CONSUMPTION FUNCTION AND HYPOTHESIS

In most of the world economies, consumer expenditure covers 50 % to 70 % of spending. Thus, it is not surprising that consumer expenditure and the consumption function have been some of the most studied topics in macroeconomics. To understand the nature of the consumption expenditure, we should first understand the fundamental theories about consumption because modern research about the topic has mainly been based on these theories .The fundamental theories of consumption are; absolute income hypothesis (Keynes, 1936), relative income hypothesis (Duesenberry, 1948), permanent income hypothesis (Friedman, 1957) and life cycle hypothesis (Modigliani, 1986)

ABSOLUTE INCOME HYPOTHESIS: (J.M.KEYNES)

Keynes' consumption function has come to be known as the 'absolute income hypothesis' or theory. His statement of the relationship between income and consumption was based on the 'fundamental psychological law'.

He said that consumption is a stable function of current income (to be more specific, current disposable income—income after tax payment).

Because of the operation of the 'psychological law', his consumption function is such that $0 < MPC < 1$ and $MPC < APC$. Thus, a non- proportional relationship (i.e., $APC > MPC$) between consumption and income exists in the Keynesian absolute income hypothesis. His consumption function may be rewritten here with the form

$C = a + bY$, where $a > 0$ and $0 < b < 1$.

It may be added that all the characteristics of Keynes' consumption function are based not on any empirical observation, but on 'fundamental psychological law', i.e., experience and intuition.

Propositions of the Law

Proposition 1

When the aggregate income increases, consumption expenditure increases but by a somewhat smaller amount

After the fulfillment of intense wants there is less and less pressure to raise consumption in proportion to the increase in income.

$\Delta C < \Delta Y$

$$\frac{\Delta C}{\Delta Y} < \frac{\Delta Y}{\Delta Y}$$

MPC < 1

MPC is positive but less than unity (0 < MPC<1) in normal situation. This proposition is the core of Keynes psychological law of consumption.

Proposition 2

An increase in income is divided in some proportion between consumption expenditure and saving. It means that income increases will be partially consumed and partially saved.

This proposition is corollary to the first proposition, because what is not spent is saved.

$\Delta Y = \Delta C + \Delta S$

Proposition 3

With the increase in income, both consumption and savings go up.

This means that increase in aggregate income will never lead to fall in consumption or saving than before. It therefore, emphasizes the short run stability of the consumption function.

Table 1. Psychological Law of Consumption

Income (Y)	Consumption (C)	Savings (S)
0	40	-40
100	120	-20
200	200	00
300	280	20
400	360	40
500	440	60
600	520	80

Table 1. verifies the three propositions.

Income rises by Rs.100 and consumption rises by Rs.80. Thus $\frac{\Delta C}{\Delta Y} < 1$ it is0.80.

Increase in income of Rs.100 in each case is divided between consumption and saving (Rs.80 & Rs.20).
With the rise in income both consumption and savings increase. Three propositions illustrated through the Fig. 1.

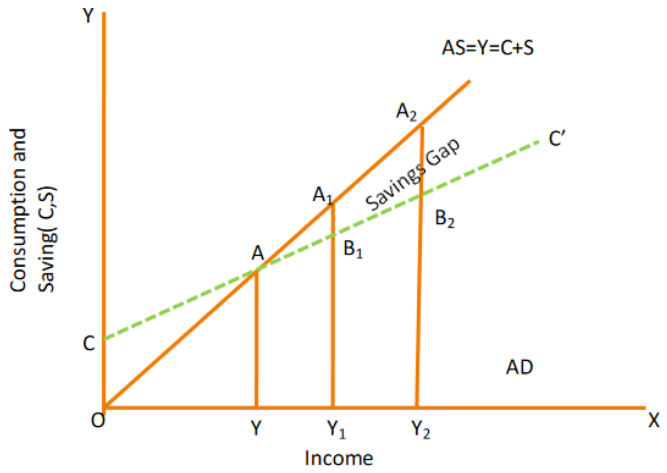


Fig 1 Propositions of Consumption Function

45º Line is the aggregate supply curve (Y = C+S). At zero level of income consumption is 0C. At 0Y level of income, consumption is AY which is equal to 0Y savings are zero at point A on consumption curve.
When income rises from 0Y to $0Y_1$consumption also increases from AY to B_1Y_1 but this rise in consumption is less than the increase in income by A_1B_1.When income increases to $0Y_1$ and $0Y_2$ it is divided into some proportion between $B_1 Y_1$ and $B_2 Y_2$ (consumption) and saving $A_1 B_1$ and $A_2 B_2$respectively.
With rise in income to $0Y_1$ and $0Y_2$, consumption rises to $B_1 Y_1$ and $B_2 Y_2$. $B_2 Y_2 > B_1 Y_1 >$ AY. Savings also rise. $A_2 B_2 > A_1 B_1 >$ zero.
Savings gap increases as increment in consumption is less than the increment in income.

Assumptions of the Law

Constancy of the existing psychological and institutional complex

1. Keynes presumed a constant psychological and institutional complex.

In other words, consumption depends on income alone and institutional and psychological factors such as income distribution, tastes, habits, fashion, customs, rate of population growth etc. are assumed to be constant.

2. Existence of normal conditions

This law assumes the existence of normal conditions in the economy. There are no abnormal and extraordinary circumstances such as war, revolution or hyper inflation etc.

3.Prosperous Capitalist Economy based on Laissez faire

This law assumes a wealthy capitalist economy based on laissez faire that is a free economy in which there is no government interference. People can consume goods according to their needs & desires.
Implications of the Law

RELATIVE INCOME HYPOTHESIS: (J.S. Duesenberry)

Studies in consumption then were directed to resolve the apparent conflict and inconsistencies between Keynes' absolute income hypothesis and observations made by Simon Kuznets. Former hypothesis says that in the short run MPC < APC, while Kuznets' observations say that MPC = APC in the long run.

One of the earliest attempts to offer a resolution of the conflict between short run and long run consumption functions was the 'relative income hypothesis' J.S. Duesenberry in 1949. Duesenberry believed that the basic consumption function was long run and proportional. This means that average fraction of income consumed does not change in the long run, but there may be variation between consumption and income within short run cycles.

Duesenberry's RIH is based on two hypotheseis –

a) **First is the relative income hypothesis ,and**
b) **Second is the past peak income hypothesis.**

a) Duesenberry's first hypothesis says that consumption depends not on the 'absolute' level of income but on the 'relative' income— income relative to the income of the society in which an individual lives. It is the relative position in the income distribution among families influences consumption decisions of individuals.

A households consumption is determined by the income and expenditure pattern of his neighbours. There is a tendency on the part of the people to imitate or emulate the consumption standards maintained by their neighbours. Specifically, people with relatively low incomes attempt to 'keep up with the Joneses'—they consume more and save less. This imitative or emulative nature of consumption has been described by Duesenberry as the "demonstration effect."

The outcome of this hypothesis is that the individuals' APC depends on his relative position in income distribution. Families with relatively high incomes experience lower APCs and families with relatively low incomes experience high APCs. If, on the other hand, income distribution is relatively constant (i.e., keeping each families relative position unchanged while incomes of all families rise). Duesenberry then argues that APC will not change.

Thus, in the aggregate we get a proportional relationship between aggregate income and aggregate consumption. Note MPC = APC. Hence the R1H says that there is no apparent conflict between the results of cross-sectional budget studies and the long run aggregate time-series data.

b) In terms of the second hypothesis short run cyclical behaviour of the Duesenberry's aggregate consumption function can be explained. Duesenberry hypothesised that the present consumption of the families is influenced not just by current incomes but also by the levels of past peak incomes, i.e., $C = f(Y_{ri}, Y_{pi})$, where Y_{ri} is the relative income and Y_{pi} is the peak income.

This hypothesis says that consumption spending of families is largely motivated by the habitual behavioural pattern. It current incomes rise, households tend to consume more but slowly. This is because of the relatively low habitual consumption patterns and people adjust their consumption standards established by the previous peak income slowly to their present rising income levels.

On other hand, if current incomes decline these households do not immediately reduce their consumption as they find if difficult to reduce their consumption established by the previous peak income. Thus, during depression consumption rises as a fraction of income and during prosperity consumption does increase slowly as a fraction of income. This hypothesis thus generates a non-proportional consumption function.

Duesenberry's explanation of short run and long run consumption function and then, finally, reconciliation between these two types of consumption function can now be demonstrated in terms of Fig. 3.39. Cyclical rise and fall in income levels produce a non-proportional consumption-income relationship, labelled as C_{SR}. In the long run as such fluctuations of income levels are get smoothened, one gets a proportional consumption-income relationship, labelled as C_{LR}.

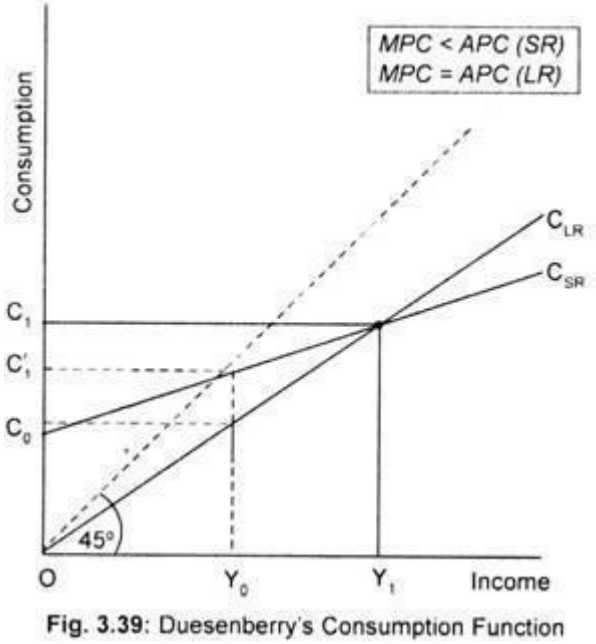


Fig. 3.39: Duesenberry's Consumption Function

As national income rises consumption grows along the long run consumption, C_{LR}. Note that at income OY_0 aggregate consumption is OC_0. As income increases to OY_1, consumption rises to OC_1. This means a constant APC consequent upon a steady growth of national income.

Now, let us assume that recession occurs leading to a fall in income level to OY_0 from the previously attained peak income of OY_1. Duesenberry's second hypothesis now comes into operation:

households will maintain the previous consumption level what they enjoyed at the past peak income level. That means, they hesitate in reducing their consumption standards along the C_{LR}. Consumption will not decline to OC_0, but to OC'_1 (> OC_0) at income OY_0. At this income level, APC will be higher than what it was at OY_1 and the MPC will be lower.

If income rises consequent upon economic recovery, consumption rises along C_{SR} since people try to maintain their habitual or accustomed consumption standards influenced by previous peak income. Once OY_1 level of income is reached consumption would then move along C_{LR}. Thus, the short run consumption is subject to what Duesenberry called **'the ratchet effect'**. It ratchets up following an in- crease in income levels, but it does not fall back downward in response to income declines.

PERMANENT INCOME HYPOTHESIS: Milton Friedman

Another attempt to reconcile three sets of apparently contradictory data (cross-sectional data or budget studies data, cyclical or short run time-series data and Kuznets' long run time-series data) was made by Nobel prize winning Economist, Milton Friedman in 1957. Like Duesenberry's RIH, Friedman's hypothesis holds that the basic relationship between consumption and income is proportional.

But consumption, according to Friedman, depends neither on 'absolute' income, nor on 'relative' income but on 'permanent' income, based on expected future income. Thus, he finds a relationship between consumption and permanent income. His hypothesis is then described as the 'permanent income hypothesis' (henceforth PIH). In PIH, the relationship between permanent consumption and permanent income is shown.

Friedman divides the current measured income (i.e., income actually received) into two: permanent income (Y_p) and transitory income (Y_t). Thus, $Y = Y_p + Y_t$. Permanent income may be regarded as 'the mean income', determined by the expected or anticipated income to be received over a long period of time. On the other hand, transitory income consists of unexpected or unanticipated or windfall rise or fall in income (e.g., income received from lottery or race). Similarly, he distinguishes between permanent consumption (C_p) and transistory consumption (C_t). Transistory consumption may be regarded as the unanticipated spending (e.g., unexpected illness). Thus, measured consumption is the sum of permanent and transitory components of consumption. That is, $C = C_p + C_t$.

Friedman's basic argument is that permanent consumption depends on permanent income. The basic relationship of PIH is that permanent consumption is proportional to permanent income that exhibits a fairly constant APC. That is, $C = kY_p$ where k is constant and equal to APC and MPC.

While reaching the above conclusion, Friedman assumes that there is no correlation between Y_p and Y_t, between Y_t and C_t and between C_p and C_t. That is

$RY_t . Y_p = RY_t . C_t = RC_t . Cp = 0.$

Since Y_t is uncorrected with Y_p, it then follows that a high (or low) permanent income is not correlated with a high (or low) transitory income. For the entire group of households from all income groups transitory incomes (both positive and negative) would cancel each over out so that average transitory income would be equal to zero. This is also true for transitory components of consumption. Thus, for all the families taken together the average transitory income and average transitory consumption are zero, that is,

$Y_t = C_t = 0$ where Y and C are the average values. Now it follows that

$Y = Y_p$ and $C = C_p$

Let us consider some families, rather than the average of all families, with above-average measured incomes. This happens because these families had enjoyed unexpected incomes thereby making transitory incomes positive and $Y_p < Y$. Similarly, for a sample of families with below-average measured in come, transitory incomes become negative and $Y_p > Y$.

Now, we are in a position to resolve the apparent conflict between the cross-section and the long run time-series data to show a stable permanent relationship between permanent consumption and permanent income.

The line $C_p = kY_p$ in Fig 3.40 shows the proportional relationship between permanent consumption and permanent income. This line cuts the C_{SR} line at point L that corresponds to the average measured income of the population at which $Y_t = 0$. This average measured income produces average measured and permanent consumption, C_p.

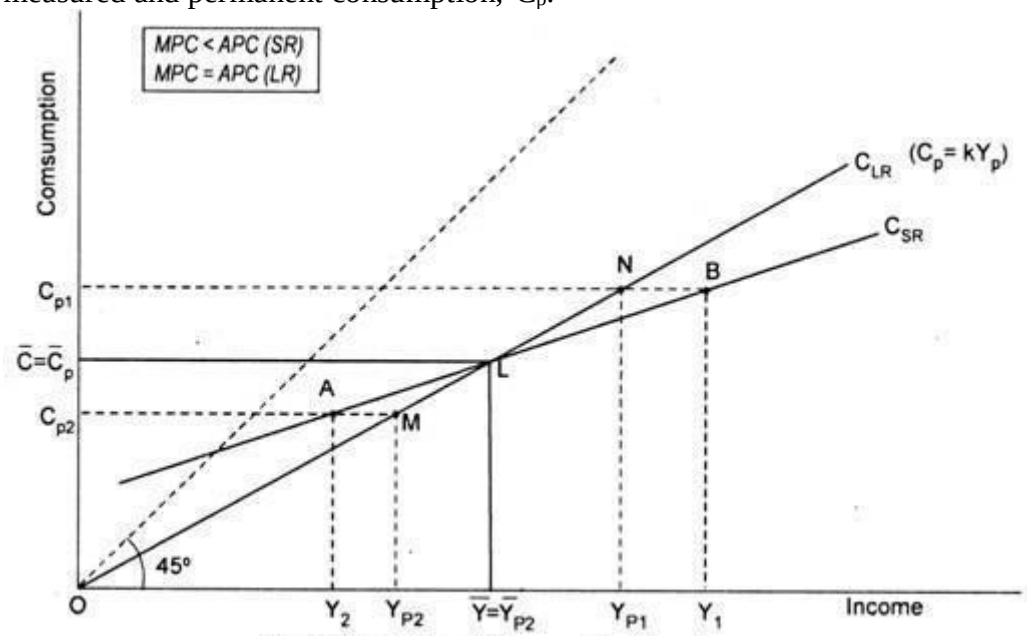


Fig. 3.40: Friedman's Consumption Function

Let us first consider a sample group of population having an average income above the population average. For this population group, transistory income is positive. The horizontal difference between the short run and long run consumption functions (points N and B and points M and A) describes the transitory income. Measured income equals permanent income at that point at which these two consumption functions intersect, i.e., point L in the figure where transitory income in zero.

For a sample group with average income above the national average measured income (Y_1) exceeds permanent income (Y_{P1}). At (C_{P1}) level of consumption (i.e., point B) average measured income for this sample group exceeds permanent income, Y_{P1}. This group thus now has a positive average transitory income.

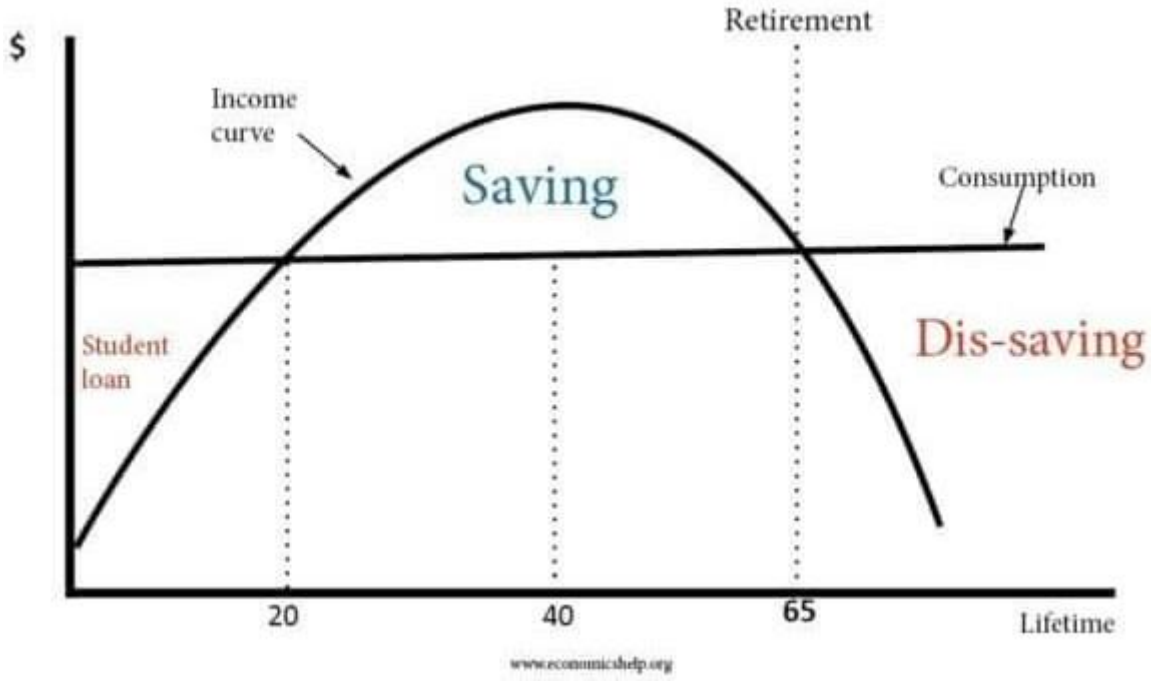
Next, we consider another sample group of population whose average measured income is less than the national average. For this sample group, transitory income component is negative. At C_{p2} level of consumption (i.e., point A lying on the C_{SR}) average measured income falls short of permanent income, Y_{p2}. Now joining points A and B we obtain a cross- section consumption function, labelled

as C_{SR}. This consumption function gives an MPC that has a value less than long run proportional consumption function, $C_p = kY_p$. Thus, in the short run, Friedman's hypothesis yields a consumption function similar to the Keynesian one, that is, MPC < APC.

However, over time as the economy grows transitory components reduce to zero for the society as a whole. So the measured consumption and measured income values are permanent consumption and permanent income. By joining points M, L and N we obtain a long run proportional consumption function that relates permanent consumption with the permanent income. On this line, APC is fairly constant, that is, APC = MPC.

LIFE CYCLE HYPOTHESIS: Modigliani

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

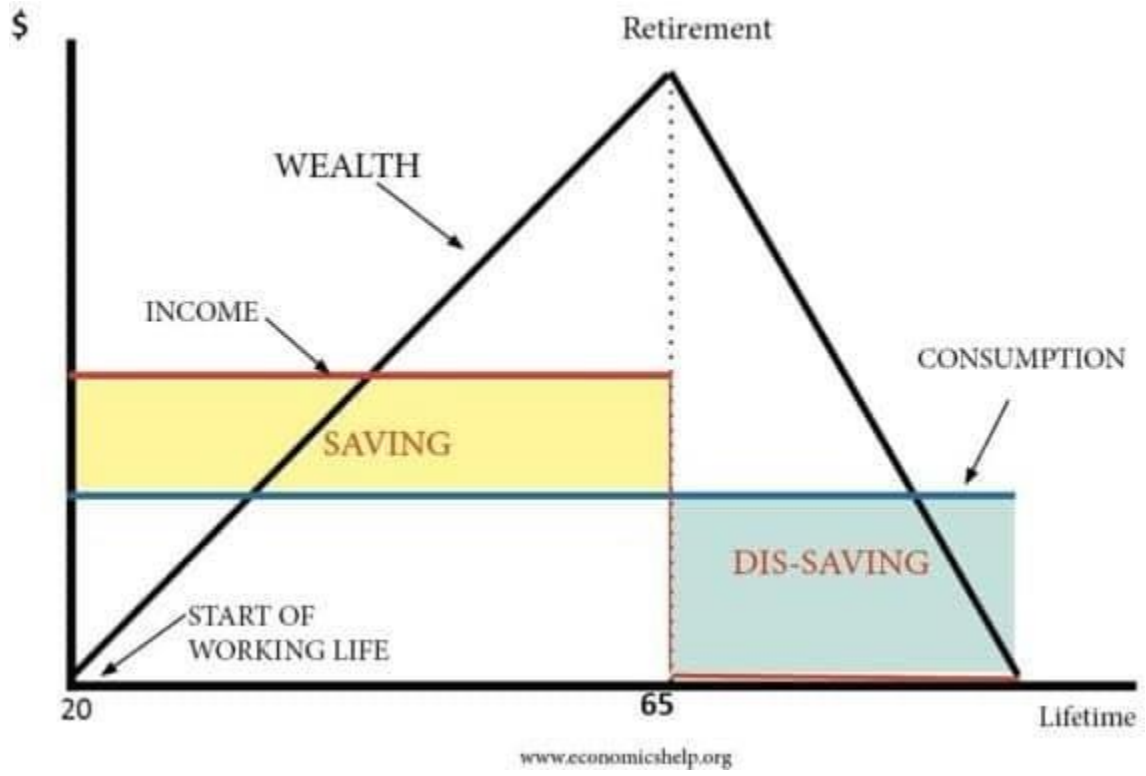


The graph shows individuals save from the age of 20 to 65.

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

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

Wealth in the Life-Cycle Hypothesis



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

Consumption will depend on

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

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

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

$$C = aW + bY,$$

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

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

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