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CHAPTER II
THEORETICAL FRAMEWORK

Theoretical framework is a logical requirement of any research work. This chapter presents the theoretical framework of consumption theories. Macroeconomics is the study of the behaviour of economy as a whole. It covers the variables like total employment, total consumption, total savings, aggregate demand, general price level etc. According to Gardner Ackley “Macro economics is the study of the forces or factors that determine the level of aggregate production, employment and prices in an economy and their rates of change.”¹ To understand and analyse the behaviour of an economy we obviously need macro economic variables which is a complex network of superhighways emerged after Keynes.

The modern theory of income determination dates back to the publication of J.M.Keynes’s General Theory of Employment, Interest and Money in 1936. Keynesian economics is the outcome of Keynes’s disagreement with the classical economy. He held the view that postulates of the classical theory are applicable to a special case only and not to the general case. The classical theory of employment is essentially a supply oriented theory with little emphasis on the demand side of the growth process. Adam smith, Ricardo, Say and Mill and all other followers of classical school of thought believed that there are no problems on demand side as the aggregate demand would always take care of itself. The classical
belief in full employment as a normal economic condition was based on the following assumptions:

- As supply creates its own demand there can never be any deficiency in demand.
- Any unemployment that might result in the process of competitive system is automatically eliminated by the mechanism of the free market-price system.

2.1 Development of Modern Macroeconomics

Modern economic system is not self adjusting in character as assumed by the classical economists. Keynes pointed out: “The strength of the self adjusting school depends on its having behind it almost the whole body of organized economic thinking and doctrine of the last hundred years”\(^2\). A central theme of Keynes’s analysis is the contention that the capitalist market economies are inherently unstable and are capable of rest ‘in a chronic condition of sub-normal activity for a considerable period without any marked tendency, either towards recovery or towards complete collapse.\(^3\) The principle of effective demand lies at the heart of Keynes’s General Theory of Employment.

Keynesians view the economy as unstable as a result of the instability of aggregate demand. Swings in aggregate demand cause undesirable fluctuations in output and employment in the short run. Keynesians are interventionists favouring active policies to manage aggregate demand. Although it is possible to distinguish between orthodox Keynesians, new Keynesians, post Keynesians, all three groups are united in the belief that
aggregate economic instability represents some sort of market failure on a large scale.

The two orthodox schools ‘IS-LM Keynesianism’ and ‘neo classical monetarism’ dominated macroeconomic theory in the period up to the mid-1970s. Since then new classical, real business cycle and new Keynesian schools emphasized issues relating to aggregate supply. They held the view that macroeconomic models should be based on solid microeconomic foundations. Slope of the short run aggregate supply function and the determinants of the position of the aggregate demand function, have been the central issues in macroeconomic controversies of the past sixty years.

2.2 Circular Flow of Income and Expenditure

Keynes’s designated the term effective demand to denote the total demand of goods and services (both for consumption and investment) by the people in a community. In a money economy, thus, effective demand manifests itself in the spending of income or the flow of expenditure. A central notion in the Keynesian model is that for a level of output to be at equilibrium level, output should be equal to aggregate demand.

The term circular flow of income or circular flow refers to a simple economic model which describes the reciprocal circulation of income between producers and consumers. In the circular flow model, the interdependent entities of producer and consumer are referred to as "firms" and "households" respectively and provide each other with factors in order to facilitate the flow of income. Firms provide consumers with goods and services in exchange for consumer expenditure and "factors of production" from households.
The circle of money flowing through the economy is as follows: total income is spent (with the exception of "leakages" such as consumer saving), while that expenditure allows the sale of goods and services, which in turn allows the payment of income (such as wages and salaries). Expenditure based on borrowings and existing wealth – i.e., "injections" such as fixed investment – can add to total spending.

At equilibrium, leakages equal injections and the circular flow stays the same size. If injections exceed leakages, the circular flow grows (i.e., there is economic prosperity), while if they are less than leakages, the circular flow shrinks (i.e., there is recession).

Firms use factors of production provided by households. Land, labour, capital and entrepreneurship are used by firms to produce a good or service. The firms pay households a reward for using these factors. Rent for land, wages for labour, interest for capital and profit for entrepreneurship.

The total factor income = the aggregate value of factors of production = total expenditure of firms = total income of firms = the value of final output.

When households receive this income they use it to buy the goods and services from the firms. There is a flow of final goods from the firms to the household’s total expenditure = Value of final output = income of the firm’s sector. Thus the final output is the same as final expenditure. Households save some of their income and deposit it in banks and other financial institutions. Savings in economics is defined as income not spent. The banks lend money to firms who in turn invest in new machinery, factories, Research and Development (R&D) etc. Investment in economics is defined
as 'additions to the capital stock'. Capital is defined as 'man made goods used to produce other goods'.

Expenditure is now made up of two items. Households spent money with firms for goods and services (C) and firms spent money with other firms (investment). Expenditure is therefore equal to consumption plus investment.

\[ E = C + I. \]

The next sector introduced into the circular flow of income is the government sector that consists of the economic activities of local, state and federal governments. Aggregate demand (E) consists of three components: household consumption (C), desired business investment demand (I), and the government sector’s demand for goods and services. Thus in equilibrium
\[ Y = E = C + I + G \]

The leakage that the government sector provides is through the collection of revenue through Taxes (T) that is provided by households and firms to the government. For this reason they are leakages because the leakages reduce the expenditure on current goods and services. The injection provided by the government sector is Government spending (G) that provides collective services and welfare payments to the community as shown in figure 2.2. Economy will be in equilibrium if the leakages (S+T) are balanced by injections (I+G) into the central income and output circular flow.i.e.

\[ S + T = I + G \]

Figure 2.2

Circular Flow of Funds in a Three Sector Model
The final sector in the circular flow of income model is the overseas sector which transforms the model from a closed economy to an open economy. The main leakage from this sector is imports (M), which represent spending by residents into the rest of the world. The main injection provided by this sector is the exports of goods and services which generate income for the exporters from overseas residents. In terms of the five sectors circular flow of income model, the state of equilibrium occurs when the total leakages are equal to the total injections that occur in the economy. This can be shown as:

Savings + Taxes + Imports = Investment + Government Spending + Exports

or

S + T + M = I + G + X.

As the household’s income increases there will be a higher opportunity to save. Therefore saving in the financial sector will increase, taxation for the higher threshold will increase and they will be able to spend more on imports. In this case when the leakages increase they will continue to rise until they are equal to the level injections. The end result of this disequilibrium situation will be a new level of equilibrium, probably stable.

Thus modern economists consider national income as flow in three forms: income, output and expenditure. Income is by definition equal to total expenditure and is composed of consumption and investment components. Consumption expenditure is the largest component of aggregate demand, amounting to between 60 and 70 percent of GDP in recent years. Consumption plays a central role.

For macroeconomists, aggregate consumption is important to understand savings, capital stock, investment, employment and income
growth. Consumption involves a broad slice of human activity; it is concerned with all phases of using up of goods and services in living\textsuperscript{5}. Consumption and production are intermixed and consumption permeates most of the human activities. What is consumed depends to some extent on what is produced within the economy. To quote Adam Smith, consumption is the sole end and object of all production. Human life is nourished and sustained by consumption. The pattern of consumption and its volume depends, in general, upon the standard of living of people.

Consumption determines the size of multiplier and thus the extent of income generation. Aggregate consumption forms a greater percentage of national income in almost all the economies. Thus, any analysis of the factors determining the level of GNP must be concerned with consumer expenditure at some point.

2.3 Concept of Consumption

The social theorist, Thorstein Veblen\textsuperscript{6} (1899) initiated the study of consumption in the 19\textsuperscript{th} century as a social phenomenon. Consumption studies gained added attention since the publication of his book ‘The theory of the Leisure class’ in 1899. Veblen for the first time used the term conspicuous consumption to denote the consumption of luxury goods and services. Conspicuous consumption is a manifestation of the desire to display one’s economic ability and hence the direct utility of commodities is not of prime interest. He postulated that man’s needs and behaviour are largely dependent upon and shaped by the social groups and forces. Sometimes they emulate the behaviour norms of higher status groups to which they aspire to belong.
Traditional economists including Alfred Marshall postulate that the consumer follows the principle of utility maximisation in order to maximise his satisfaction. Given a set of needs, tastes and income data, the economic model seeks to predict how the consumer allocates his money over available set of products with given prices. It suggests the following behavioural hypothesis.

1. The quantity of commodity bought tends to vary inversely with price.
2. The quantity demanded is sensitive to prices of substitutes and complements.
3. Higher the real income, higher the sales of products
4. Utility of each commodity is measurable and utility is measured by monetary units.

Measurement of utility of consumption was an awkward feature of neoclassical theory. Economists sought to escape this embarrassment by showing that the theory could still be derived without actually measuring utility. Paul Samuel's revealed preference hypothesis is a major breakthrough in the theory of demand. He believed that no utility function, cardinal or ordinal was required; it was enough for consumers to reveal their preferences. The revealed preference for a collection of goods implies maximisation of utility of the consumer.

There are many psychological theories also that appear to be similar with traditional maximisation theory. In many cases it is difficult to apply these to economic problems because there does not seem to be any means for making their exogenous variables to economic environments. Stochastic
learning theory as it would apply to consumer behaviour is an exception. The learning model was developed by a group of psychologists, Pavlov being one of the profounders.

According to them consumption is based on drives, stimuli, cues, responses and reinforcement which determines human needs and the need satisfying behaviour.

John Maynard Keynes (1936) described consumption expenditure as an important component of national income. Fundamental psychological law propounded by Keynes claimed that the community will divide an increase in income in some regular proportion between an increase in consumption and an increase in saving. That is, both the marginal propensity to consume and marginal propensity to save are between zero and one.

On the basis of habit persistence hypothesis Duesenberry stated that consumption is interdependent and consumption relations were irreversible over time. He held the view that individual preferences were influenced by the preferences of neighbours.

Katona has contended that consumers in a modern rich society possess sufficient discretion and autonomy to originate and to respond to, fluctuations in overall economic activity. He observed the tendency of saving rates to increase in times of unusual inflation due to low levels of “consumer confidence”.

Philip Kotler postulated that the buyer knows the relative utility derived from the various product assortments. He believed that consumer will not allocate all his income to one product since the additional units will give him diminishing satisfaction. The information at the buyer’s disposal
determines his efficiency in determining the best assortment. Therefore consumer is the kingpin around which the entire business activities revolve.

Tibor Scitovsky\textsuperscript{14} emphasized the need for acquiring “the consumption skills that will give us access to society’s accumulated stock of past novelty ………and so enable us to supplement at will and almost without limit…………, the currently available flow of novelty as a source of stimulation’. He argued that certain types of consumption, are "joyless", others "joyful" and the difference between them is a composite of several things of which challenge, risk and a sense of accomplishment would be major factors.

Thus the concept of consumption is viewed from different angles, economics, sociology, psychology and so on.

\textbf{2.4 Inter temporal models of consumption function}

The study of consumption function has been of major concern to economists. For macroeconomists, aggregate consumption is important to understand savings, capital stock, investment, employment and income growth. For neoclassical economists, the main objective of economic system was the distribution of a fixed level of income among alternative dispositions. Consumption determines the size of multiplier and thus the extent of income generation. Aggregate consumption forms a greater percentage of national income in almost all the economies. Increase in consumption is now a days advocated to safeguard the present day economic system.

Widespread professional interest in the theory of consumption behavior dates back to the contribution of Keynes in the General Theory.
Since 1930s’, there has been continuous flow of theoretical and empirical developments in consumer behaviour research. Outstanding scientific achievements in economics have been in this field. The best minds in the profession have worked on the theory of consumption and have also received Nobel Prize. However much remains to be done and needs to be put right\textsuperscript{15}. This section reviews briefly the various developments in consumption theories, strictly from economics framework.

The theory of consumer behavior has two aspects, expenditure aspect and aggregative aspect. The former belongs to the branch of microeconomics while the latter belongs to macroeconomics. The early developments in the theory of consumption behavior were found in microeconomics. They were primarily concerned with the utility and its maximisation. Economists ranging from Daniel Bernoulli to Alfred Marshall heralded an era during which the theory of utility and theory of demand passed through two distinct periods …. “The period in which half-baked formulations were presented without much acceptance…. 1730-1870” and the period in which it was flung out as a credo of scientific economics….. (1870-1890)\textsuperscript{16}.

In 1738, Bernoulli using the concept of marginal utility derived the shape of the utility curve of money. However, it was not a serious formulation of utility analysis. The marginal utility approach to the theory of individual consumer came into the forefront during the 1870’s with the works of Jevons and Menger (1871) and Leon Walras (1873). Modern utility theory is the result of their joint work.\textsuperscript{17}

Based on the utility theory, consumer behaviour could be explained by stimulus and response. Traditional economists including Alfred Marshall
have looked upon consumer as a rational being who consciously bases his behaviour on the principle of utility maximisation in order to maximise his satisfaction. Given a set of needs, tastes and income data, the economic model seeks to predict how the consumer will allocate his money income over available goods services with given prices.

The Marshallian utility function was described as

\[ U = f(q_1, q_2, \ldots, q_n) \]

Subject to

\[ \sum_{i=1}^{n} p_i q_i \leq Y; \ Y \geq X \]

\( X = \text{Total Expenditure of the consumer} \)
\( Y = \text{Income} \)
\( q_1, q_2, \ldots, q_n \) Quantities of n commodities
\( p_1, p_2, \ldots, p_n \) Prices of n commodities

Marshallian analysis failed to explain price effect, which was taken up by Hicks and Allen on the one hand and Slutsky on the other hand. Classical economists presented the mechanics of the theory of consumer behaviour first in utility terms and second in preference terms but the quantitative data on consumer behaviour, neither revealed marginal utility nor consumer preference.

Historically consumer behaviour has been the subject of many empirical investigations and statistical studies, which dealt with real consumption and their choices. In the 17th century, Gregory King for the first time prepared the detailed computation of nation’s wealth, which incidentally described levels of consumption. Frederic LePlay (1806-1882) was the first to make intensive study in this field based on family budgets.
Applied consumption analysis proceeds from two sorts of data—cross section data and time series data. The cross sections are collections of household budgets indicating all expenditures on consumer goods and services made by individual families. The average expenditure on each consumption good or service is associated with the corresponding income classes for a particular social and professional category. The data collected give rise to the so-called Engel’s curve, which expresses the expenditure on a good as a function of income i.e.

\[ p_i x_i = \phi_i (y) \] ……….. (2)

These functions are so named in honour of Ernst Engel (1857), who for the first time formulated empirical laws governing the relation between income and the particular categories of expenditure. Based on the works of Baxter Ducepetiaux, Dieterici, and Leplay Engel estimated the percentage of total income spent on different categories of consumption and developed three famous laws.

1) Food is the most important item in household expenditure.

2) The proportion of total expenditure allocated to food decreases as income increases.

3) The proportion devoted to clothing and housing is approximately constant while the share of luxury items increases when income increases.

The empirical analysis of the Engel law involves the formulation of the Engel curve. Engel curves are demand equations derived by utility maximisation in which all prices are held as constant. Engel curve besides
the preliminary form can take any of the functional forms available in economic literature - linear, non-linear etc. Methodology in consumption has benefited from Engel’s work.

To ensure theoretical plausibility of estimated Engel curves Prais and Houthakker made empirical experiments of various forms for Engel curves. Though they satisfy all problems in terms of price derivatives such as homogeneity, symmetry, negativity of their own substitution effect expect adding up condition, which says that the sum of the marginal propensities to consume has to be equal to one at all income levels.\footnote{18}

Another functional form is estimated by Working (1943) and later Leser (1963) which is consistent with the problem of adding up criterion. If $\Sigma \alpha_i=1$, $\Sigma \beta_i = 0$ then $W_i=1$

$$W_i = \alpha_i + \beta_i \log x \quad \quad \text{……………… (3)}$$

$W_i$ Expenditure on the $i^{th}$ item

$\alpha_i$ and $\beta_i$ are parameters

Many writers have followed a pragmatic approach to the theory of demand. They formulated demand functions directly based on market demand. Demand is expressed as a multivariate function, and is estimated with various econometric methods. Such demand functions refer to a group of commodities rather than individual commodities. Such groups added together yield consumer expenditure. Linear expenditure models deal with groups of commodities. One of the earliest linear expenditure models was suggested by Stone (1954) His utility function is additive and can be expressed as
\[ U = \sum_{i=1}^{n} b_i \log(q_i - \gamma_i) \] .......(4)

\[ U = b_1 \log(q_1 - \gamma_1) + b_2 \log(q_2 - \gamma_2) + \ldots \ldots + b_n \log(q_n - \gamma_n) \] .......(5)

Where

\[ \gamma_i \] maximum quantity of group i

\[ b_i = \text{marginal budget share} \]

Gorman\textsuperscript{19} highlighted the importance of linear Engel’s curve for the micro foundations of aggregate consumer demand relationship. He held the view that in order to provide an exact micro interpretation of aggregate relationship between per capita consumer expenditure and per capita income the Engel curve must be linear and parallel. This conclusion of Gorman is consistent with the earlier studies of working (1943)\textsuperscript{20}.

2.5 Almost Ideal demand

Muellbauer\textsuperscript{21} (1975) and (1976) tried to reconcile the two. His work showed that aggregation was possible. In these papers, he developed a particular convenient specification entitled Almost Ideal, which was developed from general class of Price Independent Generalised Linear (PLGL) models. This model displays some attractive features. The advantage of this system is that it can be used to test the Linear Expenditure System. Almost Ideal model has the form

\[ S_j = \alpha_j + \sum \theta_{ij} \text{ in } p_j + \beta_j \text{ in } Y_{a(p)} \] .............. (6)

Where \( \alpha_j, \theta_{ij} \) and \( \beta_j \) are all constant unknown parameters.

\( S_j \) expenditure share
If a \( (p) \) in each share equation is replaced by some readily available price index, then the above model will be linear in parameters and variables.

Almost Ideal Model can be made household specific by adding an \( h \) subscript to denote household \( h \). Then (1) becomes

\[
S_{ij} = \alpha_{ih} + \sum_j \theta_{ij} \text{ in } p_j + \beta_{ih} \text{ in } (Yh/p) \quad \ldots \ldots \ldots (7)
\]

The postwar period witnessed efforts to respecify the consumption theory in macro economic formulations. In 1936, Keynes made consumption function the basic element in the income expenditure hypothesis. It was the Keynesian Absolute Income Hypothesis that provoked his successors to go for a reasonable explanation for the existing consumer behaviour. Among the different hypotheses that were widely debated, the most important are the Relative Income Hypothesis (RIH) of Duesenberry, Permanent Income Hypothesis (PIH) of Milton Friedman, and Life Cycle Hypothesis (LCH) of Modigliani, Brumberg and Ando (MBA).

2.6 Absolute income hypothesis of Keynes

The “fundamental psychological law” of Keynes was the first serious formulation of the consumption function. The main propositions of Keynesian consumption function are the following:

1. Consumption is a stable function of real income.
2. MPC is less in the short-run than in the long run.
3. In the long run MPC will be less than APC.
4. Changes in the stock of households will directly affect their levels of consumption.
The basic tenet of the Absolute Income Hypothesis (AIH) is that consumption is determined by current income of the consumer. A more specific statement of Keynes theoretical structure is that MPC lies between zero and one. He implicitly argued that MPC<APC which implies that APC falls as income increases. Thus, consumption function is non-proportional in the short run. As the absolute level of the families’ income determines the division between consumption and savings, this hypothesis predicts a decline in the APC of the average family when families move up a higher income level. For empirical testing AIH has been expressed in the form:

\[ C_t = a + bY_t + U_t \]

Where \( a < 0 \) and \( 0 < b < 1 \) and \( c_t, Y_t \) and \( U_t \) represent, respectively, per-capita real consumption, per-real disposable income and random disturbance at time \( t \).

Keynesian Theory was subjected to considerable empirical test and its credibility was challenged during the post war period. In the first place, it failed to predict postwar consumption in USA. Secondly contradictory evidences began to emerge from time series and cross section data. However, in a long period time series prepared by Kuznets, it was found that despite substantial increase in real income, the consumption income ratio had been virtually constant in USA. Since the civil war, MPC=APC as opposed to the non proportional relationship found in cross section studies and short run cyclical observations.

Smithies tried to reconcile secular proportionality and the cyclical non-proportionality in terms of trend factors like increasing urbanisation, increasing equality in the distribution of income, introduction of new
consumer goods etc. that drifted the consumption function upwards with rise in incomes. Hence, the observed relationship between consumption and income is nearly one of the proportionality. Thus, the modified AIH included time, \( t \), as an additional explanatory variable in the consumption function

\[ C_t = a + by + d(t - 1922) \] \[ \ldots \ldots (2) \]

The estimates of the coefficients of (2) on the basis of U. S annual data for 1923-1940 yielded estimates of consumption very close to Kuznets for the relevant years. By the 1950s the empirical evidences suggested that a theory of consumer’s spending must account for:

1. Cross sectional budget studies which show that the savings ratio is higher for higher income families
2. Short run time series data shows that the savings ratio falling in booms and rising in recessions
3. Long run time series evidence that, as income rises, there is no tendency for the saving ratio to rise and that for sub periods, the short run consumption ‘drifts upwards’.

Keynes’ AIH is unable to account for observed consumers’ behaviour. Thus, the theory has to be reviewed.

2.7 Relative Income Hypothesis

The RIH popularized by Brady and Friedman, Duesenberry and Modigliani contained alternative explanations of secular constancy and cyclical fluctuation of consumption – income ratio. The underlying assumption of RIH is that consumption depends on the previous peak level of income as well as on current income. A households desired standard of
consumption would be influenced by the living standards maintained by other households with whom it has contact. A household’s consumption is determined not by its absolute income, but by its position in the income scale relative to its reference group, that is by its relative income. If a household experiences decrease in income relative to the rest of the society, it still attempts to consume at par with other households. It is harder for households to reduce its consumption expenditure from a high level. If a household experiences an increase in its relative income, it immediately does not raise the consumption. Thus in the short run, changes in income do not affect consumption as much as they do in the long run. The short run MPC is smaller than long run MPC. The RIH was symbolically represented as

\[ \frac{C}{Y} = a + b \left( \frac{Y}{Y_o} \right)t, \quad b < 0 \quad \ldots \ldots \quad (3) \]

Where \( Y_o \) represents the peak previous income, \( a \) and \( b \) are parametric constants. The RIH as presented by Dueseberry is based on interdependence and irreversibility of consumption behaviour. According to the interdependence hypothesis applicable to cross section data, an individual consumes smaller proportion of his income, the higher his percentile position in the income distribution. The strength of such interdependence of consumer behaviour would depend on the degree of social mobility and strength of demonstration effect. The irreversibility postulate has been used to explain the cyclical fluctuations in the aggregate consumption ratio.\(^{26}\) Modigliani supported this hypothesis.

### 2.8 Habit persistence hypothesis

According to Brown\(^{27}\) consumer behaviour is influenced by habits, customs, and standards of real consumption previously enjoyed. All these
factors produce an inertia or hysteresis in the behavioral pattern. Therefore, in the HPH, he assumed a continuous influence of past consumption and previous consumption is taken as the lagged variable. Lagged consumption in the HPH accounts for the slowness in consumers reaction to changes in income

The HPH takes the form as:

\[ C_t = a + by_t + dC_{t-1} \]

2.9 Permanent income hypothesis

Friedman (1956-57) rejects the use of current income as the determinant of consumption expenditure. The PIH introduces Wealth as a major constraint of the consumption function. According to this hypothesis, consumption depends on permanent income. Permanent income is defined as the amount a consumer unit could consume while maintaining its wealth intact. Friedman’s PIH is based on division of both income and consumption into a permanent and transitory component. The permanent components are systematic and form the basis of the theory although they are not directly observable. Measured income is what is observed and measured by usual statistical data. The difference between measured and permanent component is regarded as transitory. Transitory Component is affected by accidental or chance occurrences. PIH makes use of the following behaviour equations and identities.

\[ C_p = k(i, w, u) y_p \]
\[ Y_m = Y_p + Y_t \]
\[ C_m = C_p + C_t \]
\[ I = \text{rate of interest} \]
\[ W = \text{ratio of non human to total wealth} \]
\[ U \text{ reflects age structure and taste of the household} \]
\[ K \text{ is the factor proportionality} \]

Friedman’s basic argument is that permanent consumption is a constant proportion of permanent income i.e. average income it expects to earn over its life horizon. Friedman used this hypothesis to explain both the evidences of cross section budget surveys and ratchet effect observed in aggregate time series. Consumers take account of future income and consumption possibilities when planning current consumption; changes in current income will affect current consumption by way of resulting changes in wealth.

The household’s wealth is the present value of the future flow of income, which is expected to be varying from year to year. \( Y_p \) is the main income of a family unit, which depends on its time horizon and farsightedness. It includes the non-human wealth that it owns, the personal attributes of the earners and economic activity of the earners. Measured income can be larger or smaller than the \( Y_p \) in any period due to the transitory component of income (\( y_t \)). The difference between measured income and permanent income, which may be positive or negative, occurs due to temporary and unanticipated changes in current income. For Friedman, Permanent consumption is planned based on \( Y_p \) and the relationship between the two variables is proportional. The cross sectional results of Friedman’s theory give a linear and proportional consumption function. Over the long run, transitory components of both the variables cancel out and there is proportional relation between permanent components.
2.10 Life Cycle Hypothesis

Works of Richard Brumberg, Franco Modigliani and Albert Ando exemplified the LCH. They included current as well as future consumption in the utility function and postulated that the consumer maximises his utility function subject to the resources available to him. LCH hypothesis is based on the argument that “the rate of consumption in any given period is a facet of a plan which extends over the balance of the individual’s life, while the income accruing within the same period is but one element which contributes to the shaping of such a plan”.

The LCH makes the assumption that the income stream of an individual is relatively low at the beginning and end of their lifespan and relatively high in mid life as shown in the figure 2.2

![Diagram of consumption and income over time]

Consumers borrow and lend in order to maintain a slightly rising level of consumption over their lifetimes. They will

- Borrow or live off endowments in the early years
- Save and pay off debt in mid life
- Live off savings in retirement.
The typical individual maintains a nearly constant or perhaps slightly increasing level of consumption over his life cycle, although a different pattern is displayed by income. He seeks to accumulate enough earnings during their earning years to maintain the same consumption standard during the years of retirement. As a result, the current consumption of the individual can be expressed as a function of his resources and the rate of return on capital with parameters depending on age. His resources being the sum of current and discounted future earnings over his lifetime and his current net worth.\textsuperscript{30}

The consumption function for each age group is assumed to be

\[ C_{t}^{T} = K^{T} (V_{t}^{T}) \]

\( V_{t} \) Total Resources at time t.

\( T \) Age group to which the function applies.

The total resources available to the individual over his entire life span are the sum of individuals’ net worth at the end of the preceding period plus his income during the current period from the non-property resources and the total of the discounted values of the non-property income expected in the future time periods. The hypothesis assumes that the household’s current consumption is proportional to its resources, the factor of proportionality depending on the interest rate used to discount future income, taste and age of the household. Given the life span of an individual, his consumption is proportional to these resources. However, the proportion of the resources that the consumer plans to spend will depend on whether the spending plan is formulated during the early or later years of his life. As a rule an individual’s average income is relatively low at the beginning of his life and
also at the end of his life. In the middle of his life his income is relatively high. The individual aims at zero saving during the whole life, investing at one time and disinvesting at another. Overall the average propensity to consume is falling as income increases there by showing \( \text{MPC} \leq \text{APC} \) in the short run. The average propensity to consume is constant in the long run.

Friedman’s and Modigliani, Brumberg and Ando’s are the two widely discussed versions of wealth theories. In all these theories long period \( \text{MPC} \) is found to be equal to \( \text{APC} \). Among the other wealth theories of consumption, Spiro\(^3\) (1962) developed one in which he analysed the interconnection between consumption, saving and accumulation of wealth. According to this theory consumption depends on stock of wealth of current and past incomes. Since wealth is accumulated saving, he provided a justification for the assumption in a long run stationary equilibrium, saving would fall to zero and propensity to consume would be unity. The model also implies that a secular upward trend of income would lead to positive savings because the consumers would be induced to hold more wealth and a secular downward trend would lead to negative savings by reducing desired stock of wealth.

Besides these, there were several other types of hypotheses of consumption behaviour such as

- Normal Income Hypothesis of Farrell
- Proportionality Hypothesis
- Rate of Growth Hypothesis
2.11 Modern models of consumption

Modern Models of consumption, based on multi period utility maximisation, covering the volume of literature from the 1950s through the 1970s, begin with the seminal contribution of Modigliani and Brumberg (1954). The model that eventually emerged has several key characteristics. Utility is time separable; that is, the utility that consumption yields today does not depend on the levels of consumption in other periods past or future. Future utility is discounted geometrically. Furthermore, the utility function must satisfy various criteria of plausibility like decreasing marginal utility, decreasing absolute risk aversion, and so on. Finally, the model must incorporate a mathematically rigorous description of how non capital income, capital income, and wealth evolve over time. One of the unpleasant discoveries in the 1960s and 1970s was that when there is uncertainty about the future level of labor income, it appears to be impossible under plausible assumptions about the utility function to derive an explicit solution for consumption as a direct function of the model’s parameters. This is not to say that nothing at all is known about the structure of optimal behavior under uncertainty; for example, it can be proven that consumption always rises in response to a pure increment to wealth. But an explicit solution for consumption is not available.32

2.12 Rational expectations

Standard consumption functions that had worked well into the early seventies; but seriously under predicted aggregate saving during the period of rapid inflation that characterized most western economies in the mid 1970s.In Lucas’s Critique(1976) he argued that variables other than income
are required to predict short run changes in consumption. According to him, consumption is determined by the discounted present value of expected future income. Expectations are based on all the available information. The assumption of rational expectation will produce a value for $Y_p$ and cause an evaluation of future prospects. This will have a different implication for future expectations and future consumption. If the results keep changing, econometric model will be unstable as evidenced by their performance in the mid 1970s.

The introduction of rational expectation has given a completely new lease of life to the study of consumption; with developments as positive as anything, that has happened since the life cycle and permanent income models. Many empirical researches were also conducted to test the theory and quantify the relationship between consumer demand and other variables notified in different approaches. Works undertaken by Hall (1978) Mankiw and Shapiro (1985, 86) merit a special mention here.

According to Hall\(^{33}\), if expectations are rational, then all information available before the current period will be used to estimate permanent income. Therefore changes in consumption will come only as the result of unanticipated changes in income that cause changes in estimated permanent income. He held the view that the level of consumption certainly depends on its own lagged value, but the addition of one or more lagged values of income or of further lagged values of consumption did not significantly add to the explanatory power of the model. Hall examined the role of the number of other lagged variables and discovered that lagged stock market prices had
predictive power for the change in consumption. Hall’s test procedures are attractive because they focus only on consumption and its lags.

2.13 Consumption Euler equation

Robert Hall (1978) provided the impetus for a large empirical literature over the past two decades by pointing out that in the certainty equivalent model, the predictable change in consumption in a given period should be unrelated to any information that the consumer possessed in earlier periods; thus, consumption should follow a random walk. The forward-looking consumers who want to smooth their consumption should react immediately and fully to any information they possess about the future, because if consumption doesn’t react fully and immediately, it will have to finish reacting at some future date, which implies a failure to smooth consumption between the present and that future date. Thus, the only reason for a change in consumption is the arrival of new, previously unknown information. So changes in consumption will not be related to predictable changes in income, or to any other predictable factor. The only exception to the unpredictability of consumption growth comes from the interplay between tastes and opportunities represented by the discount factor and the time preference factor: If interest rates are predictably high, consumption growth will be predictably faster and vice versa for the time preference rate. A similar analysis shows that there is no relationship between the optimal rate of consumption growth and the average rate of income growth in the perfect foresight model. Because the formal statement of Hall’s result relied on the mathematical optimality condition known as the Euler equation, tests of the kind Hall proposed became known as Euler equation tests. Many
papers in the subsequent literature found that consumption growth was strongly related to the predictable component of income growth. This apparent violation of the Euler equation was typically considered evidence either of myopia or of binding liquidity constraints, since the Euler equation does not apply to consumers who are constrained; constrained consumers may set consumption equal to income in every period, even if changes in income are predictable. Flavin (1981) showed that for United States data, consumption is sensitive to anticipated changes in income.

2.14 New Model

The principal development in consumption theory in the last 15 years or so, starting with Zeldes (1984), is that spectacular advances in computer speed have allowed economists to determine optimal behavior under realistic assumptions about uncertainty. A preliminary step was to determine the characteristics of the income uncertainty that typical households face. Using annual income data for working-age households Carroll (1991) found the concavity of the consumption function which implies that impatient consumers will engage in “buffer-stock” saving behavior. That is, there will be some target level of the cash-on-hand ratio such that, if actual cash-on-hand is greater than the target, impatience will outweigh prudence and wealth will fall, while if cash-on-hand is below the target, the precautionary saving motive will outweigh impatience and the consumer will try to build wealth back up toward the target. Buffer-stock saving behavior is a qualitative implication of the model. Perhaps the most striking feature of the converged consumption function is that the marginal propensity to consume (the slope of the consumption function) is much greater at low levels of cash-
on-hand than at high levels. In other words, the converged consumption function is strongly concave. Thus, the first intuitive result that comes out of the analysis is that, as Keynes (1935) argued long ago, rich people spent a smaller proportion of any transitory shock to their income than do poor people.

Economics research in the 1990 and 2000s had led to more revealing tests of the empirical works of MBA and had raised new puzzling questions. Aggregate consumption cannot be expected to behave like individual consumption. Each individual has a consumption path that is growing over time but aggregate consumption is constant, a result that is achieved by old people dying and being replaced by young people who have much lower consumption levels relative to their incomes. Most satisfactory versions of the time series consumption relate the current level of consumption to current income and to lagged consumption.

The above discussions summarised the various approaches towards income consumption relationships. Certain theoreticians argued that the relation is just proportional while others admitted that it is strictly proportional. Similarly interesting arguments took place around the suitability of income concept, whether absolute income, relative income, permanent income or transitory income is more appropriate to associate with consumption. Even in the millennium no definite income concept is conclusively accepted. Cross country and cross sectional evidences do not finally support any argument. However the scope of the present thesis is only limited to Kerala state, one of the states in federal India.


3 John M. Keynes (1936) op cit., pp. 249.


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