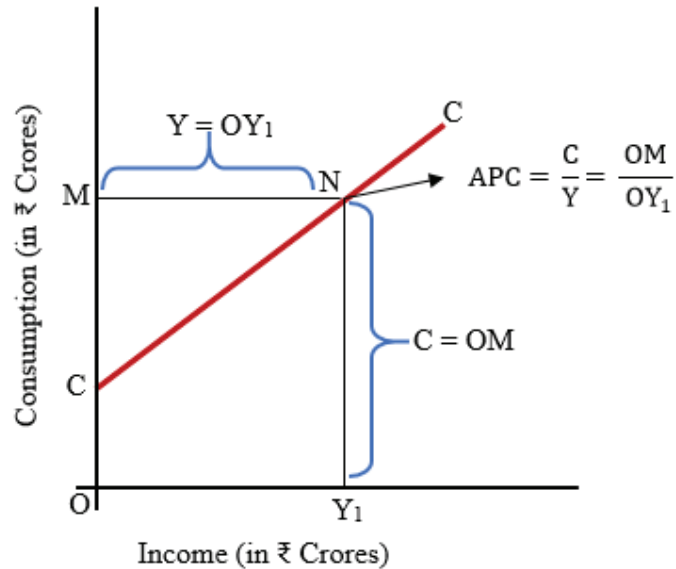
Source: Researcher’s own calculation.

Table 2.1 shows the APC at various income levels. The APC declines as income increases because the proportion of income spent on consumption decreases. If consumption expenditure is Rs. 200 and income is also Rs. 200, then $APC = C/Y$ or $200/200 = 1$, i.e. 100% of the income is spent on consumption.

But reverse is the case with average propensity to save (APS) which increases with increase in income. Thus the APC also tells us about the APS, $APS=1-APC$.

Diagrammatically, the average propensity to consume is C/Y , as shown in Figure 2.2. Income is measured on X-axis and consumption is measured on Y-axis. CC is the consumption curve. At point N on the consumption curve CC, $APC = OM/OY_1$.

Figure 2.2 Measurement of Average Propensity to Consume



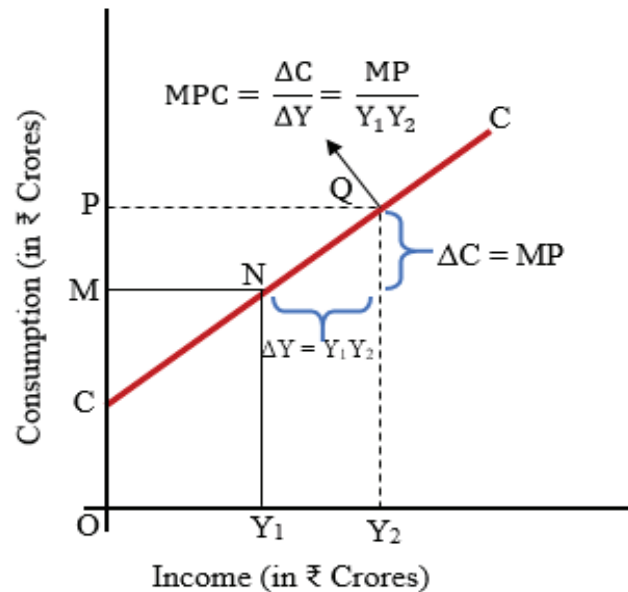
2.2.2.2 Marginal Propensity to Consume

“The marginal propensity to consume may be defined as the ratio of the change in consumption to the change in income or as the rate of change in the average propensity to consume as income changes.” It can be found by dividing change in consumption by a change in income, or $MPC = \Delta C/\Delta Y$, where Δ denotes change (increase or decrease), C = Consumption and Y = Income.

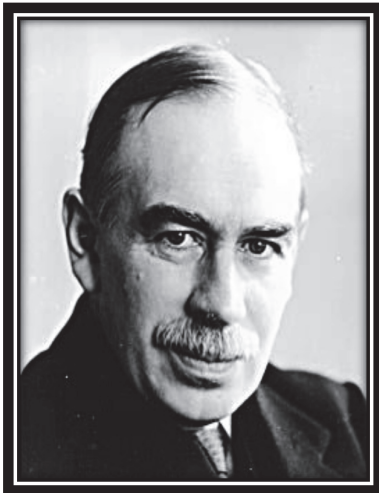
Table 2.1 shows that the marginal propensity to consume (MPC) is constant at all levels of income. It is 0.8 or 80% because the ratio of change in consumption to change in income is $\Delta C/\Delta Y = 80/100$. The marginal propensity to save (MPS) can be derived from the MPC by the formula $1 - MPC$. It is 0.2 in our example.

Diagrammatically, the marginal propensity to consume is measured by the slope of the CC curve. This is shown in Figure 2.3. The marginal propensity to consume is MP/Y_1Y_2 , where MP is change in consumption (ΔC) and Y_1Y_2 is change in income (ΔY).

Figure 2.3 Measurement of Marginal Propensity Consume



2.2.3 Keynes Psychological Law of Consumption



Keynes in his book “The General Theory of Employment, Interest and Money,” 1936, postulated that aggregate consumption is a function of aggregate current disposable income. Keynes emphasized on absolute size of income as a determinant of consumption, his theory of consumption is also known as absolute income theory. The relation between consumption and income is based on his fundamental psychological law of consumption which states that when income increases, consumption

expenditure also increase but by a somewhat smaller amount. “The psychology of the community is such that when aggregate real income is increased, aggregate consumption is increased, but not by so much as income” (Keynes, 1936). Further Keynes in his General Theory of Employment, Interest and Money (1936) remarked,

“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 are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their

incomes”. This law was popularly known as ‘Propensity to Consume’ and subsequent writers called it ‘Consumption Function.’

2.2.3.1 Keynes’ Psychological Law of Consumption: Three Related Propositions (Kennedy, 2011, p. 129)

Proposition 1:

“When the aggregate income increases, consumption expenditure also increases but by a somewhat smaller amount. The cause is that as income increases, our wants have already been satisfied side by side, so there is less need to increase consumption in proportion to the increase in income. It means consumption expenditure will increase by somewhat smaller amount with increase in income.”

This proportion shows, $\Delta C < \Delta Y$.

Proposition 2:

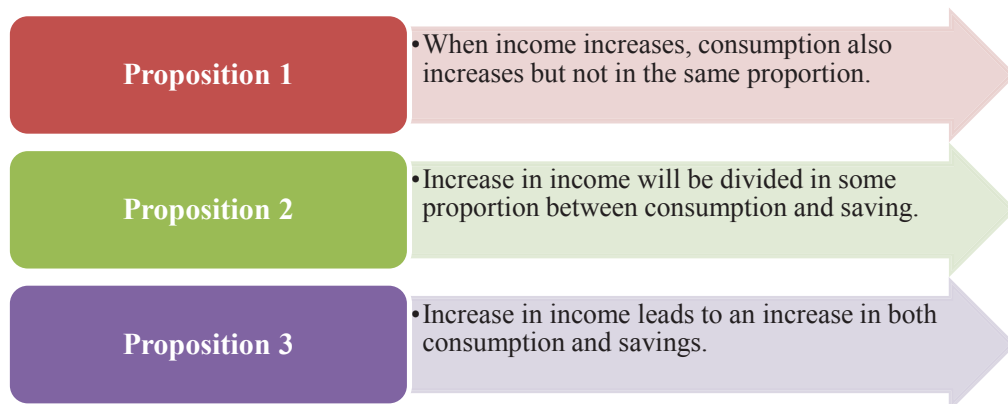
“An increase in income is divided in some proportion between consumption expenditure and saving. It means that income increases will either be consumed or saved. This proposition follows the above proposition, as what is not spent on consumption is saved.”

Proposition 3:

“With the increase in income both consumption spending and saving go up. This means that increase in income is unlikely to lead either to fall in consumption or saving than before it, therefore, emphasizes the short run stability of the consumption function.”

Figure 2.3 summarizes Keynes’ three propositions.

Figure 2.3 Summary of Keynes’ Three Propositions



Source: Researcher’s own Compilation.

Explanation with the help of schedule and diagram.

The three proposition of the law can be explained with the help of an example presented in Table 2.2.

Table 2.2 Proposition of Keynes' Law

(Rs. Crores)		
Income (Y)	Consumption (C)	Savings (S=Y-C)
0	40	-40
100	120	-20
200	200	0
300	280	20
400	360	40
500	440	60
600	520	80

Source: Researcher's own calculation

Proposition 1:

Income increases by Rs. 100 crores and the increase in consumption is by Rs 80 crores. The consumption expenditure increases from Rs. 280 to 360, 440 and 520 crores against increase in income from Rs. 300 to 400, 500 and 600 crores. Hence, $\Delta C < \Delta Y$.

Proposition 2:

The increased income of Rs 100 crores in each case is divided in some proportion between consumption and saving (i.e. Rs 80 crores and Rs 20 crores).

Proposition 3:

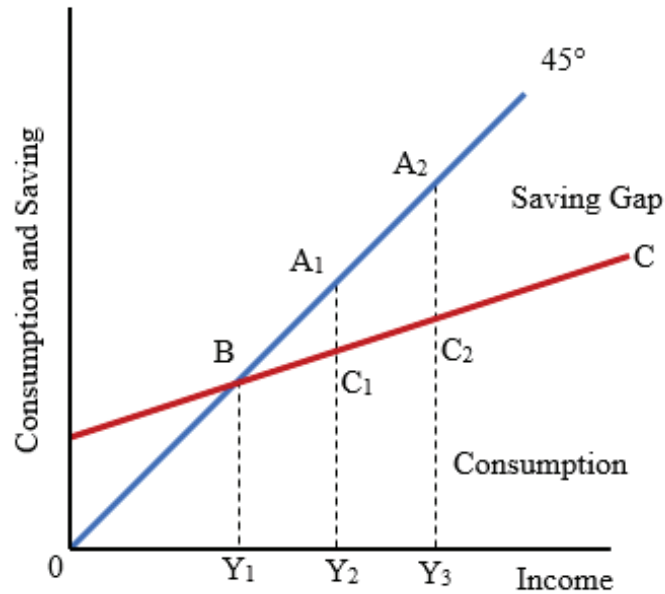
As income increases from Rs. 200 to 300, 400, 500 and 600 consumption also increases from Rs. 200 to 280, 360, 440, 520 crores, along with increase in saving from Rs. 0 to 20, 40, 60 and 80 crores respectively. With increase in income neither consumption nor saving have fallen.

The three propositions are explained diagrammatically with the help of Figure 2.4. Here, income is measured on X-axis and consumption and saving are on Y-axis. C is the consumption function curve and 45° line where $Y = C$.

Proposition 1:

When income increases from OY_1 to OY_2 consumption also increases from BY_1 to C_1Y_2 but the increase in consumption is less than the increase in income, i.e., $C_1Y_2 < A_1Y_2 (= OY_2)$ by A_1C_1 .

Figure 2.4 Keynes' Three Propositions



Proposition 2:

When income increases to OY_2 and OY_3 , it is divided in some proportion between consumption C_1Y_2 and C_2Y_3 and saving A_1C_1 and A_2C_2 respectively.

Proposition 3:

Increase in income from OY_2 to OY_3 lead to increased consumption $C_2Y_3 > C_1Y_2$ and increased saving $A_2C_2 > A_1C_1$ than before. It is clear from the widening area below the C curve and the saving gap between 45° line and the C curve.

2.2.4 Keynes Conjectures

Keynes wrote in the 1930, at that time he didn't have the advantage of the data nor the computers necessary to analyses data sets. Keynes "discovered" this law not by statistical analysis of data (there were no time series of national income and product data at that time) but simply by casual observation and introspection. But today, economists study is based on sophisticated techniques of data analysis. They analyses aggregate data from the national income accounts and from surveys with the help of computers and statistical software.

Following are the conjectures made by Keynes.

Conjecture 1

Regarding the marginal propensity to consume (MPC), he conjectured that MPC is between 0 and 1 ($0 < MPC < 1$), where MPC is “the additional amount of consumption from additional amount of income.” If an individual’s income increases, then he will spend a part of the incremental income and save some.

Conjecture 2

Keynes assumed that the average propensity to consume (APC), which is “the ratio of consumption to income decreases with an increase in income.” He considered saving as a luxury which could be afforded by the higher income groups. Thus he expected APC to fall with rise in income.

Conjecture 3

Keynes considered income as the primary determinant of consumption, further he thought that interest rate does not have a bearing on consumption. Knowing that higher interest rates encourage savings and discourage consumption, he admitted that theoretically interest rate could influence consumption. He noted that, “the main conclusion suggested by experience, I think, is that the short-period influence of the rate of interest on individual spending out of a given income is secondary and relatively unimportant” (Keynes, 1936).

On the basis of above conjectures Keynes consumption function is written as:

$$C = a + bY, \quad a > 0, \quad 0 < b < 1$$

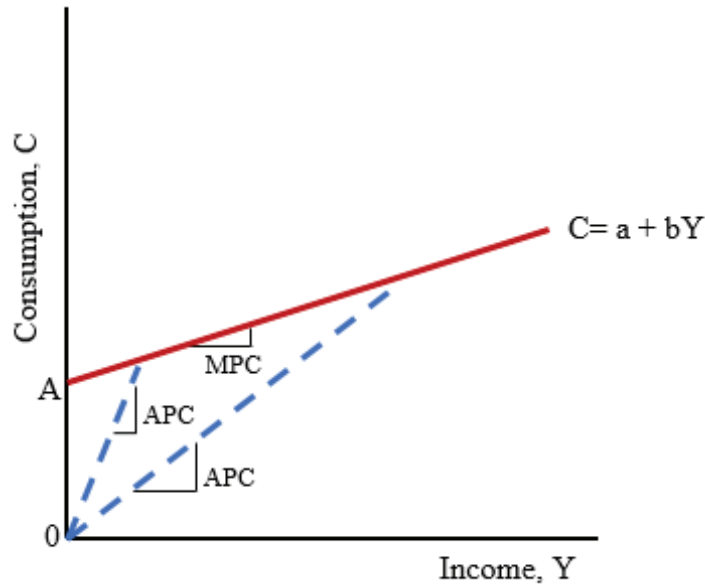
Where C is the consumption expenditure, Y is the disposable income, ‘a’ is the intercept term, a constant which measures consumption at a zero level of disposal income. Thus ‘a’ is autonomous consumption. The parameter ‘b’ is the marginal propensity to consume (MPC), which measure the increase in consumption spending in response to per unit increase in disposable income.

Graphically this consumption function can be represented as a straight line, as shown in Figure 2.5.

Conjecture 1

Keynes’s first conjecture that marginal propensity to consume is between 0 and 1 is satisfied by the above graph. Thus with a rise in income, consumption and savings both will increase.

Figure 2.5 Keynes Consumption Function



Conjecture 2

The said figure satisfies Keynes’s second conjecture, the average propensity to consume falls with the rise in income. As shown in the graph,

$$APC = C/Y = a/Y + b \quad (C = a + bY).$$

As income rises a/Y falls leading to a fall in the APC.

Conjecture 3

And finally, this consumption function satisfies Keynes’s third conjecture because Keynes identifies income as the only determinant of consumption and disregards interest rate as the determinant.

2.2.5 Assumptions of Keynes Consumption Function

Keynes's Law is based on the following assumptions (Chaturvedi and Mittal, 2013, p. 37).

2.2.5.1. Stable Psychological and Institutional Factors

This law assumes that the psychological and institutional factors like social customs, population growth, tastes, price movements, habit, etc. influencing consumption expenditure remain constant. These factors do not change in the short run and income is the only determinant of consumption. The fundamental cause of the stable consumption function is the constancy of these factors.

2.2.5.2. Normal Conditions

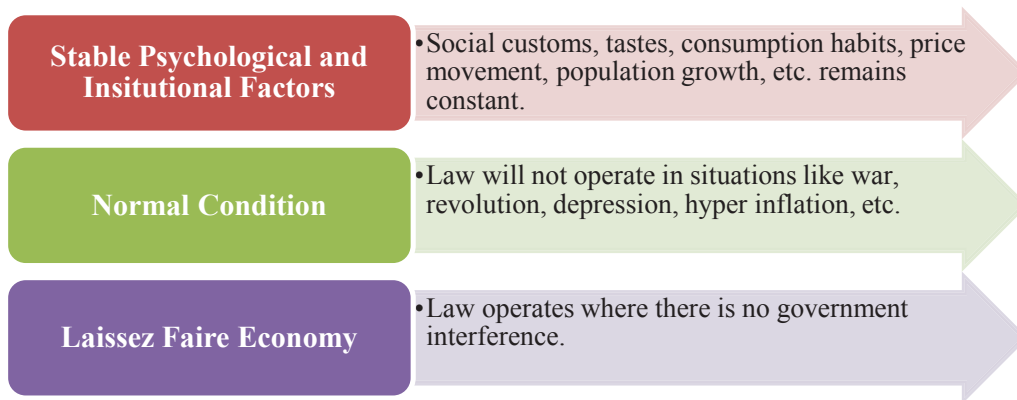
The law holds well under normal conditions but under abnormal and extraordinary circumstances like hyperinflation, war or revolution, the law will not operate. People may spend the whole of increased income on consumption.

2.2.5.3. Laissez Faire Economy

The French term 'Laissez Faire' means 'leave alone'. The term refers to an economic system where the transactions among private parties are free of government intervention. The government invention could be the form of licensing, subsidies or tariffs. The idea was that in free market capitalism the less the government intervention the better it would be for businesses and put collectively the society as a whole would be better off. As a law, it's essentially operative only in capitalist economies and breaks down in socialist or regulated economies.

Summary of the assumption is captured in Figure 2.6.

Figure 2.6 Summary of the Assumptions of Keynes Consumption Function



Source: Researcher’s own Compilation

Professor Kurihara opines that “Keynes’s law based on these assumptions may be regarded as a rough approximation to the actual macro-behaviour of free consumers in the normal short period” (as cited in Jain and Khanna, 2007, p. 126).

2.2.6 Implication of Psychological Law of Consumption or Importance of Keynes’s Law

According to Prof. A.H. Hansen (1946, p. 183), “Consumption function is an epoch making contribution to the tools of economic analysis, analogous to, but even more important than, Marshall’s discovery of the demand function”. Keynes's psychological

law underscores the importance of the consumption function since the latter is, based on the former. It has immensely important – both theoretically and practically. All countries, work towards removing unemployment, raising national income and enjoying prosperity. A well planned economic development policy is essential to meet this purpose. In formulation of this policy, consumption function plays a very important role (Jain and Khanna, 2007, p. 128).

2.2.6.1 Say's Law of Market

Say's law of markets which is the fundamental basis of classical theory of income and employment, states that "Supply creates its own demand". Hence, there is no scenario of unemployment and over production. Consumption function establishes that the increase in additional income does not fully result into increase in consumption goods. Hence, according to Keynes, "supply does not create its own demand." Instead, it very often exceeds it and creates a surplus of goods which causes over production and mass unemployment.

2.2.6.2 Role of Investment in Employment Theory

According to Keynes, employment level can be increased by raising consumption and investment. But consumption function in the short term remains almost constant and hence may be assumed as given. Thus, investment is the vital factor in determining the employment level.

2.2.6.3 Turning Points of the Business Cycle

During the economic boom period, despite an increase in income, consumption expenditure does not increase in the same proportion. Hence, there is a rise in savings and decline in demand which correspondingly leads to a period of economic downturn. Similarly, during the period of slump, while there is a decline in income, expenditure on consumption does not decline to the full extent of the fall in incomes. This leads to period of economic boom.

2.2.6.4 Tendency of Marginal Efficiency of Capital

In rich advanced countries, the Marginal Propensity to Consume (MPC) is < 1 . Hence, Marginal Efficiency of Capital (MEC) shows a downward trend. This is because as income increases, expenditure declines, savings increase, demand drops, production declines, profits fall – ultimately resulting in a decline in MEC. Hence, economic growth declines with a decline in investment.

2.2.6.5 Secular Stagnation

Typically, the MPC is low and Marginal Propensity to Save (MPS) is high in most of the developed nations. The gap between income and consumption continues to increase compelling an increase in investment. Similar to the propensity to consume, propensity to save also tends to be stable and reduces over time. Thus, the economy will come to a stage where it will be unable to fully and effectively use its savings for promoting full employment. Keynes refers to this as “Secular Stagnation”.

2.2.6.8 Value of Multiplier

Multiplier's value is derived from consumption function. $K = 1/1-MPC$ or $1/MPS$. This helps us understand the multiplier effect. Since the MPC is less than 1, the increase in national income is not directly equal to the investment. The multiplier effect declines when consumption expenditure drops in an economy.

2.2.6.9 Under-Employment Equilibrium.

Since MPC is less than unity, the consumers do not spend the full increase in income on consumption. Effective demand becomes insufficient to lead to a full employment equilibrium. Thus, the economy remains at under employment.

2.2.6.10 State Intervention.

The economy is not self-adjusting to the situations that arises from lack of consumption like over production and unemployment. Hence, government intervention becomes indispensable. Thus, consumption function helps us to analyse the income generation process, growth in employment levels, need for the government involvement and a very high level of investment to maintain national income and employment.

2.2.7 Determinants of Consumption Function

Keynes refers two primary factors which influence the consumption function and define its slope and position. These are subjective and objective factors. The subjective factors are internal or endogenous to the economic system, they include psychological features of the human nature, social arrangements and social practices and institutions. They “are unlikely to undergo a material change over a short period of time except in abnormal or revolutionary circumstances.” They therefore, determine the slope and position of the C curve which is almost stable in the short-run (Keynes, 1936).

The objective factors are external or exogenous to the economic system. These factors may experience swift changes and may cause noticeable shifts in the consumption function (i.e., the C curve).

2.2.7.1. Subjective Factors

The subjective factors can further be studied under Individual and Business motives.

2.2.7.1.1 Individual Motives:

There are eight motives “which refrain individuals from spending out of their incomes.”

They are:

- (i) The desire to accumulate funds for unexpected contingencies;
- (ii) The desire to make provisions for expected future needs, i.e., old age, sickness, etc.;
- (iii) The desire to enjoy a large future income through interest and appreciation;
- (iv) The desire to improve the standard of living by gradually increasing expenditure;
- (v) The desire to enjoy a sense of independence and power to do things;
- (vi) The desire to secure a “masse de manoeuvre” to undertake speculative or business projects;
- (vii) The desire to pass on a fortune; and
- (viii) The desire to fulfil a pure miserly instinct.

2.2.7.1.2 Business Motives:

Keynes lists four motives for accretion on their part:

- (i) Enterprise – the desire to expand business and do big things;
- (ii) Liquidity – the desire to meet contingencies and problems;
- (iii) Income raise/Bonus – the desire to accumulate large income and highlight the efficiency and effectiveness of the management;
- (iv) Financial prudence – the desire to provide sufficient financial resources to offset depreciation and obsolescence, and to repay debt;

These factors see less variations and are fairly constant during the short-term, which in turn keeps the consumption function stable.

In the words of Keynes (1936), “Those psychological characteristics of human nature and those social practices and institutions which, though not unalterable, are unlikely

to undergo a material change over a short period of time except in abnormal or revolutionary circumstances.”

2.2.7.2. Objective Factors

Objective factors are subject to quick changes and lead to significant shifts in the consumption function, they are as below:

2.2.7.2.1. Windfall Gains or Losses

Consumption level of people may change suddenly when they realize windfall gains or losses. For example, the post-war windfall gains in stock markets seem to have raised the consumption spending of rich people in the U.S.A., and correspondingly, the consumption function shifted upwards.

2.2.7.2.2. Fiscal Policy

The propensity to consume is also impacted by changes in fiscal policy of the government. For instance, levy of heavy taxes tends to lower the disposable real income of people; so consumption level may adversely change. Conversely, withdrawal of certain taxes may lead to an upward shift of consumption function.

2.2.7.2.3. Change in Expectations

The propensity to consume is also impacted by prospective changes. For example, an anticipated war substantially influences consumption by building fears regarding future scarcity and rising prices. This leads to hoarding as people buy more than they immediately need. Thus, the ratio of consumption to current income will increase, implying that the consumption function will be shifted upwards.

2.2.7.2.4. The Rate of Interest

In the long term, considerable changes in the market rate of interest may also impact consumption. A significant increase in the rate of interest may encourage people to take advantage of the higher interest rate and save more, thereby reducing the consumption at each income level. Moreover, if the interest rate increases, then the lending of the current savings (realised from lower consumption) will allow one to obtain an even greater quantity of consumption goods in the future. Keynes, thus, argues that “Over a long period, substantial changes in the rate of interest probably tend to modify social habits considerably.”

In addition to above factors, Keynes also referred to changes in wage levels, in accounting practices with respect to depreciation (indicating the difference between income and net income), as the objective factors affecting the consumption function.

Keynes' followers, however considered his set of objective factors as inadequate and included additional factors as mentioned below:

1. The Distribution of Income

With a given level of income, total consumption will vary if income is distributed differently among the people. A community with a high unequal distribution of income is likely to have an overall low propensity to consume, while a high degree of equality of income will generally have a high propensity to consume.

Thus, propensity to consume is affected by the redistribution of income through fiscal measures of the State. Joan Robinson explicitly states that “the most important influence on the demand for consumption goods is the distribution of income.” Keynes does not call out income distribution as an objective factor, rather includes it under the common heading of fiscal policy.

2. Holding of Saving-Liquid Assets

According to Kurihara, “Volume of total savings is another factor affecting the consumption function” (as cited in Jain and Khanna, 2007). Greater the savings (i.e., liquid assets, like cash balances, savings accounts and government bonds), the more likely that people will likely spend out of their current income, since the holding of savings in the form of liquid assets, will provide them with a greater sense of security. A change in the real value of these liquid assets, due to changes in market prices, might also impact the consumption function.

3. Corporate Financial Policies

Kurihara points out that that business policies of companies in relation with income retention, dividend payments, and re-investments, lead to some changes in the propensity to consume of equity shareholders. A conservative dividend policy followed by companies will lower the consumption function by reducing the residual disposable income of shareholders (who are the actual consumers).

All the aforementioned factors will affect the consumption function positively or negatively. However, all of them are relatively stable in the normal short term and,

therefore, cannot explain the changes in aggregate consumption in the short term. Income is the only variable which will change noticeably in the short term and affect consumption. Thus, it may be asserted that consumption varies only with the changes in income levels.

2.2.8 Empirical Study of Consumption Function

2.2.8.1 The Early Empirical Successes

Shortly after Keynes proposed the consumption function and its conjectures, economists and statisticians took up the task of empirically verifying its propositions. They conducted primary research whereby they surveyed, collected, interpreted and analyse data collected from households. As part of their research they focused on consumption, savings and income patterns and propensities.

The findings of these research were as follows:

1. Household units with higher income consumed more, confirming that $MPC > 0$.
2. Household units with higher income saved more, confirming that $MPC < 1$.
3. Household units with higher income saved larger proportion of their income, confirming that APC falls with rise in income.
4. Very strong correlation between income and consumption and income seemed to be the main determinant of consumption.

Thus Keynes's proposition met with initial empirical success.

2.2.8.2 Empirical Contradictions

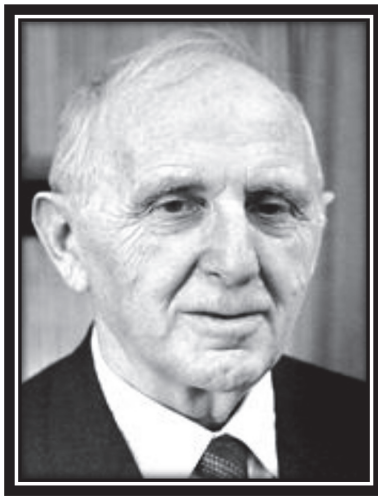
Although the Keynesian consumption function was empirically confirmed by initial studies, but it was soon confronted with anomalies. These anomalies are concerned with the Keynes's conjecture that the average propensity to consume falls as income rises.

The first exception was noticed during World War II, when some economists, based on Keynesian consumption function feared that consumption would grow more slowly than income over time resulting in decline in the average propensity to consume. Higher savings rates (lower APC) could mean a lack of aggregate demand and a return to the depression-like conditions before the war. In other words, these economists envisaged that the economy would experience what they called secular stagnation - a long

depression of indefinite duration. To overcome from this situation government needed to make up the spending deficit with fiscal expansions.

Provisionally, this prediction did not come true. After the war, as incomes grew, average propensity to consume did not fall and consumption grew at the same rate as income, means savings rates did not rise as incomes rose. So, Keynes's conjecture that average propensity to consume would fall as income increases did not hold. This was in favour of the economy, but against the Keynesian consumption function.

2.2.8.3 The Consumption Puzzle – Simon Kuznets



Noted American economist Simon Kuznets conducted empirical studies regarding consumption of the US economy for the period 1869-1938. His study was based on a cross-section of household budget data over long term time-series data. The study revealed that while the findings of Keynes' consumption function were correct over the short term, in the long term there were contradictions. These contradictions in the economic circles are often referred to as the "Consumption Function Puzzle."

Several economists attempted to resolve this puzzle and in process also put forward new theories to explain the puzzle.

Kuznets' Consumption Function

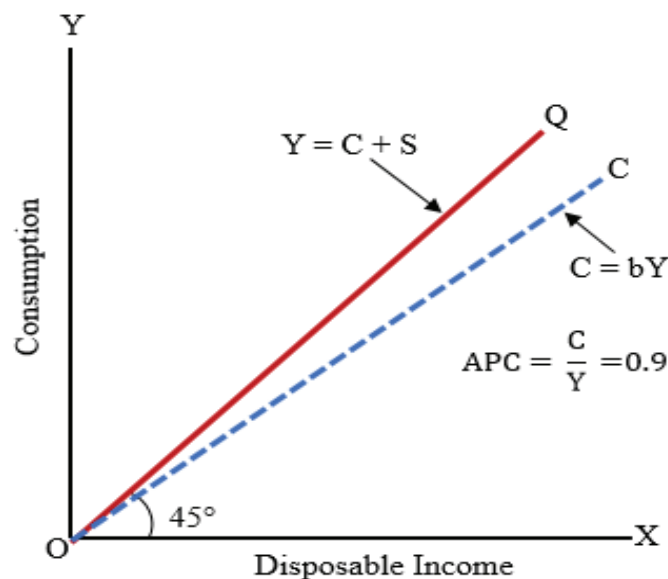
As seen, Keynes represented the consumption function as ' $C = a + bY$ ', stating that even at zero income level there will be certain consumption financed by dissavings or borrowings. Thus the average propensity to consume would also reduce as income rose.

On the other hand, Kuznets found that consumption function is of the following form, ' $C = bY$ ', where C = consumption, b = marginal propensity to consume and Y = Income. Note that in Kuznets' consumption function there exists no autonomous consumption or intercept term. As shown in Figure 2.7 Kuznets' consumption function curve begins from the origin and is quite close to 45° line depicting high propensity to consume (b).

For the period 1869-1933 Kuznets with his empirical study estimated that the average propensity to consume was nearly 0.9 (Alimi, 2013, p. 4). Further, by dividing the entire period (1869-1933) into three overlapping thirty years sub-periods Kuznets found that average propensity to consume was almost the same at about 0.87 in all the three sub periods.

Thus Kuznets concluded that there was no tendency for the average propensity to consume to decline as disposable income rises. Therefore, rounding off Kuznets findings the estimated propensity to consume is 0.9. His consumption function can be rewritten as $C = 0.9Y$.

Figure 2.7 Kuznets' Consumption Function



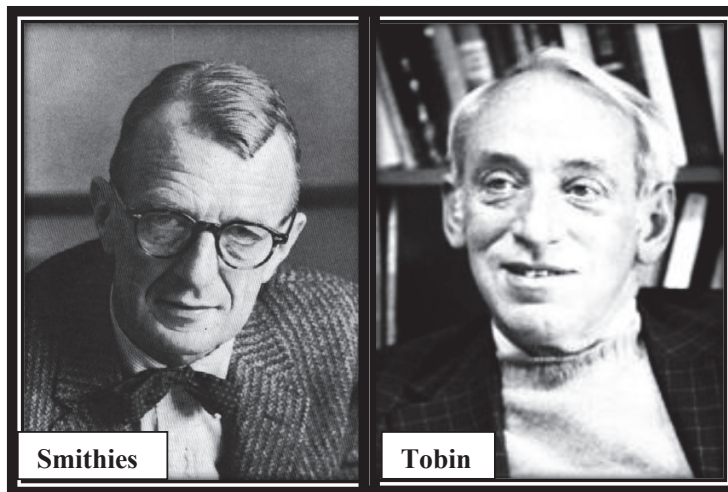
Consumption function of Keynes ($C = a + bY$) and Kuznets ($C = bY$) are different in two aspects. Firstly, as per Keynes' consumption function APC falls as income rises whereas in Kuznets' consumption function APC remains constant over a long period. Further, the marginal propensity to consume (MPC), is significantly higher in Kuznets' function when compared to that of Keynes.

In reconciliation of the two consumption functions economists have observed that while Keynes' function is a short run consumption function, 'Kuznets' function is concerned with long run and thus has been referred to as long run consumption function.

2.3 RECONCILIATION OF SHORT PERIOD AND LONG PERIOD CONSUMPTION FUNCTION

Different hypotheses have been developed by economists in order to explain the contradiction between the short run non-proportional and the long run proportional consumption-income relationship. The first attempts to reconcile the short run and long run consumption functions was made by Arthur Smithies and James Tobin followed by James S. Duesenberry in 1949, known as 'Relative Income Hypothesis.' Later on Franco Modigliani presented Life Cycle Hypothesis and Milton Friedman the Permanent Income Hypothesis in the 1950s, they also tried to solve the consumption puzzle and find out the explanations of these contradictory findings.

2.3.1 Drift Theory of Consumption



On the first noteworthy attempts to reconcile the short run and long run consumption functions was made by Arthur Smithies and James Tobin. In separate studies they tested Keynes absolute income hypothesis and

arrived at the conclusion that in the short run there exists a non-proportional relationship between consumption and income but the time series data showed that over long run the relationship is proportional.

According to Smithies and Tobin, in long run the consumption income shift results in a proportional relationship because of factors other than income. They identified the following factors that bring about the shift.

2.3.1.1 Asset Holdings

Tobin studied asset holdings as part of the household budgets across the racial divide (he assumed that the most of the so called whites held assets as against the African

migrants). He concluded that asset holdings of households was one of that factors that tends to cause an upward shift in the consumption function i.e. leads to higher propensity to consume.

2.3.1.2 New Products

Introduction of new products lead to an upward shift in consumption function. This finding was a result of studying a variety of consumer goods that were introduced post the Second World War.

2.3.1.3 Urbanization

Another reason for higher propensity to consume was the Urbanization. Wage earners in urban areas had a higher propensity to consume versus the farm workers in rural areas. After the Second World War an increased tendency was seen toward urbanization which also shifted the consumption function upwards.

2.3.1.4 Age Distribution

One of findings was that over long run there has been a continuous increase in the proportion of old people in the total population. While the old people may not be earning they do consume commodities. Therefore, an increase in their numbers has influenced to shift the consumption function upward.

2.3.1.5 Decline in Saving Motive

Development of the social security program allows households to set aside smaller portions of income for illness and old age. This leads to higher funds for consumption and shifts the consumption function upwards.

2.3.1.6 Consumer Credit

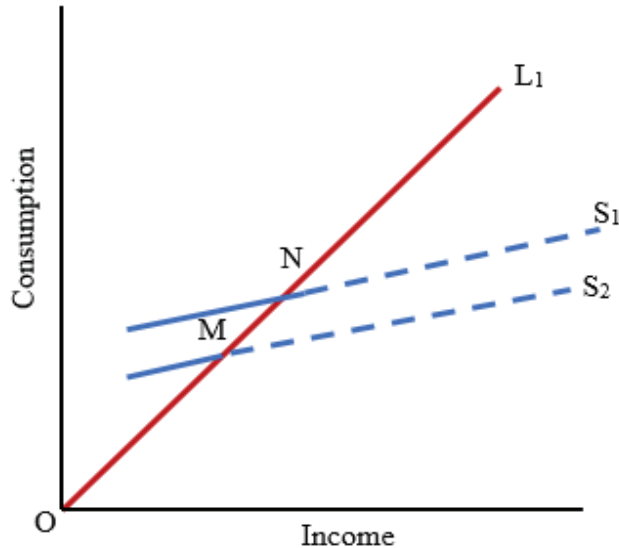
Easy availability of credit ensures that consumers do not have to save or earn first and spend later, rather they can make purchases now with payments on instalment basis, and this brings about an upward shift in the consumption function.

2.3.1.7 Expectation of Increase in Income

Workers expecting their wages to increase at a rate higher than the rate of inflation tend to factor in the expected higher incomes and consume accordingly. They consume

higher amounts in the present by either saving less or by drawing upon their existing savings or by availing short term credit. This leads to higher propensity to consume.

Figure 2.8 Drift Theory of Consumption



In the Figure 2.8, L_1 depicts the long run consumption function, given the 45 degree angle it demonstrates the proportional relationship between income and consumption. S_1 and S_2 represent the short run consumption functions, which intersect the long run function at points N and M respectively. On account of factor elaborated above the consumption function drift upward from point M to N along the long run consumption function of L_1 .

Each point on the long run consumption function represents an average of all the values of factors included in the corresponding short run functions however movement along the dotted line of S_1 and S_2 would not increase in proportion.

Shortcomings of Drift Theory of Consumption

The Drift theory of consumption holds merit for the fact that it introduces a new dimension of factors affecting consumption in addition to the income. This is significant departure from the other theories. However it has its share of shortcomings.

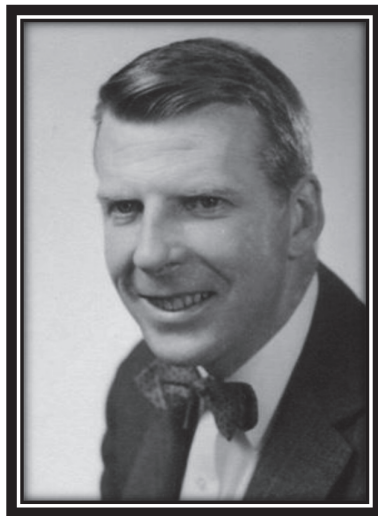
Firstly, the theory is silent on the rate of drift along the long run consumption function, most of which appear to be matter of chance.

Secondly, it is just happenstance that the other factors have the consumption function move upward to increase the propensity to consume proportionately with increase in income, such that short run averages equals a fixed proportion of income.

Thirdly, according to Duesenberry the factors mentioned are not strong enough to cause a drift.

Lastly, Duesenberry adds that any increase in propensity to consume would mean fall in the propensity to save. Given that individuals would like to save for their post retirement needs there may not be necessarily a secular trend of increase propensity to consume and proportional relationship of income and consumption.

2.3.2 The Relative Income Hypothesis



In 1949, American Economist James Duesenberry in his publication titled "Income, Saving, and the Theory of Consumer Behaviour" put forward the "relative income theory of consumption", also referred as "Relative Income Hypothesis".

Drift theory lay stress on factors other than income which affect the consumer behavior and represents a major advance theory of the consumption function. While relative income hypothesis by using the income and consumption data of 1940s argued that

consumption function is long run and proportional in nature. It means that in short run there can be deviations in income and consumption behaviour but in long run consumption to income proportion is fairly stable. The hypothesis is based on below two assumptions:

- 1) Individuals consumption behaviour pattern is interdependent on societies/other individual consumption pattern. Explained through "Demonstration Effect".
- 2) Consumption relations are irreversible. Explained through "Ratchet Effect".

Duesenberry states that "for any given relative income distribution, the percentage of income saved by a family will tend to be a unique, invariant, and increasing function of its percentile position in the income distribution. The percentage saved will be

independent of the absolute level of income. It follows that the aggregate saving ratio will be independent of the absolute level of income" (Duesenberry, 1949, pg. 3).

2.3.2.1 Demonstration Effect

It states that the percentage of income consumed by an individual is dependent on the level of consumption expenditure made by the individuals with which it identifies itself. It means, consumption pattern of individuals is determined by the consumption pattern of society in which she/he thinks they represents.

Duesenberry (1949, p. 19) states "A real understanding of the problem of consumer behaviour must begin with a full recognition of the social character of consumption patterns". By the "social character of consumption patterns" he means the tendency in human beings not only "to keep up with the Joneses" but also to surpass them.

Joneses refers rich people and individuals constantly tend to move towards higher consumption level and to imitate consumptions of rich individuals in the society. Thus individual's consumptions patters are interdependent and differences in relative incomes of individuals drive consumption expenditures. Due to it rich people require have lower average expenditure (Consumption upon Income or c/y) i.e. lower average propensity of consumption (APC) or on the other hand individuals with lower incomes will have higher APC while trying to "to keep up with the Joneses" which can also lead to negative savings. It provides explanation for stable long run - consumption or APC as lower and higher APCs would balance out while aggregating. Even if the absolute size of income in a country increases, the APC for the economy as a whole at the higher absolute level of income would be constant. But when income decreases, consumption does not fall in the same proportion because of the Ratchet Effect.

2.3.2.2 Ratchet Effect

It is the result of individual's refusal to reduce consumption with a fall in income. It means when absolute income increases, absolute consumption increases but when absolute income decreases the proportionate reduction in consumption is less than fall in income, as in the long run individuals are accustomed to a certain standard and manner of living. This results in increasing APC for individuals and reducing MPC.

Duesenberry (1949, p. 115) states "the ratchet keeps the economy from slipping back all the way and losing all the gains in income acquired during the preceding boom". It

is also referred as “past peak of income” hypothesis which explains the short run fluctuations in the consumption function and refutes the Keynesian assumption that consumption relations are reversible.

James Duesenberry's Consumption Function

$$(C_t/Y_t) = a - c (Y_t/Y_o)$$

where, C = Consumption, Y = Income, t = Current Period, o = Peak Period, a = Constant relating to positive autonomous consumption and c = Consumption function.

In the equation the ratio of current consumption to income (Ct/Yt) equates to function of Yt/Yo, that is, the ratio of current income to the previous peak income. If the ratio is constant as in periods of steady income increase, the current consumption income ratio is constant. During the period of recessions when current income (Yt) falls below the previous peak income (Yo), the current consumption income ratio (Ct/Yt) will increase.

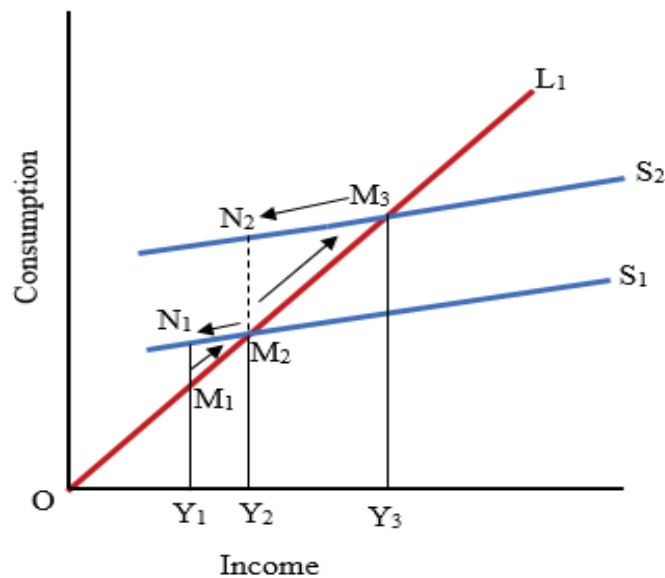
Diagrammatical representation of relative income hypothesis.

Figure 2.9 represents relative income hypothesis where L₁ is the long-run consumption function and S₁ and S₂ are the consumption functions for the short run. Suppose income is at the peak level of OY₂ where M₂Y₂ is consumption. Now income falls to OY₁. Since people are used to the standard of living at the OY₂ level of income, they will not reduce their consumption to M₁Y₁ level, but reduce it as little as possible by reducing their current saving. Thus they move backward along the S₁ curve to point N₁ and be at N₁Y₁ level of consumption. When the period of recovery starts, income rises to the previous peak level of OY₂. But consumption increases slowly from N₁ to M₂ along the S₁ curve because consumers will just restore their previous level of savings. If income continues to increase to OY₃ level, consumers will move upward along the L₁ curve from M₂ to M₃ on the new short-run consumption function S₂.

If another recession occurs at OY₃ level of income, consumption will decline along the S₂ consumption function toward N₂ point and income will be reduced to OY₂ level. But during recovery over the long-run, consumption will rise along the steeper L₁ path till it reaches the short run consumption function S₂. This is because when income increases beyond its present level OY₂, the average propensity to consume becomes constant over

the long-run. The short-run consumption function shifts upward from S_1 to S_2 but consumers move along the L_1 curve from M_2 to M_3 . But when income falls, consumers move backward from M_3 to N_2 on the S_2 curve. These upward and downward movements from N_1 and N_2 points along the L_1 curve give the appearance of a ratchet. This is the ratchet effect. Thus the ratchet effect shows that, “the short run consumption function ratchets upward when income increases in the long run but it does not shift down to the earlier level when income declines. Thus the ratchet effect will develop whenever there is a cyclical decline or recovery in income.”

Figure 2.9 Relative Income Hypothesis



2.3.2.3 Shortcomings of Relative Income Hypothesis

- 1). Consumption patterns are not irreversible i.e. empirical evidence shows that in long run they are reversible and in short run they are irreversible.
- 2). No proportional increase in consumption as increases in income along the full employment level do not always lead to proportional increases in the consumption.
- 3). No direct relationship between consumption and income as recessions does not always lead to decline in consumption as it was case in 1948-49 and 1974-75.
- 4). Theory neglects important economic factors like age of population, urbanization, investment and asset holdings of individuals which play a very important role in individuals consumption decisions.

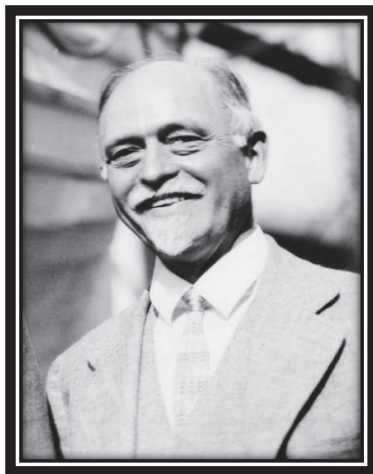
5). Consumer preferences are independent as empirical study by George Katona's revealed that expectations and attitudes play an important role in consumer spending.

6). According to him, income expectations based on levels of aspirations and the attitudes toward asset holdings affect consumer spending behaviour more than the demonstration effect.

2.3.3 Modigliani's Life Cycle Hypothesis and Friedman's Permanent Income Hypothesis

Before proceeding towards the work done by these two economists, we must discuss Irving Fisher's contribution to consumption theory. As both Modigliani's life-cycle hypothesis and Friedman's permanent-income hypothesis are based on the theory of consumer behaviour proposed by Irving Fisher (Mankiw, 2010).

2.3.3.1 Irving Fisher and Intertemporal Choice



The noted economist Irving Fisher proposed the theory of intertemporal choice in his book "Theory of Interest" (1930). His model demonstrates how rational consumers would allocate their consumption across time. The intertemporal approach is the basis of theories that would clarify "why the average propensity to consume (APC) behaved differently in varied sets of data."

The consumption function presented by Keynes relates "current consumption to current income." It discounts the fact that consumption has intertemporal aspects, for e.g. a decision to eat a cookie today, is a decision not to eat cookie tomorrow. Contrary to Keynes, "Fisher's model displays how rational forward looking consumers choose consumption for the present and the future to maximize their lifetime fulfilment or make intertemporal choices – that is choices relating to different time periods."

Fisher's model of intertemporal choice explains:

- The constraints that consumers face,
- The preferences they have, and

- How consumers make decision around consumption and saving given the constraints and preferences.

2.3.3.1.1 The Intertemporal Budget Constraint

Everyone aspires to have a luxurious life – i.e. to increase our consumption, we want to live in bigger homes, to own luxurious cars, to go on exotic holidays, but why does one consume less than what we desire? Because the consumption is constrained by income. In other words, consumers are limited in how much they can spend, also called as budget constraint. When consumers have to choose between how much to consume today vs. the future, they face an intertemporal budget constraint, “which measures the total resources available for consumption today and in the future.”

2.3.3.1.2 Model: Two Period

Suppose that a household consumer lives across two time periods: young and old corresponding to her/his working years and her/his retirement years respectively. She/he has an income Y_1 and consumption C_1 when she/he works, and Y_2 and C_2 when she/he is old (All variables are real – that is, adjusted for inflation). She/he can save and borrow in each period with the same real interest rate r .

Consider how the consumer’s income in the two periods constraints her/his consumption.

In period 1: Savings in the first period (which can be positive or negative)

$$S = Y_1 - C_1 \quad (2.1)$$

where S is saving.

Consumption in the second period equals the total savings, including the interest earned on that saving, plus second-period income. That is,

$$C_2 = (1+r) S + Y_2 \quad (2.2)$$

where r is the real interest rate. For example, if the real interest rate is 10% and the saving of the consumer is Rs. 10/- in period one then the consumer will enjoy Rs. 1.00/- extra consumption in the second period, since there is no third period, hence the consumer does not save in the second period.

Note: Variable S can represent either saving or borrowing. (If $C_1 < Y_1$, then saving and $S > 0$ and if $C_1 > Y_1$, then borrowing and $S < 0$)

Combining (2.1) and (2.2) equations gives:

$$C_2 = (1+r) [Y_1 - C_1] + Y_2$$

Rearranging the equation by taking consumption terms together $(1+r) C_1$ from the right hand side to the left hand side of the equation, we get

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

Now dividing both sides by $(1+r)$ gives:

$$C_1 + \frac{C_2}{(1+r)} = Y_1 + \frac{Y_2}{(1+r)}$$

This equation shows the relationship between consumption in the two periods to the income in the two periods.

2.3.3.1.3 Special Case

If the interest rate is equal to zero or $r = 0$, then we have

$$C_1 + C_2 = Y_1 + Y_2$$

When rate of interest is greater than zero or $r > 0$, then future consumption (C_2) and future income (Y_2) are discounted by a factor $1+r$.

Usually interest rates are positive and thus both the future consumption and income are discounted by the factor $1+r$. A consumer may be accumulate savings (when $C_1 < Y_1$) or non-savings (when $C_1 > Y_1$) in the first period. The savings made in the first period by a consumer would help him earn interest at the $r\%$ rate and contribute to additional income of $S(1+r)$ for the second period.

For a consumer who has incurred non-savings in the first period suggests that she/he borrowed money for additional consumption, hence she/he will have to pay interest at the $r\%$ rate on the borrowed amount and thus her/his income for the second period would be lowered by a $-S(1+r)$. For every 1 unit of additional consumption in the second period consumer would need to save $1/(1+r)$ in the first period. By discounting, we put things in terms of present values.

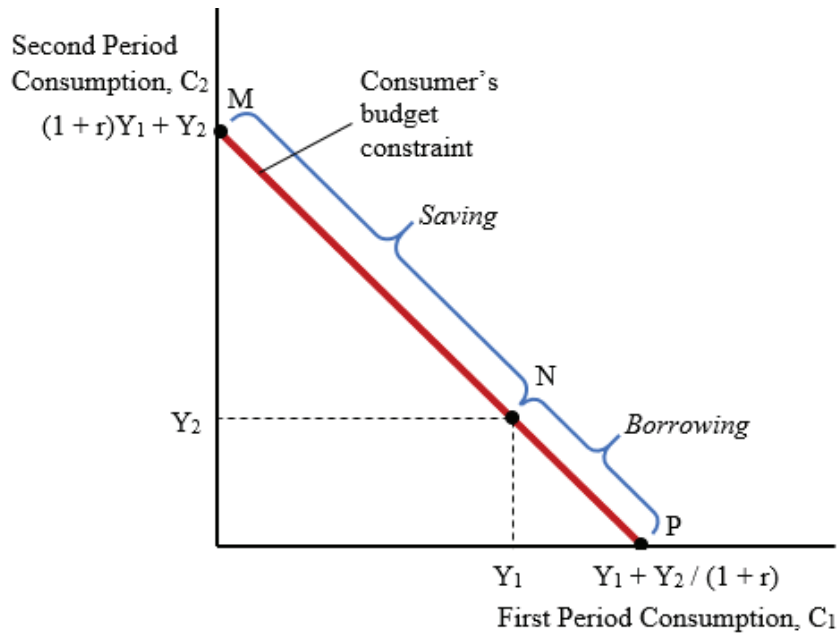
$$\underbrace{C_1 + \frac{C_2}{(1+r)}}_{\text{(Present Value of Consumption)}} = \underbrace{Y_1 + \frac{Y_2}{(1+r)}}_{\text{(Present Value of Income)}}$$

(Present Value of Consumption) (Present Value of Income)

2.3.3.1.4 Consumer's Budget Constraint: Graphical Presentation

Figure 2.10 presents the combinations of 1st period and 2nd period consumption that the consumer can choose. If she/he chooses the point N, then there is neither saving nor borrowing between two periods and she/he consumes all her/his income in two periods. Hence, $C_1 = Y_1$ and $C_2 = Y_2$.

Figure 2.10 Intertemporal Budget Line



At point M, $C_1 = 0$, it means consumer consumes nothing in the first period and saves all income, so,

$$C_2 \text{ (Second period consumption)} = (1+r) Y_1 + Y_2$$

At point P, $C_2 = 0$, which implies that consumer plans to consume nothing in the second period.

If she/he chooses points between N and M, then the consumer is not consuming her/his entire income in the first period and is saving for the second period.

If she/he chooses points between N and P, then the consumer is consuming more than her/his income in the first period and is hence borrowing from her/his second period i.e., consumes less than her/his income in period first ($C_1 < Y_1$) and saves for the second period.

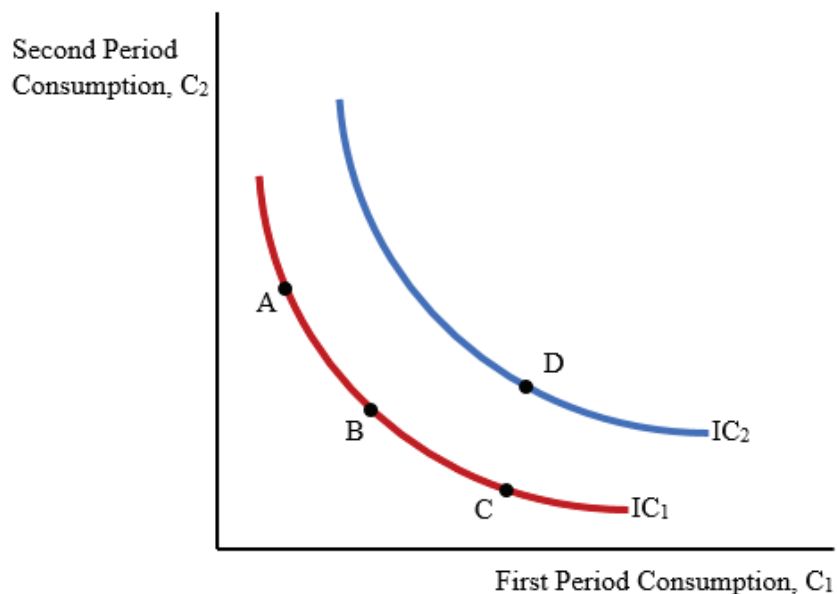
2.3.3.1.5 Consumer Preferences

Time indifference curves can be drawn to represent the consumer's preference in the two time periods: period 1 and period 2. Indifference curves have the following characteristics:

- An indifference curve gives alternative combinations of consumption (C_1 and C_2) in the two periods that gives the consumer the same level of satisfaction.
- A consumer is indifferent to the various combinations on the indifference curve as they are on the same curve
- The slope of the indifference curve denotes how much of the consumption in the second period does the consumer require in order to be compensated for one unit reduction in the first period consumption. The slope is called the Marginal Rate of Substitution (MRS).
- A group of indifference curves is called an indifference map. On an indifference map, higher the indifference curve, higher is the satisfaction. Thus consumers prefer higher indifference curves.

Figure 2.11 shows two indifference curves IC_1 and IC_2 . All the combinations on IC_1 i.e., A, B and C provide the same level of satisfaction, because they are all on the same curve and consumer is indifferent between those combinations.

Figure 2.11 The Consumer's Preference



Since the indifference curves are not straight lines the Marginal Rate of Substitution (MRS) depends on the consumption level in the two periods. At point C on IC_1 , when the first period consumption is high and second period is low, thus the MRS is low since only a small amount of second period consumptions is to be given up for an additional unit of consumption in first period. Likewise, the MRS is high at point A on IC_1 .

In the indifference map having IC_1 and IC_2 as shown in Figure 2.11, the consumer will prefer IC_2 , because she/he would prefer more consumption to less, and hence would prefer a higher indifference curve vs. the lower ones. The consumer is indifferent among points A, B and C, but prefers point D, as it is on higher indifference curve (IC_2).

2.3.3.2 The Life Cycle Hypothesis



Franco Modigliani and Albert Ando in 1950's put forth life cycle theory of consumption which is also referred to as “Life Cycle Hypothesis.” It states that “an individual’s consumption in any period is not the function of current income of that period, but of the whole lifetime expected income.”

The consumption depends on the resources available, the rate of return on capital, the spending plan, and the age of individuals i.e. the total resources consist of his income and wealth.

The hypothesis is based on below assumptions:

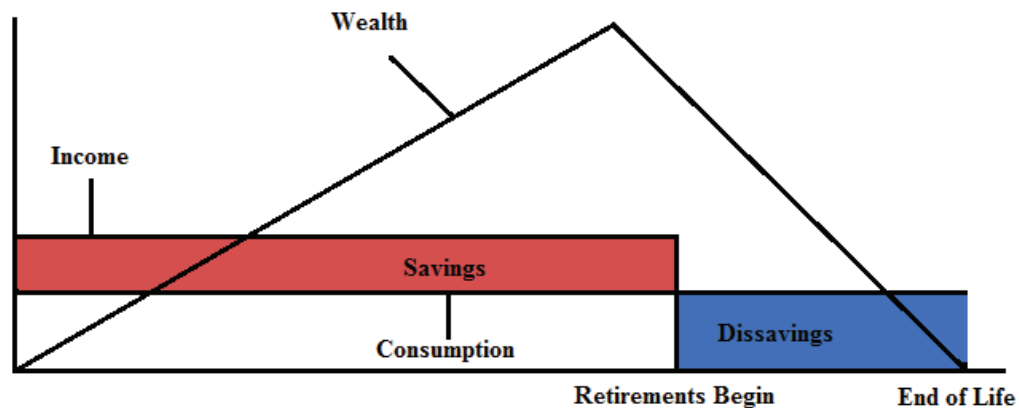
- 1). No change in the price level during the life of the consumer.
- 2). The consumer’s assets are a result of his/her own savings and are not a result of inheritance.
- 3). The rate of interest paid on assets is zero.
- 4). Current savings result in future consumption.
- 5). She/he intends to consume her/his total lifetime earnings plus current assets.
- 6). No plans for any bequests.
- 7). Certainty about her/his present and future flow of income.
- 8). Individual has a definite vision of life expectancy.

9). Individuals are aware of the future emergencies, opportunities and social pressures that will come upon her/his consumption spending.

10). Rational Consumer.

The theory emphasizes that income changes in each period and saving help households to carry out a part of their income from period where income is high to periods where it is low and by accumulating and then dispensing assets, people provision for their retirement and align their consumption patterns to their needs at different life stages as depicted in Figure 2.12.

Figure 2.12 Consumption, Income and Wealth over the Life Cycle



Source: Researcher's own Compilation

To summarize consumption is a function of lifetime expected income of the consumer which depends on her/his resources. In some resources, her/his current income, present value of her/his future expected labour income and present value of assets are included.

Life Cycle Consumption Function

$$C \times (NL - T) = WR + (WL - T) \times YL$$

Where C = Annual Consumption, WR = Current wealth, (WL - T) = Remaining working life, YL = Expected income accrual for another (WL- T) years and (NL - T) = Remaining assumed life.

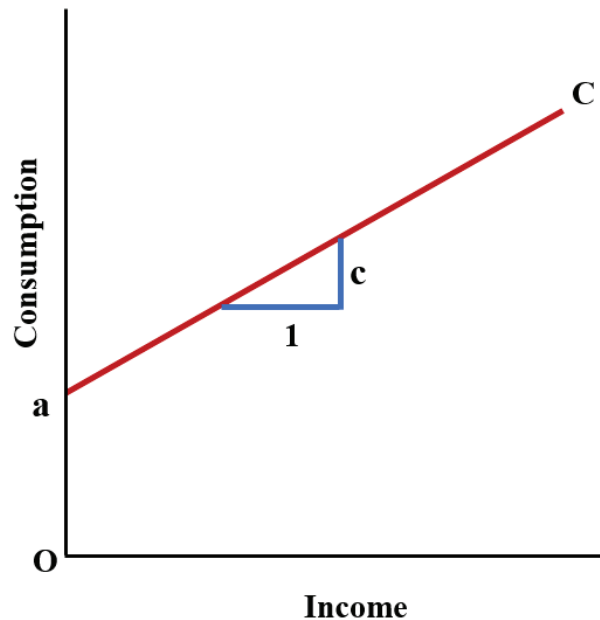
To have smoothest consumption over lifetime, consumer divides such that:

$$C = aWR + cYL$$

where a = 1/ (NL - T) and c = (WL - T)/(NL - T)

In other words, $a = \text{MPC out of Wealth}$, and $c = \text{MPC out of Income}$

Figure 2.13 Life Cycle Consumption Function



The function considers consumption of both income and wealth over an individual's lifetime. In other words, the intercept of the Figure 2.13 of the consumption function depends on current wealth.

2.3.3.2.1 Implication of Life Cycle Hypothesis

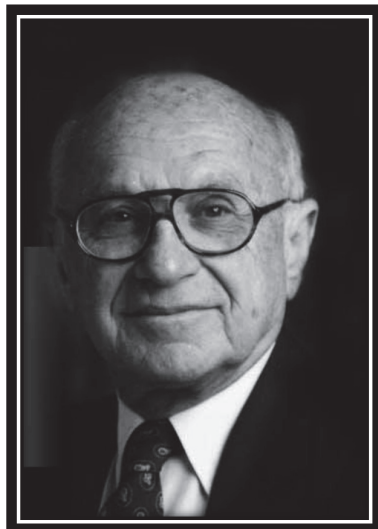
- 1). It help solves the consumption puzzle that the short-run consumption function would be non-proportional as in the short-run time series estimates.
- 2). Savings change along the consumer's lifecycle, adulthood begins with no wealth and the consumer accumulates wealth through savings over the working life. But during retirement, she/he will dissave and run down her/his wealth.
- 3). The life cycle hypothesis also implies that a high-income family consumes a smaller proportion of her/his income than a low-income family where the consumption is high.

2.3.3.2.2 Shortcomings of Life Cycle Hypothesis

- 1). Lifetime consumption is unrealistic as individuals focuses more on current consumption than future consumption.
- 2). Consumption is not directly related to assets of individuals. It assumes, as assets increases consumption also increases. It also does not consider that individual might reduce consumption to increase assets.

- 3). Consumption depends on attitude and behaviour towards life rather than income and assets.
- 4). Individuals are not always rational and knowledgeable and they tend to behave irrationally to different situations.
- 5). Estimating future income is not possible as it may change depending on future circumstances.
- 6). It fails to account for liquidity constraints that may arise in future for an individual due to unusual circumstances.
- 7). It does not consider rate of growth and locked up savings in consumption.

2.3.3.3 The Permanent Income Hypothesis



In 1957, American economist Milton Friedman in his famous work entitled "A Theory of the Consumption Function" presented the permanent-income hypothesis to explain consumer behaviour.

Both relative income and life cycle hypothesis base consumption to current relative income and current absolute income. Friedman rejected both these current income hypothesis and stated that consumption is determined by long-term expected income rather than current level of income. This long term expected income is referred by Friedman as permanent income and the hypothesis is popularly referred as "Permanent Income Hypothesis". Friedman States "an individual who is paid or receives income only once a week, say on Friday, he would not concentrate his consumption on one day with zero consumption on all other days of the week." It means "that an individual would prefer a smooth consumption flow per day rather than plenty of consumption today and little consumption tomorrow."

Permanent income is earned from both "human and non-human wealth."

- 1). **Human Wealth** is wealth from human capital including training, education, skill and intelligence.
- 2). **Non-Human Wealth or Capital** is wealth from assets as money, stocks, bonds, and real estate and consumer durables.

Friedman states “individual’s current income (Y) as the sum of two components, **permanent income (Y_p) and transitory income (Y_t).**” Transitory income is the part of income that people do not expect to persist.

$$Y = Y_p + Y_t$$

The hypothesis is based on below assumptions:

- 1). No correlation between transitory income and permanent income.
- 2). No correlation between permanent income and transitory consumption.
- 3). No correlation between transitory consumption and transitory income.
- 4). Only permanent income changes affects consumption.
- 5). Individual estimates permanent income through backward looking of expectations.

According to permanent income hypothesis, “consumption is proportional to permanent income. Consumption should depend primarily on permanent income because consumers use savings and borrowings to smooth consumption in response to transitory changes in income.”

Permanent Income Hypothesis Consumption Function

$$C = k Y_p$$

Where, Y_p is the permanent income, C is the permanent consumption and k is the proportion of permanent income that is consumed and is dependent on below:

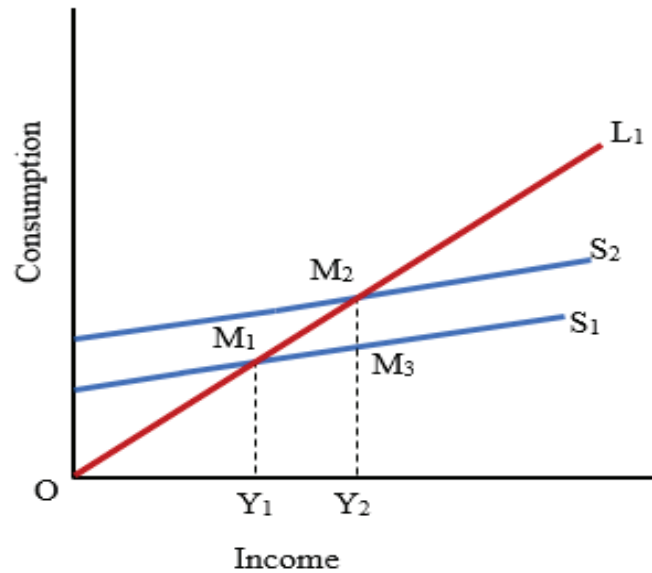
- 1). **Rate of interest:** Higher rate of interest lead to lower consumption and vice versa.
- 2). **Ratio of non-human wealth to human wealth:** Higher the ratio or higher non-human income greater the consumption.
- 3). **Individual desire to create wealth:** Higher desire to create wealth leads to lower consumption and vice versa.

Graphical Presentation of Permanent Income Hypothesis

In short run consumption function is linear and non-proportional, i.e., APC > MPC and the long run consumption function is linear and proportional, i.e., APC = MPC.

In Figure 2.14, S₁ is the non-proportional short run consumption function where measured income includes both permanent and transitory components. L₁ is the long-run consumption function which represents the long-run proportional relationship between consumption and income of an individual.

Figure 2.14 Permanent Income Hypothesis



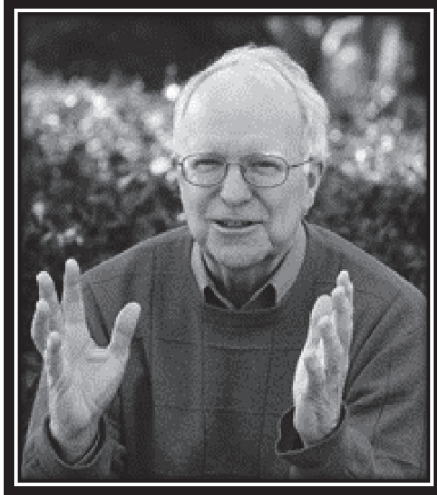
At OY_1 income level where S_1 and L_1 curves coincide at point M_1 , permanent income and measured income are identical and so are permanent and measured consumption as shown by Y_1M_1 . At point M_1 , the transitory factors are non-existent. If the consumer's income increases to OY_2 she/he will increase her/his consumption consistent with the rise in her/his income and move along the short run consumption function such that her/his consumption is Y_2M_3 , as the consumer is not yet certain of the change in income she/he considers it transitory in nature and accordingly moves a point where her/his APC would decline. However if the consumer learns that her/his change in income is not transitory but permanent, there would be a shift in her/his consumption function from S_1 to S_2 and her/his consumption level would be at Y_2M_2 i.e. at the intersection of S_2 with L_1 . As there are permanent changes to income the consumer would move long the long run consumption function L_1 where $APC=MPC$.

Shortcomings of Permanent Income Hypothesis

- 1). Ignores correlation between temporary income and consumption which can significantly affect individual's consumption pattern both in long and short run.
- 2). Average consumption of different social groups is not same. Rich individuals will have lower APC compared to poor individuals.
- 3). No clear distinction between human and non-human wealth.
- 4). Expectation are forward looking in nature not backward looking.

2.4 OTHER THEORIES OF CONSUMPTION

2.4.1 Consumption Under Uncertainty: Robert E. Hall's Random-Walk Hypothesis



Noted Economist, Robert E. Hall, established a new theory of consumption “Stochastic Implications of the Life-cycle – Permanent Income Hypothesis: Theory and Evidence” (1978) by combining the “uncertainty of income to life-cycle and permanent income hypothesis.” His theory is known as “modern version of Life-Cycle (LC) and Permanent Income (PI) hypothesis (LC – PI hypothesis)” and is also referred as the “Random Walk Theory of

Consumption.” The Ando-Modigliani’s life-cycle hypothesis and Friedman’s permanent income hypothesis assumes certainty of income. However, according to Hall, predicting life-cycle income and permanent income with certainty in reality is not possible. There is an uncertainty about the future income.

Robert Hall was the first to indicate the rational expectations for consumption. Hall questioned the accuracy of rational expectations and the life-cycle hypothesis/permanent income hypothesis. He clarified that if this was true in reality, then consumers would want an even consumption over time with less volatility. Hence, if consumers have these rational expectations on a smooth consumption, then consumers would use all available information when forming these expectations. If both were true, then current consumption would resonate the consumer’s best estimate of her/his available lifetime resources. Any changes in consumption should only be related to the “surprises” about lifetime income. Surprises, is the information that was non-existent at the time of planning and has been made available recently and is material enough to impact the consumer’s consumption. For example, an unexpected promotion in a job will increase consumption, and vice versa. In other words, alterations in consumption should only reflect “surprises” about lifetime income. If consumers are using all information to set expectations for consumption, then only the completely unpredictable events should surprise them and change their consumption pattern. Hence, changes in consumption should also be unforeseeable.

The equation for future consumption is

$$C_{t+1} = C_t + \varrho_{t+1}$$

In this equation, ϱ_{t+1} is a rational expectations error that cannot be predicted with any information known at time- t . All time- t information is reflected in current consumption, C_t . The random walk characteristic of consumption is seen by writing

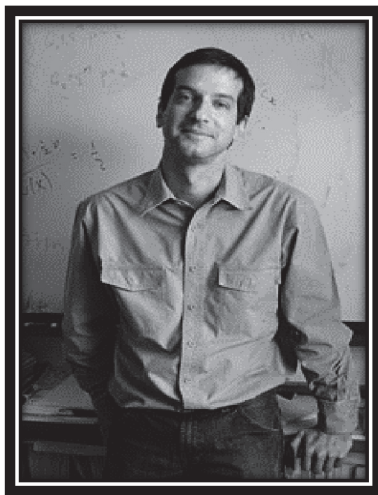
$$C_{t+1} - C_t = \varrho_{t+1}$$

Consumption is a **random walk**, as changes over time are unforeseeable.

Evaluating the Random Walk Hypothesis

Over the past 3 decades, there has been extensive research on testing this hypothesis. In their testing, researchers identify a group of people who are expecting a future increase in income and then determine if the income changes lead to changes in consumption at the same time. Hall's hypothesis predicts that in these groups' changes in consumption should not occur as the income changes are foreseeable and hence the consumer pre-adjusts her/his expenditure based on rational expectations. The results of these tests are mixed, they have shown if there are large predictable Y (income) changes then consumers usually pre-adjust C (consumption). However, if there are small predictable Y changes, then consumers usually do not pre-adjust C .

2.4.2 David Laibson and the Pull of Instant Gratification



All theories from Fisher to Hall are based on the assumption that consumers are rational and they act to maximize the lifetime utility. Lately, economists have also looked into psychology to further understand consumer behaviour. They have suggested that decisions on consumption are not undertaken by extremely rational *homo economicus*, instead, they are taken by real human beings whose behaviour can be far from rational. Laibson points that many consumers consider themselves to be poor decision-makers. Prof.

Laibson has integrated the insights from psychology into the study of consumption. According to him preferences of consumers' may be *time-inconsistent*: their decisions

may change simply because time passes. One of these insights is that people's preferences are often *dynamically inconsistent*. This model of human behaviour formed the base for all the work on consumption theory from Irving Fisher to Robert Hall.

Dynamically Inconsistent Preferences

Consider a student who is in Grade 10:

At 10:00 p.m., she/he sets the alarm clock for 8:00 a.m., the next day's class so that she/he will make it to class on time.

When it's 8:00 a.m., she/he turns off the alarm and goes back to sleep. Why?

One explanation: She/he changed her/his decision based on some new information during the night.

Likely explanation: What appeared rational at 10:00 p.m. — waking up early — was invalidated at 8:00 a.m.

Preferences displayed *dynamic inconsistency* — they changed simply because of the passage of time.

These kinds of behaviour are frequently observed in life. In a survey, 76% of people said they were not saving enough for retirement. Laibson ascribes this to the "Pull of Instant Gratification", which explains why people don't save as much as they would if they were perfectly rational and would save to maximize lifetime utility. The possibility of dynamically inconsistent preferences explains that consumers may have self-control problems, for example: People need an exercise partner to encourage themselves to go to the gym, people avoid keeping tortilla chips in the house to control junk food, etc.

"Pull of instant gratification" can also be gauged from the following two questions around time inconsistency.

Q1. Would you prefer (A) a candy today, or (B) two candies tomorrow?

Q2. Would you prefer (A) a candy in 50 days or (B) two candies in 51 days?

In studies, most people chose (A) for Q1 and (B) for Q2. People confronted with Q2 today, may choose (B). But after 50 days, when asked Q1, the pull of instant gratification may tempt them to change their answer to (A).

These observations raise various questions and provide a new agenda for research.

2.5 CONCLUSION

In this chapter we have discussed the work of eight prominent economists on consumer behaviour ranging from Keynes' Psychological Law of Consumption to David Laibson Pull of Instant Gratification. Summarized below are the key takeaways from each of these theories.

Keynes	• Consumption depends on Current Income
Drift Theory	• Consumption in addition to income depends on other factors also.
Relative Income	• Consumption depends on demonstration effect and ratchet effect.
Irving Fisher	• Consumption depends on the present value of lifetime income.
Life Cycle	• Consumption depends on resources available i.e., income and wealth.
Permanent Income	• Consumption depends on long term expected income rather than current level of income.
Random Walk	• Consumption depends upon current consumption plus future uncertainties.
Pull of Instant Gratification	• Consumption decisions are time inconsistent i.e., change with passage of time.

According to Keynes consumption is largely a function of current income. Keynes focused on current income only and disregarded the importance of any other factor. Economists argued against this saying that consumption is not only the function of current income but also of wealth, expected future income, interest rates, etc. There has been constant debate among economists as to which of the above factors helps to best predict the consumption behaviour. Arguments have ranged from the impact of interest rates on consumption, the presence of borrowing constraints and importance of behavioural effects. Consumption is an important determinant of any economic policy, like impact of increase or decrease in government debt or investment depends upon its impact on consumer spending. The fact that the importance of consumption cannot be undermined in any policy decision, this subject will continue to attract economists for years to come.