

CONSUMPTION FUNCTION

Consumption means using up commodities. Function means the relationship between two or more variables¹. Consumption function means the technical relationship between income and consumption, i.e., $C = f(Y)$, Where C is the consumption and the dependent variable Y is the income and the independent variable. There is direct relationship between income and consumption.

CLASSICAL VIEWS ON CONSUMPTION FUNCTION

Classical argued that the level of consumption was determined by the rate of interest. When rate of interest increases, saving also increases by reduction in current consumption and when rate of interest decreases, saving also decreases and current consumption increases. Therefore, there was an inverse relationship between rate of interest and consumption.

KEYNESIAN CONSUMPTION FUNCTION

According to Keynes primarily the level of income determines consumption expenditures. Keynes argued consumption is relatively unaffected by interest rate. They said that Marginal Propensity to Consume (MPC) is positive and less than unity and that APC declines as income increases.

PROPENSITY TO CONSUME

Men are disposed, as rule, and on the average, to increase their consumption as their income increases but not by as much as the increase in their income, which is popularly known as “*Propensity to consume*” or “*Consumption function*”.

PROPENSITY TO CONSUME SCHEDULE OR CONSUMPTION FUNCTION SCHEDULE

Propensity to consume schedule or Consumption function schedule is a schedule of the various amounts of consumption expenditure corresponding to different levels of income. A hypothetical consumption function schedule is given below.

TABLE 1
PROPENSITY TO CONSUME SCHEDULE

Income (Y) (in Rs.)	Consumption (C) (in Rs.)	Saving (S) (in Rs.)	MPC ($\Delta C/\Delta Y$)	MPS ($\Delta S/\Delta Y$)	MPC + MPS	APC (C/Y)	APS (S/Y)	APC + APS
100	060	040	0.50	0.50	01	0.60	0.40	01
120	070	050	0.50	0.50	01	0.58	0.42	01
140	080	060	0.50	0.50	01	0.57	0.43	01
160	090	070	0.50	0.50	01	0.56	0.44	01
180	100	080	0.50	0.50	01	0.55	0.45	01
200	105	095	0.25	0.75	01	0.53	0.47	01
220	107	113	0.10	0.90	01	0.49	0.51	01
240	107	133	0.00	0.90	01	0.46	0.54	01

¹ Variable means which varies with time or any other attributes.

By taking income in X-axis and consumption in Y-axis, we will get an upward sloping curve as shown in figure 1. CC is the propensity to consume curve or curve of consumption function, which rises from downward to upward indicating that as the income increases consumption also increases but to a lesser degree than the increase in income.

Figure 1

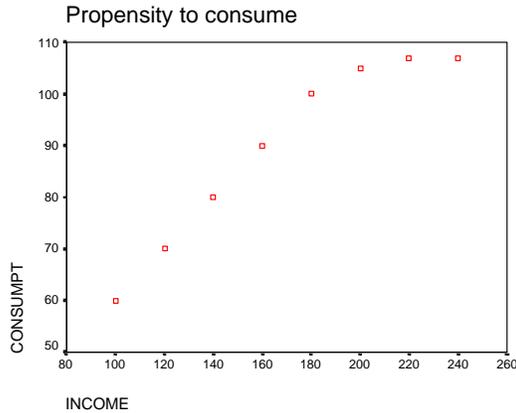
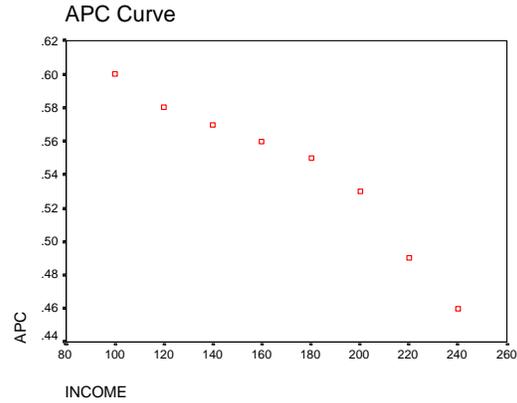


Figure 2



NOTE: Consumption, C, represents the *amount* of consumer expenditures made at a *given* level of income, where as propensity to consume, C (Y), is a *schedule* of consumer expenditures at *various* income levels.

AVERAGE PROPENSITY TO CONSUME [APC]

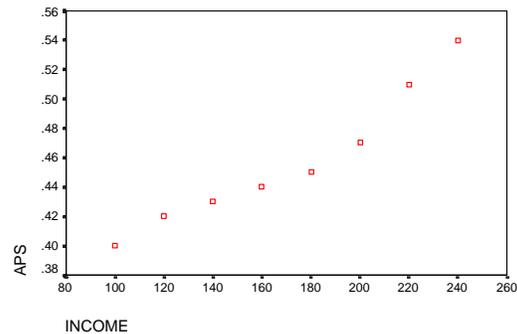
It may be defined as the ratio of consumption expenditure to any particular level of income, i.e., $APC = C / Y$. Table 1, Shows that the APC declines as income increases because the proportion of income spent on consumption decreases. Figure 2 shows the APC Curve, which is a flatter curve than consumption curve in figure 1.

AVERAGE PROPENSITY TO SAVE [APS]

It may be defined as the ratio of saving to any particular level of income, i.e., $APS = C/Y$. Table 1, Shows that the APS increases as income increases. Figure 3 shows the APS Curve, which is an upward sloping curve.

FIGURE 3

APS CURVE



RELATIONSHIP BETWEEN APC AND APS

1. $APC + APS = 1$
2. $APC = 1 - APS$
3. $APS = 1 - APC$

MARGINAL PROPENSITY TO CONSUME [MPC]

It may be defined as the ratio of change in consumption to the change in income or as the rate of change in the propensity to consume as income changes, i.e., $MPC = \Delta C / \Delta Y$. Table 1 shows that the MPC is always less than one. Generally, MPC decreases as income increases that is less and less of an equivalent marginal income consumed. Diagrammatically, the slope of consumption curve measures the MPC.

MARGINAL PROPENSITY TO SAVE [MPS]

It may be defined as the ratio of change in saving to the change in income or as the rate of change in the propensity to save as income changes, i.e., $MPS = \Delta S / \Delta Y$. Table 1 shows that the MPS is always less than one. Generally, MPS increases as income increases that is more and more of an equivalent marginal income saved.

RELATIONSHIP BETWEEN MPC AND MPS

1. The value of MPC / MPS lay between zero and one, i.e., $0 < MPC < 1$ and $0 < MPS < 1$
2. $MPC + MPS = 1$
3. $MPC = 1 - MPS$
4. $MPS = 1 - MPC$
5. The MPC declines as income increases and MPS increases as income increases.

RELATIONSHIP BETWEEN MPC AND APC

1. MPC refers to the *marginal* increase in consumption (ΔC) as a result of marginal increase in income (ΔY) and APC means the ratio of total consumption to total income (C/Y).
2. As income increases, the MPC as well as the APC both decline, but decline in the MPC is more than the decline in the APC.
3. When the MPC is constant, the consumption function is linear, i.e., a straight-line curve. The APC will also be constant only if the consumption function passes through the origin. However, if it does not pass through the origin, the APC will not be constant.
4. Sometimes the MPC and the APC may be equal. The post-Keynesian economists have come to the conclusion that over the long run the MPC is equal to the APC and approximate 0.9.
5. The MPC is higher in poor communities and lower in case of rich communities.

SIGNIFICANCE / IMPORTANCE OF THE MPC

1. Keynes is concerned primarily with the MPC for his analysis pertains to the short run while the APC is useful in long run analysis.
2. The post-Keynesian economists have come to the conclusion that over the long run the MPC is equal to the APC and approximate 0.9.
3. $0 < MPC < 1$, which means that when income increases the whole of it, is not spent on consumption.
4. The MPC is higher in poor communities and lower in case of rich communities which means Under Developed Country's (UDCs) MPC is higher than developed countries.
5. The higher the MPC, the higher is the multiplier value and vice-versa.

KEYNES'S PSYCHOLOGICAL LAW OF CONSUMPTION²

Keynes's Psychological Law of Consumption states that men are disposed, as rule, and on the average, to increase their consumption as their income increases but not by as much as the increase in their income, which is popularly known as "*Propensity to consume*" or "*Consumption function*".

Propositions of the law

The law has three related propositions:

1. When income increases, consumption expenditure also increases but by a smaller amount
2. The increased income will be divided in some proportion between consumption expenditure and saving, i.e., $\Delta Y = \Delta C + \Delta S$.
3. Increased in income always leads to an increase in both consumption and saving.

Assumptions of the law

1. He presumes a *constant psychological-institutional complex*. It means consumption depends on income alone and other factors like income distribution, taste, fashion, population growth, price level etc remain constant.
2. There exist *normal circumstances* and not extra ordinary circumstances like war, revolution, hyperinflation etc.
3. It assumes the existence of a laissez- faire capitalistic economy.

IMPORTANCE OF CONSUMPTION FUNCTION OR IMPLICATIONS OF KEYNES'S PSYCHOLOGICAL LAW OF CONSUMPTION

1. **Vital importance of investment:** In short run the consumption function is assumed to be stable. It is from the stability principle of propensity to consume that Keynes draws the conclusion that employment can only be increased with an increase in investment.
2. **Repudiation of Say's law:** Say's law of market says that 'Supply creates its own demand' means there is no over production. According to Keynes, $0 < MPC < 1$, which states that what ever produced, is not consumed, means general over production. So, consumption function analyses of Keynes discard Say's law.
3. **Turning points of Trade cycle:** Keynes doctrine of consumption function indicates that a sever depression is arrested by the fact that consumption does not decrease as rapidly as income decrease. Thus, the concept of consumption function gives an insight into the theory of trade cycle too.
4. **Underemployment equilibrium:** MPC being less than one, consumers fail to spend on consumption as much as increase in income, Hence, what we have in the economy is the underemployment equilibrium.
5. **State intervention:** When consumption lags behind income and causes depression, state has to intervene to encourage consumption or control it in case of inflation. Thus, state intervention becomes an important implication of consumption function.

DETERMINANTS OR FACTORS AFFECTING CONSUMPTION FUNCTION

Subjective factors: The subjective factors which affect the propensity to consume adversely, consists of psychological motives such as precautions, foresight, family affection, old age security, improvement etc. Keynes doesn't think that all the subjective motives impel one to reduce consumption. The corresponding motives, which induce one to spend more on consumption, are enjoyment, better standard of living, recreation, generosity, extravagance and

² This is explained clearly in his book "**The General Theory of Employment, Interest and Money**" written in 1936.

ostentations. Similarly, there are motives the liquidity, initiative, enterprise, improvement in techniques of production and financial prudence which induce governments, business companies and corporations to curtail consumption and increase saving.

Objective factors:

1. **Income:** Income is the most important factor that influencing consumption. As income rises or falls, consumption also rises or falls.
2. **Distribution of income:** The wide spread inequality in income lowers the over all propensity to consume as the rich have already fulfilled most of their basic wants. A more equal distribution of wealth will go to raise the propensity to consume.
3. **Financial Policies of Corporation:** If corporations and companies keep more reserves and distribute less of their profits as dividends, it will lower the disposable income with consumers. On the other hand, if more income is distributed in the form of dividend, more will be spent on consumption.
4. **Windfall gains or losses:** Sudden and unexpected gains or losses in income affect consumption positively or negatively.
5. **Change in Wage rates / levels:** If the wage level rises, the consumption shifted upward and vice-versa.
6. **Change in fiscal policy;** Change in fiscal policy in the form of taxation and public expenditure affect consumption function. Imposition of more taxes reduces the disposable income of the consumers, which adversely affect consumption and vice-versa. On the other hand, increase in public expenditure injects more money to the economy, which ultimately reaches at the hands of the consumers, and more money boost consumption expenditure.
7. **Change in expectation:** If people's expectation change like they expect war in near future, they will save more and consume less.
8. **Change in rate of interest:** If rate of interest increases people intended to save more and consume less to get more benefits and vice-versa.
9. **Holding liquid assets:** Liquid assets (currency, bank deposits, shares and so on) and change therein also affect the propensity to consume. When people have large amounts of liquid assets, they show a tendency to spend more on consumption and vice-versa.
10. **Pigou Effect:** Prof. A. C. Pigou argued that that a general fall in prices induced by the general wage cut will increase the *real value* of cash balances and other form of saving thereby leading to a higher rate of consumption. This latter relationship (between the real value of the liquid assets and consumption) has come to be known as the '*Pigou Effect*' in brief, means that the real value of money assets rises as a result of general wage cut and prices. The rises in the real value of money assets shift the consumption function upwards. It is also called '*Real Value of Money Assets Effects*'.

MEASURES TO STIMULATE CONSUMPTION FUNCTION

1. Income Redistribution
2. Increase social security
3. Increase in Wages
4. Easy credit facilities
5. Urbanization and industrialization
6. Advertising and propaganda

ABSOLUTE INCOME HYPOTHESIS OF KEYNES

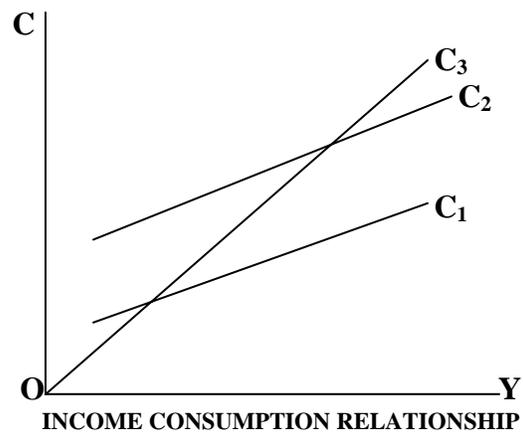
The Absolute Income Hypothesis of Keynes states that consumption expenditure (C) are a function solely of current personal disposable income (Y_d): $C = C(Y_d)$. The determinants of consumption was detailed in the General Theory of Employment, Interest and Money by Keynes who hypothesized that consumption would be functionally related to income in the following way:

1. For any change in income the corresponding change in consumption would be in the same direction but of a smaller magnitude. The MPC would be less than one: $0 < MPC < 1$.
2. The MPC would be less than APC, i.e., $MPC < APC$.
3. The rate of change of MPC would be negative that is the slope of the consumption function will become flatter as income rises.

While short run time series and cross section evidence on the form of consumption function broadly support Keynes hypothesis, long run evidence contradicts it.

Figure 1

According to the Absolute Income Hypothesis, the consumption income relationship in non-proportional, as shown in the figure 1. In the figure 1, as income increases over time, consumption follows the non-proportional function shown by C_1 , but over the long run the statistical evidence suggests that consumption function follows the path of the proportional function as shown by C_3 . The advocates of the Absolute Income Hypothesis argue that there are upward shift in the non-proportional consumption function as shown by the shift from C_1 to C_2 , caused by the factors other than income.



1. With the increase in the accumulated wealth of households that has accompanied the long run growth of income, households have tended to spend a larger fraction of any given level of income, thereby contributing to an upward shift in the consumption function.
2. Migration of population from rural to urban areas caused to shift consumption function.
3. The percentage of older people in the population has increased over the long run period. Because per capita consumption in this age group does not drop off as rapidly as does per capita income, the consumption function tends to shift upward.
4. New consumer goods have been introduced at a rapid rate over this long run period. As more and more of these goods become regarded as 'essentials' by the typical household, the consumption function tends to shift upward.

Doubts about the adequacy of the Absolute Income Hypothesis arose because of its apparent inability to reconcile budget data on saving with observed long run trends

RELATIVE INCOME HYPOTHESIS (JAMES S. DUESENBERY)

The Relative Income Hypothesis (RIH) of James S. Duesenberry is based on the rejection of the two fundamental assumptions of the consumption theory of Keynes:

1. Every individual's consumption behaviour is not independent but interdependent of the behaviour of every other individual; and
2. Consumption relations are irreversible and not reversible in time.

The RIH states that consumption depends on two things:

1. Income relative to that of other households or individuals; and
2. The level of income in the immediate preceding periods.

This two-part theory of Duesenberry explains the conflicting long run and short run cross section evidence on the specification of the consumption function.

The first part suggests that the fraction of income consumed by a household, its APC, is determined by its *Relative Income*, i.e., by its position in the *income distribution* (Microanalysis). Therefore, if all incomes double its position in the income distribution is unchanged and it will continue to consume the same proportion of income, its APC will remain unchanged. It can, therefore, be shown that if the income distribution remains unchanged in the long run the APC will remain constant as income increases. This aspect of the theory explains the evidence on the form of the *Long Run Consumption Function* (Macroanalysis).

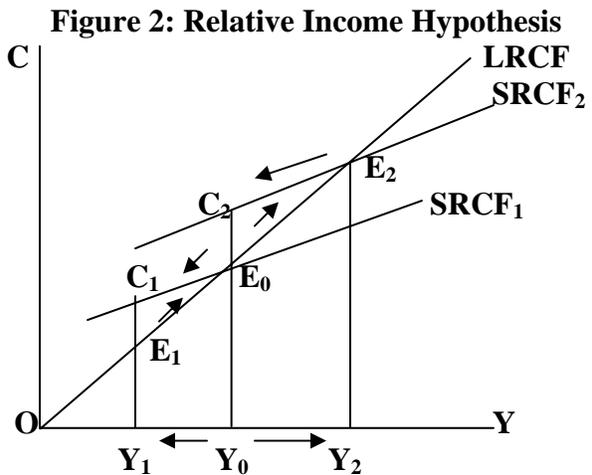
In its focus on relative income, this hypothesis emphasizes the imitative or emulative nature of consumption. A family with any given level of income will typically spend more on consumption if it lives in a community in which that income is relatively low than if it lives in a community in which that income is relatively high. This tendency arises in part from the pressure on the family to "*keep up with the Joneses*" and in part from the fact that as the family observes what seems to be the superior goods of other families it will be tempted to spend as a result of what James S. Duesenberry calls the "**Demonstration Effect**" (Microanalysis).

The second part of the hypothesis explains the specification of the short run consumption function. It suggests that households find it easier to adjust to rising incomes than falling incomes. Therefore as income declines in the recession, household seeks to maintain their standard of living and their consumption falls by less than their income. It follows that at lower levels of income, during the recessionary phase of the trade cycle, the APC rises as the evidence on the short run consumption function suggests. This is known as "*Ratchet Effect*".

Duesenberry combines his two related hypothesis in the following form:

$$C_t / Y_t = a + b (Y_h / Y_t)$$

Where C_t is the current level of expenditure, Y_t is the current level of income, Y_h is the highest level of income previously earned, 'a' and 'b' are numerical constants which relate income to consumption. The above equation states that when Y_t increases relative to Y_h , the APC decreases and increase in total consumption is not proportional to the increase in total income.



In figure 2, LRCF is the long run consumption function; $SRCF_1$ and $SRCF_2$ are the short run consumption functions. Suppose income is at the peak level of OY_0 where E_0Y_0 is consumption. Suppose income fall to OY_1 , people are used to the standard of living at the OY_0 level of income, they will not reduce their consumption to E_1Y_1 level but to C_1Y_1 , moving backward along the $SRCF_1$. If income continues to increase to OY_2 level, consumers will move upward along the LRCF curve from E_0 to E_2 on the new $SRCF_2$. If another recession occurs at OY_2 level of income, consumption will decline along $SRCF_2$.

CRITICISMS:

1. Increase in income along the full employment level does not always lead to proportional increase in consumption.
2. The RIH assumes direct relationship between income and consumption but in recession it is not correct.
3. The consumer behaviour is slowly reversible, instead of being truly irreversible.
4. Consumer preferences are interdependent towards only rich neighbour.

PERMANENT INCOME HYPOTHESIS OF MILTON FRIEDMAN

The Permanent Income Hypothesis / Theory of consumption argues that consumption is related *not* to current income but to a long term estimate of income, which Milton Friedman, who introduced the theory, calls “*permanent income*”. Friedman provides a simple example: consider a person who is paid or receives income only once a week, on Fridays. We do not expect that person to consume only on Friday, with zero consumption on the other days of the week. People prefer a *smooth consumption* flow rather than plenty today and scarcity tomorrow or yesterday.

Permanent income may be thought of as the income an individual expects to derive from his work and his holdings of wealth during his lifetime. More technically, each consumer arrives at an approximation of his or her permanent income on the basis of his or her total wealth, human and nonhuman. For some people, the wages and salaries from human capital make up almost all of their income; for some others there is rental, interest and dividend income derived from nonhuman wealth in the form of real property and financial assets. Therefore, permanent income depends on the consumers ‘*horizon and foresightedness*’.

Given this meaning of permanent income, a family’s *measured or observed income* (= *Permanent income + transitory income*) in any particular year may be larger or smaller than its permanent income. Friedman divides the family’s measured yearly income into permanent and transitory components, so that its measured income is larger or smaller than its permanent income, depending on the sum of positive or negative transitory income components. Transitory income is the *unexpected income* or the *windfall gains* (ex. bonus) or *losses* (ex. loss of income due to shut down of industry).

In the same way, Friedman divides measured consumption into *permanent and transitory components*. A good purchased because of an attractive price or normal purchases deferred due to unavailability of the goods are examples of *positive and negative* transitory consumption³. As with measured income, a family’s measured consumption in any particular period may be larger or smaller than its permanent consumption.

ASSUMPTIONS:

1. There is no correlation between transitory and permanent income.
2. There is no correlation between transitory and permanent consumption.
3. There is no correlation between transitory consumption and transitory income.
4. Permanent income affects consumption systematically.

³ Friedman also defines consumption as spending on services and nondurable goods plus the depreciation and interest cost on consumer durable goods. A net addition to the family’s stock of durable goods is treated as saving. The purchase of consumer durables, the theory suggests, represents **investment** by the household and **only the flow of services** from these enters consumption. It is of course, extremely difficult to obtain measures of the true value of these services.

Friedman's basic argument that permanent consumption depends on permanent income. The theory argues that permanent consumption (C_p) is a constant proportion of permanent income (Y_p), which depends only on the interest rate (r), the ratio of non-human wealth to total wealth (human and non-human) (w), and tastes or utilities (u).

$$C_p = cY_p; \quad c = C_p / Y_p$$

$$c = f(r, w, u)$$

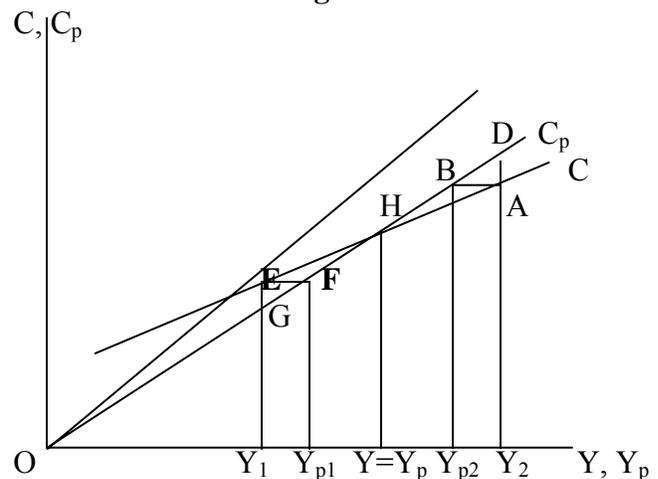
Tastes are affected by factors such as age and family composition. The permanent consumption of different families with the permanent income will, therefore, vary according to their specific characteristics. However, if there is no reason to expect these characteristics to vary with the level of income, it may be assumed that the average ratio of consumption to permanent income for groups of families at different levels of permanent income will be the same. The AP of families at all levels of family income is held to be the same when $APC = C_p / Y_p$.

Another basic argument of Friedman's permanent income hypothesis is that the transitory component of consumption is not correlated with the transitory component of income. This amounts to saying that in a period in which a family's measured income contains a transitory component, it does not reduce its consumption in response, nor under the opposite circumstances, does it raise its consumption. Unexpected increases or decreases in income, therefore, result in equivalent increases or decreases in saving; consumption is unaffected by "wind fall" gains or losses. In other words, *the MPC out of transitory, or "wind fall", income is held to be zero*. By criticizing this argument of Friedman, H. S. Houthakker says "*the man who has a lucky day at the races does not buy his friends a drink and the poor fellows whose wallet is stolen does not postpone the purchase of new overcoat*".

Figure 3

In figure 3, Y is the measured income, Y_p is the permanent income, C is the measured consumption, C_p is the permanent consumption. According to PIH, APC out of permanent income is constant which is shown by C_p as it starts from origin⁴. The C curve that intercepts the vertical axis above the origin displays an APC that decreases at successively higher levels of family income.

Families in the upper income classes will tend to have positive transitory income, where as those in the lower income classes will tend to have negative transitory income. Families in the average level will tend to have zero transitory income, i.e., for families measured income equals permanent income or $Y = Y_p$.



The Relationship Between Measured Consumption and Measured Income and between Permanent Consumption and Permanent Income

⁴ Only a straight line through the origin displays the property of constant APC.

Let us examine any level of measured income in figure 3 other than the average level – for example Y_2 . Because transitory income is correlated with measured income, families at this measured income level will, generally, have permanent income below measured income (positive transitory income). From the basic argument that permanent consumption is proportional to permanent income, illustrated in figure 3 by the C_p curve, it would follow that consumption at measured income of Y_2 would have been that shown by D on the C_p curve if Y_2 had included no transitory income – that is, if it had been permanent income. However, because there is a positive transitory component in Y_2 , consumption is indicated by A rather than D. The fact that consumption is the amount shown by A establishes that the average permanent income of families with measured income Y_2 is Y_{p2} . This follows because at this level of permanent income, consumption will be the amount indicated by point B on the C_p curve, which is an amount equal to A on the C curve.

If we examine a level of measured income below the average – for example Y_1 – the relationship parallel those noted for the Y_2 income level. However families at Y_1 income level, on the average, will have permanent income above measured income (negative transitory income). Families with income of Y_1 have measured consumption shown by point E. as before, permanent consumption equals measured consumption, or equals E. If Y_1 had included no transitory income – that is, if it had permanent income – consumption at Y_1 would have been that shown by point G on the C_p curve. However, because there is a negative component of transitory income in Y_1 , consumption is the larger amount shown by E. As in the preceding paragraph, the fact that consumption is the amount shown by E indicates that the average permanent income of the families with measured income of Y_1 is Y_{p1} . at this level of permanent income, consumption will be the amount indicated by point F on the C_p curve, which is an amount equal to E on the C curve.

THE LIFE - CYCLE HYPOTHESIS OF FRANCO MODIGLIANI

This hypothesis developed by Franco Modigliani, Richard E. Brumberg and Albert Ando. It states that individuals consume a constant proportion of the *present value of their lifetime income* each period, i.e., $C_t = kV_t$, where C_t is the current consumption by an individual, k is the constant proportion of V_t consumed and V_t is the present value of the lifetime income. Precisely what this proportion will be depends on each consumer's taste and preferences but provided the distribution of population by age and income is relatively constant. Lifetime (V_t) income is the sum of the value of all property assets as of that year (A_t) plus labour or non-property income for that year (Y_{Lt}) plus the present or year t value of expected labour or non-property income of future years (Y^e_{Lt}).

$$V_t = A_t + Y_{Lt} + Y^e_{Lt} \text{ Therefore, } C_t = k (A_t + Y_{Lt} + Y^e_{Lt})$$

Assumptions of the hypothesis:

1. There is no change in the price level during the life of the consumer.
2. The rate of interest remains stable.
3. The consumer does not inherit any assets and his net assets are the result of his own saving.

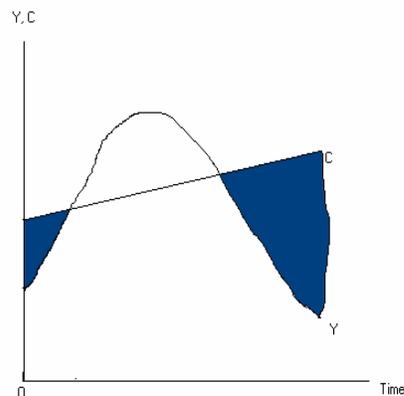
The hypothesis argues that the general pattern of lifetime earning is such that income level would reveal a disproportionately large number of people in middle age at the upper end of the income distribution and a disproportionately large number of young and old people at the lower end. Young and old households have a high average propensity consume, indeed, they have often engaged in dissaving. Frequently they either borrow against their future income, as in case of young, or run down their life savings as in the case of the old. In contrast middle-aged household are either paying back earlier debts or saving for old age and therefore have a low average propensity to consume. As a result low-income households reveal high APC and vice versa; these facts explain the form of consumption function by cross sectional analysis.

In long run this hypothesis suggests household consume a constant proportion of the present value of their lifetime income and the long run consumption function is suggested to capture this effect.

Finally, since actual labour income will rise and fall around this long run average the APC will found to vary inversely with income over the length of the business cycle as suggested by short run consumption function.

In figure 4 the Y curve is a profile of lifetime income stream of a typical person.

Figure 4



The Life Cycle Hypothesis of Consumption

Measuring time from the year in which he begins full time employment, his income in each following year rises until it reaches a peak in his middle or late working years; thereafter it declines. The C curve shows his lifetime consumption stream, here drawn to show a gradually increasing level of consumption from year to year. Assuming that he plans zero bequests, he will seek to make the present value of his consumption over the life cycle equal to the present value of his income. The shaded areas at the left of the figure show that the individual's consumption exceeds his income in the early years of his working life – he is a dissaver, or net borrower. In the middle years, his income exceeds his consumption – he is a saver. He not only repays the debts earlier incurred but acquires assets on which he earns interest. Finally, in the late years indicated by the shaded areas at the right of the figure 4, his consumption again exceeds his income – he is again a dissaver. However, here the dissaving is financed not by borrowing but out of the savings accumulated during the middle years.

XX

THE LIFE-CYCLE-PERMANENT-INCOME THEORY OF CONSUMPTION AND SAVING

Modern consumption theory emphasizes lifetime decision-making. Originally, the *life cycle hypothesis* emphasized choices about how to maintain a stable standard of living in the face of changes in income over the course of life, while *permanent income hypothesis* focused on forecasting the level of income available to a consumer over a lifetime. Today, these two theories have largely merged. The life cycle hypothesis is essentially a *permanent wealth hypothesis* rather than a *permanent income hypothesis*.

A numerical example illustrates the theory: suppose that a person starts life at age 20, plans to work until 65, and will die at 80 and that annual labour income, Y, is \$30,000. Lifetime resources are annual income times year of working life (WL = 65 – 20 = 45) – in this example, \$30,000 x 45 = \$1,350,000. Spreading lifetime resources over the number of year of life (YL = 80 – 20 = 60) allows for annual consumption of C = \$1,350,000 / 60 = \$22,500. The general formula is

$$C = (WL/YL) Y$$

Where C is the annual consumption, WL is the year of working life, YL is the year of life remaining and Y is the annual labour income, and (WL/YL) is the MPC.

Continuing with the numerical example, we can compute MPC by considering variation in the income stream. Suppose income were to rise permanently by \$3,000 per year. The extra \$3,000 times 45 working year spread over 60 years of life would increase annual consumption by \$3,000 x (45/60) = \$2,250. In other words, the MPC out of permanent income would be WL/YL = 45/60 = 0.75. In contrast, suppose income were to rise by \$3,000 but only in one year. The extra \$3,000 spread over 60 years would increase annual consumption by \$3,000 x (1/60) = \$50. In other words, the MPC out of transitory income would be 1/YL = 1/60 ≈ 0.017. While the exact examples are slightly contrived, the clear message is that the MPC out of permanent income is large and the MPC out of transitory income is very small fairly close to zero.

The life cycle theory implies that the MPC out of wealth should equal the MPC out of transitory income and, therefore, be small. The reasoning is that spending out of wealth, like spending out of transitory income, is spread out over the remaining year of life.

Note that the MPC out of permanent income, WL/YL, changes with age. In the text example, the MPC out of permanent income at age 20 is 45/60. As a person ages, both the number of working years and the number of life decline. By age 50, for example, the MPC would have declined to 15/30. The MPC out of transitory income would rise from 1/60 to 1/30 at age 50.

Microanalysis: Theory

Macroanalysis: Empirical evidences taking long run, short run and cross sectional data.