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Theories of Consumption

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OVERVIEW

This chapter explains the role of consumption expenditures in modern economies and their significance for the determination of the level of output and employment in an economy. It starts with a presentation of the theory of intertemporal choice that forms the basis of mainstream consumption functions. Next, it discusses Keynes's approach to consumption, and particularly his criticism of the standard model of consumer behaviour, his emphasis on the role of consumption for the level of employment, and his analysis of aggregate consumption patterns. It also describes the main mainstream theories of consumption, which are the life cycle income hypothesis, the permanent income hypothesis and the random walk theory of consumption. Finally, the chapter explores the heterodox approaches to consumption, focusing mainly on the relative income hypothesis. Additionally, it shows the consequences of consumption theories for the effectiveness of economic policies towards unemployment and economic downturns.

KEYWORDS: Consumption expenditures, Fiscal policy, Keynesian consumption function, Life-cycle income hypothesis, Permanent income hypothesis, Relative income Hypothesis

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WHY ARE THESE TOPICS IMPORTANT?

Consumption represents a large part of expenditures on product markets in modern economies. Its share with respect to GDP is around 70 per cent in most advanced economies and even more in less advanced ones. Consumption is important for aggregate demand, the total demand for all goods and services in the economy, since according to Keynesian theory, aggregate demand determines the level of output and employment in an economy: the more we demand, the more we produce and the more we create employment. Also, income that is not consumed is saved and savings have a large impact on the growth of an economy. Thus, consumption is important to understand savings, capital stock, investment, employment, and income growth. But there is more: the effectiveness of economic policy is also closely related to the nature of the consumption function.

To understand this, we need to consider, as Keynes did, that consumption depends on current disposable income, that is current income minus taxes. In turn, the marginal propensity to consume (to wit, the change in consumer spending due to a change in income) determines the magnitudes of government expenditure and tax multipliers. To put it simply: how much GDP increases or decreases when the government increases or decreases spending in the economy, depends on how much we spend on consumption. It also determines the magnitude of private investment multiplier. To put it simply: how much GDP increases or decreases when private investment increases or decreases in the economy, depends on how much we spend on consumption. This suggests that the effectiveness of fiscal policy, that is changes in taxation and government spending, to

smooth out economic downturns – and thus large fluctuations of produced output and employment – is linked to the level of fiscal multipliers and therefore to the nature of the consumption function.

As a reaction against Keynesian economic policies, mainstream economics has sought to downplay the importance of fiscal policy, and greatly diminished its role. One way of doing this is by undermining the importance of consumption as a function of income, since if a large part of consumption is independent of income (that is, autonomous consumption), as in many mainstream consumption functions, then the fiscal multiplier is not very significant and the role of fiscal policy is greatly reduced (see Bunting, 1989). In other words, the increase or decrease of GDP due to government spending changes has little to do with how much we spend in consumption. This is the policy conclusion of mainstream consumption theories such as the life cycle hypothesis and the permanent income hypothesis which we will explore in this chapter.

THE MAINSTREAM VIEW: INTERTEMPORAL CHOICE AND CONSUMPTION FUNCTION

One of the core components of mainstream economic theory is the concept of economic rationality with its most frequent expression in the model of the rational consumer. In the framework of mainstream economic theory, rational consumers are assumed to behave as selfish utility maximizers. More specifically, in consumer theory the rational consumer obeys the axioms of rational choice and maximizes his/her utility function

subject to the budget constraint. Consequently, individual demand curves are derived from this standard model of utility maximization. The same model is then extended to include intertemporal choice, that is the choice between consumption today versus consumption at some point in the future, which forms the basis of mainstream consumption function. In the same way the theory of rational consumer is used to derive individual demand functions for goods and services, intertemporal maximization is used to derive aggregate consumption functions. The neoclassical economist Irving Fisher set the theoretical basis of this approach in his *Theory of Interes*t (Fisher, 1930). In this framework, it is assumed consumers are rational, forward-looking agents and choose consumption levels for the present and future so as to maximize lifetime satisfaction. Consumers' choices are subject to an intertemporal budget constraint, a measure of the total resources available for present and future consumption.

In a simple two-period model, there are two periods, period 1 (which is the present) and period 2 (which is the future). Let Y_1 and Y_2 to be income in period 1 and 2 respectively. Let C_1 and C_2 to be consumption in period 1 and period 2 respectively, and S is savings. The consumers' budget constraint in the first period is:

$$Y_1 = C_1 + S \text{ or } S = Y_1 - C_1 \qquad (8.1)$$

If $S > 0$ the consumer is saving, and if $S < 0$ the consumer is borrowing. Saving (borrowing) yields an interest rate (r) (costs). In the next period, the budget constraint is therefore:

$C_2 = Y_2 + (1+r)S$ or $C_2 = Y_2 + (1+r)(Y_1-C_1)$ (8.2)

The term (1 + r)S is the rate of return of savings.

We can rearrange terms to write:

$(1+r)C_1 + C_2 = Y_2 + (1+r)Y_1$ (8.3)

If we divide the above expression by (1+r), we get:

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} \quad (8.4)$$

The above equation shows that the present value of lifetime consumption (on the left-hand side of the equation) equals the present value of lifetime income (on the right-hand side of the same equation). Present value means the value in terms of the consumption goods in period 1. In other words, 1/(1+r) is the relative price of future consumption in terms of current consumption: one unit of consumption today is equivalent to 1+r units of consumption tomorrow. Figure 8.1 shows the intertemporal budget constraint.

[INSERT FIGURE 8.1 HERE]

In Figure 8.1 the budget constraint shows all combinations of C_1 and C_2 that just exhaust the consumer's resources. At point E, consumption equals income in both periods. At points which are between B and E the consumer has positive savings, while

at points which are between E and A the consumer has negative savings (that is, s/he borrows).

The budget constraint is combined with the notion of indifference curves, which show combinations of present and future consumption levels that leave the consumer equally happy. Moreover, higher indifference curves represent higher levels of happiness. As a utility maximizer, the consumer aims to be at the highest possible indifference curve given the consumer's budget constraint.

[INSERT FIGURE 8.2 HERE]

In Figure 8.2 the optimal point is E, where the slope of the budget line just touches the highest possible indifference curve (I_2). Only at this point the consumer maximizes his/her utility out of consumption given a budget constraint. At point E, the slope of the indifference curve, which is the marginal rate of substitution (MRS) between present and future consumption, equals the slope of the intertemporal budget constraint (1+r). At point E, therefore, MRS = 1+r.

Point E can change if there are changes in income (the budget line shifts) or changes in the rate of interest (the slope of the budget line changes). Intertemporal consumption theory indicates that consumption decisions depend only on the present value of lifetime income (as opposed to disposable income today). Since the consumer can borrow or lend between periods, the level of interest rate plays an important role in consumption decisions. The consumption function takes the general form

$$C_{jt} = f\,(PW_{jt}) \qquad (8.5)$$

where C_{jt} denotes the consumption expenditures of individual *j* at time *t*, and PW_{jt} is the individual's corresponding present worth.

Fisher's intertemporal choice, as described above, is the conceptual basis of modern mainstream consumption theories today (such as the life cycle hypothesis, and the random walk consumption function). But it is not without its critics. For instance, heterodox economics has directed a large amount of criticism toward this mainstream economic theory, largely based around the concept of rationality (sometimes referred to as "*homo economicus*") and its implications. One of the most important criticisms originated from the work of John Maynard Keynes, to which we now turn.

KEYNES'S APPROACH TO CONSUMPTION

In this section, we will discuss the original work of Keynes, and how it relates to consumption theory. Through this discussion, the limitations of mainstream theory will bcome clear, and its overall irrelevance for economic policy will be pointed out clearly.

There are three basic elements in Keynes's treatment of consumption: his criticism of the standard model of consumer behaviour, his great emphasis on the role of

consumption for the level of employment, and his analysis of aggregate consumption pattern. These will be discussed in turn.

Keynes's criticism of mainstream theory

Keynes's criticism of the mainstream theory of consumption can be divided into three arguments. Taken together, they show how Keynes was not very interested in explicitly formulating a consumer theory in the form that we find in contemporary microeconomics.

First, consider that contemporary microeconomics, based on the rational consumer and the marginalist theory of the economic agent, can be traced to the writings of the nineteenth-century founder of utilitarianism, Jeremy Bentham. Yet, there are strong indications that Keynes rejected the utility maximizing model (a-temporal or intertemporal). His rejection of Benthamite hedonism and his ideas on probability and uncertainty clearly imply his distance from the standard model.

Bentham's "calculus of pleasure and pain" was the basis of the marginalist theory of consumer behaviour, which can be found in leading nineteenth century marginalist authors such as William Stanley Jevons, Léon Walras, and Francis Ysidro Edgeworth (for a review and further discussion, see Drakopoulos, 1990). Keynes expressed serious doubts concerning the mainstream tradition originating from Bentham, especially in the form of utility or expected utility maximization. In a very important passage written in 1939, Keynes considers himself and his circle as "the first of our generation, perhaps alone amongst our generation, to escape from the Benthamite tradition" (Keynes,

1978b, p. 445). He continues by pointing out that "[i]t can be no part of this memoir for me to try to explain why it was such a big advantage for us to have escaped from the Benthamite tradition" (ibid., p. 445).

Second, Keynes's revolutionary conception of probability and uncertainty is another important point that puts him at odds with standard utility theory. According to Keynes, probabilities are either numerically indeterminate or undefinable (Keynes, 1978a, pp. 8–9; see also Lawson, 1988, pp. 42–4). Moreover, he thought a probability concept based on frequency (that is, repeated trials or repeated sampling from a population), is "a wrong philosophical interpretation of probability" (Keynes, 1978a, p. 342). This is in sharp contrast with the mainstream expected utility approach, which views probability as based on frequency and as numerically measurable (see for instance Savage, 1962). For example, if a student scored an 'A' 7 times out of the 10 tests, then 7 is the frequency of scoring an 'A' and 7/10 * 100% = 70% is the relative frequency of scoring an 'A' in exams.

Third, related to this is Keynes's conception of uncertainty, which corresponds to a situation of numerically immeasurable probability. In other words, the uncertain knowledge of the future implies that "we simply do not know" and cannot know events in the future. Accordingly, Keynes believed uncertainty cannot be reduced, mainly because a numerical probability distribution is not known (events are not replicable). Keynesian uncertainty is thus radically different from the reducible and calculable uncertainty that is used in the expected utility model (see Dow, 1985, p. 156; Lawson, 1988, pp. 46–52). In Keynes's (1936, p. 161) own words:

> [It is a] characteristic of human nature that a large proportion of our purposive activities depend on spontaneous optimism rather than on mathematical expectation, whether moral or hedonistic or economic.

An example of Keynes's notion might be the following: the decision of an investor to invest does not depend so much on the expected future returns of his/her investment, but on spontaneity and inspiration.

The implication of Keynes's arguments is clear: in place of utility maximization, Keynes assigned extreme importance to psychological processes, which have nothing to do with economic calculus (see Dow and Hillard, 1995). He uses the term "animal spirits" for these psychological processes. In an indicative statement, Keynes (1936, pp. 161–2) argues indeed that

> [m]ost, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as a result of animal spirits – of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.

Keynes's serious reservations concerning the utility maximizing model lead him to an alternative formulation of consumption analysis, one that is not based on intertemporal analysis. Starting from the idea that consumption depends on both objective and subjective factors, Keynes states the following subjective factors, which he calls

motives: enjoyment, short sightedness, generosity, miscalculation, ostentation, and extravagance. The corresponding list for saving behaviour is: precaution, foresight, calculation, improvement, independence, enterprise, pride, and avarice (Keynes, 1936, p. 108). Keynes gives equal weight to these motives, something that is incompatible with the utility maximizing model. In general, Keynes approached the consumption decision from an entirely different angle than mainstream economists before him. His approach is essentially a psychological approach emphasizing also the sociological dimension of consumption (Drakopoulos, 1992; D'Orlando and Sanfilippo, 2010).

The significance of consumption in Keynes

Although other authors before Keynes had speculated about the relation between consumption and income, he was the first to make this relation explicit and to use it in a general model of the whole economy. The consumption function was an important component of Keynes's system and also a significant point of difference from the classical approach. In the general view held by the classical economists before Keynes, the economy was always naturally tending towards full-employment equilibrium. It follows that, at least in the short run, income does not vary since its level is established at its full-employment level. Therefore, in the classical world variations in consumption and saving are not related to variations in income. Instead, the amount of income saved (and also the amount of income consumed) by an individual depends on the rate of interest, as we explained above. Thus, the interest rate is the major determinant of the allocation of income between present and future (intertemporal) consumption (and savings). This idea is the basis of American economist Irving Fisher's (a contemporary of Keynes) intertemporal choice that we discussed above. On the contrary, by rejecting

the idea that the economy tends towards full employment, Keynes pointed out the differences between the actual level of income and the full-employment level. In Keynes's view, the level of aggregate demand determines equilibrium income. Given that consumption is a major part of aggregate demand (see Chapter 10), it was necessary to provide a theory of the behaviour of consumption expenditures.

Keynes's consumption function

In his *General Theory*, Keynes (1936) described consumption expenditures as an important component of national income. He further stated current disposable income (after taxes) is the main determinant of consumption expenditures. Keynes's approach to consumption has been called the *absolute income hypothesis* because current disposable income only determines the level of consumption. With this as a basis, the Keynesian consumption function is usually written in a linear form:

$$C = \alpha + bY \tag{8.6}$$

where C is consumption expenditures, Y is current disposable income, α is consumption expenditures that are independent of income (or autonomous consumption), and b is the marginal propensity to consume (MPC) or the ratio of the change in consumer spending to a change in income. The MPC is also the slope of the consumption function. In short

$$MPC = \frac{\partial C}{\partial Y} = b \tag{8.7}$$

The average propensity to consume (APC), which is the ratio of total consumption to total disposable income, is also given as $APC = \frac{C}{Y} = \frac{a}{Y} + b$.

The Keynesian consumption function can be presented with a simple diagram as Figure 8.3 shows.

[INSERT FIGURE 8.3 HERE]

In Figure 8.3 consumption expenditures (C) are represented on the vertical axis while disposable income (Y) is on the horizontal axis. All the points of the 45° degree line show equality between consumption and disposable income. Consumption starts at α with slope b. At equilibrium point E all income is spent on consumption (Y = C), and savings are zero. For income levels lower than Y_1 consumption expenditures are higher than income, and therefore savings are negative (borrowing). For income levels higher than Y_1 consumption expenditures are lower than income and therefore savings are positive. For instance, for a high level of income Y_2, consumption is lower than income and savings are equal to the distance AB.

Keynes thought that the MPC is positive but less than one, and that the APC falls as income rises. In Keynes's (1936, p. 96) words:

> The fundamental psychological law, upon which we are entitled to depend with great confidence both *a priori* and from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on

the average, to increase their consumption, as their income increases, but not by as much as the increase in their income.

This implies that households with higher income will consume more (given that MPC > 0), will save more (given that MPC < 1), and that APC will be falling as income increases. How the APC varies as income changes depends on *a*. In the normal case (*a* > 0), MPC < APC and households spend a decreasing share of their incomes as incomes rise. If *a* = 0, MPC = APC and spending is a constant proportion *b* of income.

It is important to emphasize once again that Keynes was not interested to ground his consumption function on the model of rational economic behaviour. Instead, he relied on aggregate psychological tendencies.

The economic policy implications of Keynes's approach are fairly well known. The magnitude of the MPC determines the magnitude of government expenditures and tax multipliers and thus the effectiveness of fiscal policy to maintain or restore full employment. In other words, the larger the MPC, the larger the multiplier effect. It also implies that as households spend a decreasing share of their incomes as society becomes richer, a greater proportion of investment will be required to maintain full-employment income levels.

In addition and given that MPC < APC, a transfer of income from high-income groups to low-income consumers will raise the level of aggregate demand. This is also because the high-income groups have a lower MPC than low-income groups, given that MPC

declines as income increases. The case for progressive taxation as an instrument of income redistribution is also justified from this argument.

EMPIRICAL TESTING OF CONSUMPTION FUNCTIONS

The first empirical estimations of Keynes's consumption function using aggregate time series data indicated a value of b (the MPC) around 0.75. More specifically, on the basis of annual US data for the period 1929–41, the estimated consumption function was reported being $C_t = 26.6 + 0.75Y_t$ (Ackley, 1960, p. 225). Other early studies were based on data capturing both income and consumption expenditures for some specified time period (cross section). These budget studies indicated a non-proportional relationship between family income and family consumption. In other words, they showed that APC falls as income increases. They also pointed to a positive value of α. These findings confirmed the previous theoretical results that the MPC was less than the APC. In this framework, saving can be viewed as a "luxury" good, whose share of overall income rises as people received higher incomes (Venieris and Sebold, 1977, p. 365). Thus the pattern observed in cross-sectional consumption data meant that at a given point in time the rich in the population saved a higher fraction of their income than did the poor (see Koçkesen, 2008).

In the mid 1940s, American economist Simon Kuznets studied the characteristics of the consumption function based on his detailed reconstruction of US historical data on economic aggregates.

Kuznets's work estimated aggregate consumption and income for the period of 1869 to 1938. His results showed the share of income consumed seemed to remain constant. Using overlapping decade averages of consumption and GDP, Kuznets (1946) showed that except for the years of the Great Depression (1929–33), the APC in the United States over the period 1869–1938 fluctuated narrowly between 0.84 and 0.89. In other words, consumption and income tend to be proportionally related over a very long span of time series data. Although the two sets of empirical evidence are not necessarily inconsistent, Kuznets's (1946) findings suggested the long-run behaviour of the consumers might differ from their short-run consumption patterns. More specifically, if MPC < APC as the OLS estimates of the linear consumption function suggested, then the share of income consumed should have declined as income increased. Thus, short-run econometric studies found MPC < APC while long-run data showed that MPC = APC (Figure 8.4). In essence, Kuznets's results suggested a consumption function of the form C = kY. This equation implies that MPC = APC = k. Further, the value of the MPC is much higher in Kuznets's function compared to Keynes's.

[INSERT FIGURE 8.4 HERE]

In Figure 8.4, the long-run consumption function (C_{LR}) has a slope equal to the long-run APC (and MPC). The short-run consumption functions (C_{SR1}, C_{SR2}) have a slope (MPC) that is smaller than the APC.

The apparently conflicting empirical evidence was the main reason for subsequent attempts towards a consumption theory that would provide reconciliation between the two sets of findings. One of the earliest theoretical approaches was the relative income hypothesis by James Duesenberry, which we will present later. It also led to new theories of consumption, which were based on mainstream microeconomic foundations, such as the utility maximizing model with forward looking agents. These theories were very critical of Keynes's psychological approach to consumption.

MAINSTREAM CONSUMPTION THEORIES

Kuznets's empirical findings provided the initial stimulus for theoretical research on aggregate consumption patterns. The first theories to appear were the life-cycle hypothesis and the permanent-income hypothesis. These two theories started by employing Fisher's intertemporal choice as the microeconomic foundation of aggregate consumption, thus rejecting Keynes's psychological-based approach to consumption. Current orthodoxy with the core assumptions of utility maximizing and forward-looking agents is essentially based on these two theories.

Life-cycle hypothesis

The life-cycle hypothesis of consumption function was developed mainly by Franco Modigliani and Richard Brumberg in 1954 (Modigliani and Brumberg, 1954). Its underlying conceptual basis is that individuals maximize their utility of consumption over their life cycle, and not over their disposable income over, say, a year. In this

sense, the basic tenet of the theory is the mainstream model of utility-maximizing agents, which is based on the theory of rational consumer of mainstream microeconomics: rational beings can only choose to maximize their utility. In the framework of consumption function, individuals maximize utility that is expressed as a function of the individual's consumption stream over the span of his/her lifetime:

$Uj = Uj\ (C_t, C_{t+1}, C_{t+2}, \ldots, C_L)$,

where Uj is the utility of individual j, C_t is present consumption, C_{t+1} is next year's consumption and so on, until the end of lifetime C_L.

The above utility function is maximized subject to the present value or worth of total resources, current and future, which will accumulate over the individual's working life or up to his/her retirement. These resources can be identified as the sum of the individual's present assets plus the present value of the stream of his/her annual disposable income until retirement. This setting implies that the individual will be able to maintain a stable pattern of consumption throughout his/her lifetime. In addition, income from employment will behave in a fairly predictable manner.

[INSERT FIGURE 8.5 HERE]

In Figure 8.5 the horizontal axis shows time while the vertical axis shows income and consumption expenditures. Point 0 marks the beginning of the person's working life and T_2 marks the point of his/her retirement. In the early years of a person's working life and also after retirement, income is lower than consumption expenditures. For the time span T_1 to T_2 the reverse is true. As the person proceeds through life, his/her

productivity increases and as a result his/her income increases up to the point of retirement T_2. From this point onwards, consumption declines but not as much as income. The hypothesis suggests that individuals take into account the profile of the stream of income during their whole productive life and pace their consumption expenditures accordingly. At the early stages of their working life and between retirement and death they have negative savings. These are balanced by the positive savings occurring at the time period T_1 to T_2.

The above imply that the consumption function is of the general form

$$C_t = KV_t \qquad (8.8)$$

where C_t is the current consumption by an individual, Vt is the present value of the total resources accruing to the individual over the rest of his/her life and K is the factor of proportionality (meaning that consumption and Vt are connected by a constant K). In turn, the total resources available to the individual over his/her entire life span are the sum of the individual's net worth at the end of the proceeding period, plus his/her income during the current period from non-property sources, plus the total of the discounted values of the non-property incomes expected in the future time periods.

Assuming for simplicity that real interest rate is zero, the individual divides his/her resources equally over time in order to smooth out consumption: $C = (W + RY)/T$, where W is initial wealth, Y is annual income until retirement (assumed constant), R is the number of years until retirement, and T is lifetime in years. The same relation can be

written as: $C = \alpha W + \beta Y$ with $\alpha = 1/T$ and $\beta = R/T$, where α is the marginal propensity to consume out of wealth, and β is the marginal propensity to consume out of income.

The life-cycle hypothesis can also account for the discrepancies in empirical consumption data that we discussed before. The reasoning is the following. The life-cycle consumption function divided by income can be written as $C/Y = \alpha(W/Y) + \beta$. Across households, income varies more than wealth, and this implies that high-income households should have a lower APC than low-income households. However, in the long run, aggregate wealth and income grow together and this results in a stable APC.

Apart from assuming perfectly rational consumers, the life-cycle consumption theory also assumes that individuals are indifferent to the form in which resources accrue. For example, a given increase in resources will have the same effect on consumption whether that increase takes the form of an increase in current income, expected income, or net worth. More specifically: In the consumption function given as $C_t = KV_t$, V_t can be expressed as follows:

$$Vt = \alpha x_{t-1} + Yt + \sum_{T=1}^{n} \frac{Y_{t+T}^{e}}{(1 + r_t)T}$$

The above equation shows that total resources (V_t) are made up by three components. The first component is any net worth that is carried over from the previous period (αx_{t-1}). It may take the form of inherited wealth or accumulated worth. The second

term is current income Y_t and the third term is the present value of expected future income from employment Y^e over the remainder of the individual's life time (n).

Substituting the above into $C_t = KV_t$, we get:

$$Ct = K_t \alpha x_{t-1} + K_t Yt + K_t \sum_{T=1}^{n} \frac{Y_{t+T}^e}{(1 + r_t)T}$$

From this equation we can see that the discount rate (r) is an important element in the consumption decision. Consumers are assumed to have perfect computational abilities and to be able to estimate future income correctly (no fundamental uncertainty). The conceptual basis of this formulation is in the mainstream theory of intertemporal choice, which is based on the hypothesis of "*homo economicus*".

One of the main criticisms in this regard is that switching of assets is not a costless transaction. Further, this theory ignores imperfections in capital markets, which impose a limit on the amount an individual can borrow (liquidity constraint). Liquidity constraints affect the ability of households to transfer resources across time periods. Finally, another line of criticism has to do with the notion of expected income, which is part of the individual's total resources. This variable is not directly observable and its value has to be forecast, something that poses difficulties for the empirical testing of the theory (see Deaton, 1992).

Permanent-income hypothesis

Apart from the life-cycle theory, the other attempt to criticize Keynes's approach to consumption was made by Milton Friedman with his permanent-income hypothesis (Friedman, 1957), where permanent income is an individual's income over his/her lifetime. In his attempt to define a consumption function, Friedman (1957) rejects Keynes's use of current income as the determinant of consumption expenditure, based on the idea consumers are forward-looking meaning future concerns affect current consumption decisions. Forward-looking consumers is a common point between Friedman's theory and the lifecycle theory. However, according to Friedman current income is subject to random, transitory fluctuations while according to life cycle theory, current income changes systematically as people move through their life cycle.

Further, the permanent income hypothesis is a special case of an intertemporal optimization model of consumer behaviour, where agents maximize the sum of their expected utility subject to a life-time budget constraint (Meghir, 2004). Consumers use their savings (or borrow) in an attempt to smooth consumption between good and bad years. These imply that current income differs from permanent income: $Y_t = Y^P + Y^T$, where Y is current income at time *t*, Y^P is permanent income projected at time *t* and Y^T is transitory (or unexpected changes in) income. The transitory component has an expected value of zero reflecting the notion that over time transitory gains are offset by future transitory losses and vice versa. Thus, in the long run observed levels of income (Y) are equal to permanent income (Y^P).

An important part of Friedman's theory was his assumption that permanent income is an average of income over the last several years. This implies that if there is a sudden rise in current income, there would be only a small increase in permanent income, contrary to Keynes's theory. Income would have to increase for several years continuously before people would expect permanent income to increase. In other words, consumers correct their previous estimates of permanent income by the amount of deviation of current income from previous period estimated permanent income (adaptive expectations).

In the same way as income, consumption (C) is divided into permanent consumption, C^P, and transitory consumption, C^T. Thus $C_t = C^P + C^T$. Like transitory income, transitory consumption is regarded as temporary. Friedman assumes permanent consumption is a constant proportion (a) of permanent income, while permanent and transitory consumption may be interpreted as planned and "unplanned" consumption respectively. Based on Friedman's assumption that Y^T is uncorrelated with C, any unforeseen increment in income does not result in unplanned consumption. Friedman justifies this premise by pointing out that even if income is other than expected, the consumer would tend to stick to his/her consumption plan, but adjust his/her asset holdings.

Given the above, Friedman's consumption function is $C = aY^P$, with $0 < a < 1$, where a is the fraction of permanent income that people consume per year. The APC will be:

$$\text{APC} = \frac{C}{Y} = \frac{aY^P}{Y} \qquad (8.9)$$

Friedman's reconciliation of the empirical findings on consumption was based on the differences in consumption behaviour of different income groups. Observed short-run behaviour is explained through the value of transitory income for different income groups. For high-income groups, transitory gains exceed transitory losses such that transitory income is on average positive over time. For low-income groups, transitory losses exceed transitory gains, while for middle -income groups the value of transitory income is equal to zero over time such that observed and permanent income take the same value. Over the long run, income variation is due mainly if not solely to variation in permanent income, which implies a stable APC.

In general, Friedman's permanent income hypothesis offered another way of explaining the conflicting results of early empirical studies on consumption. It distinguished between a short-run and a long-run consumption function. The long-run function was essentially a proportional relation while the short-run function was a non-proportional one. The criticisms of the life-cycle theory involving the notions of liquidity constraints and of the observability and measurability of permanent income also apply to Friedman's theory.

Random-walk theory of consumption and rational expectations

Contemporary mainstream theories of consumption functions are essentially extensions of the life-cycle and of the permanent income theories. They are also based on Fisher's intertemporal choice model. The new element is the assumption of rational expectations: people use all available information to forecast future variables like

income. One indicative example of such theories is Robert Hall's (1978) "random walk theory of consumption". The rational expectations assumption means that consumption should follow a random walk: changes in consumption should be unpredictable. It also means that a change in income or wealth that was anticipated has already been factored into expected permanent income, so that it will not change consumption. Therefore, only unanticipated changes in income or wealth that change expected permanent income will change consumption. In the rational expectations framework, agents anticipate the future and therefore make all the required adjustments in the current period. The equation for future consumption is

$$C_{t+1} = C_t + Q_{t+1} \qquad (8.10)$$

In this equation, Q_{t+1} is a rational expectations error that cannot be predicted with any information known at time *t*. All future information is reflected in current consumption, C_t. The random-walk characteristic of consumption is seen by writing $C_{t+1} - C_t = Q_{t+1}$. Consumption is a random walk, as changes over time are unforeseeable.

Clearly, the policy implications of these models are that policy changes will affect consumption only if they are not anticipated. These arguments greatly diminish the Keynesian case for government intervention, given that stabilization policies cannot be applied in any systematic way.

THE HETERODOX PERSPECTIVE

Economic rationality and aggregate consumption

As mentioned above, the standard model of economic rationality is the underlying basis of all mainstream theories of consumption function. The mainstream view of economic rationality means that:

a) Consumers constantly engage in optimization under constraints. In the framework of expected utility, they are assumed to be able to assign and calculate probabilities about future decisions operating in a world of calculable probabilities;
b) Consumers have unlimited computational abilities and they are able to process unlimited information;
c) Consumers have insatiable wants, which are reducible and inseparable;
d) Consumers' preferences are made independently of those of other agents. In other words, there is no social interaction among agents as far as economic decisions are concerned.

Heterodox schools of economic thought reject this model of economic rationality and of the "rational economic man" (*homo economicus*). First of all, heterodox economists believe that, in most of consumers' decisions, optimizing is impossible either because of a lack of information or because of an overload of information and deficient computational capabilities. Instead, they follow the model of procedural or bounded rationality initiated by Nobel Prize winner Herbert Simon.

In the same vein and following Keynes's approach to uncertainty, heterodox theorists argue the existence of fundamental uncertainty undermines further the optimization process and especially the expected utility theory.

The financial crisis of 2007–08 offered many examples of "fundamental uncertainty" illustrated by unlikely events ("black swans") incompatible with normal probability distributions assumed by the expected utility theory.

Consequently and contrary to the assumptions of mainstream consumption theories, future incomes (and also costs and revenues) are almost impossible to predict. In this framework and following Keynes's analysis of animal spirits, consumers' decisions depend on "spontaneous optimism" or rules of thumb rather than calculations of (expected) costs and benefits (see Lavoie, 1994; Davidson, 2009; King, 2015).

In contrast to mainstream theory, therefore, heterodox economists distinguish between wants and needs, clearly implying the necessity aspect of human needs. Moreover, the principle of separability of needs says that needs can be distinguished from each other and that there exists a hierarchy of needs, in which basic needs are satisfied first, and non-basic needs come into the picture only once basic needs are satisfied (Lavoie, 1994).

Finally, heterodox economists argue economic decisions are interdependent. This suggests consumers care about their relative position and compare their income, wages or wealth to other people's in their social reference group. This idea can also be found

in Keynes's notion of relative real wage: "workers resist a cut in money wages in order to maintain their relative position in the wage structure and not so much to avoid a cut in their absolute income" (Keynes, 1936, p. 14).

There is also another important point that has to do with the necessity of microeconomic foundations (see Chapter 22). All post-Keynesian economists agree it is impossible to base macroeconomic theory on representative agents with rational expectations. The insistence on providing rigorous neoclassical microfoundations for macroeconomic theory amounts to a denial of the fallacy of composition or gives rise to paradoxes (see Chapter 1), which Keynes regarded as the methodological pre-condition for having a separate macroeconomics in the first place (King, 2015).

In view of the above, the rational-agent basis of mainstream consumption theories is rejected. Instead, a theory of aggregate consumption behaviour must reflect consumers do not engage in optimizing behaviour. It should also take into account consumption decisions are psychology-driven and are made in a social context in which consumers care about their social position and social status. One indicative example of such theory was suggested by James Duesenberry, to which we now turn.

The relative-income hypothesis

In 1949, Harvard professor James Duesenberry made the very first attempt at providing a theoretical justification for the discrepancy between Kuznets's short-run and the long-run empirical findings on consumption. Duesenberry suggested the relative income hypothesis as the main theory underlying the consumption function. The relative

income hypothesis introduces psychological and sociological factors such as social interdependencies and habit formation to the study of consumer behaviour. The emphasis on the social dimension of consumption was not a new idea. The idea that people compare their income, consumption or wealth with other people's income, consumption or wealth can be found in many major economists such as Adam Smith, Karl Marx, John Stuart Mill, Thorstein Veblen, and Arthur Cecil Pigou (see Drakopoulos, 2016). Duesenberry, however, was the first to apply the concept of social comparisons to the study of consumption in a systematic manner. In fact, Duesenberry's work can be viewed as a continuation of Veblen's ideas, given that there are many common points concerning income and consumption comparisons, and also concerning the role of the demonstration effect (see below). Further, the common point of Duesenberry's and Keynes's approaches is the idea of social comparisons or relative standing: Duesenberry put emphasis on relative consumption, while Keynes emphasized relative wage. Although Keynes recognized the importance of social influences on consumption decisions, he did not develop them further in his *General Theory*, arguing that they were stable, at least in the short run (see Keynes, 1936; Mason, 2000). On the contrary, in his consumption theory, Duesenberry provided ample analytical insights regarding social comparisons.

In his 1949 book entitled *Income, Saving and the Theory of Consumer Behaviour*, Duesenberry starts by arguing two "fundamental assumptions" of demand theory are "invalid". These assumptions are "(1) that every individual's consumption behaviour is independent of that of every other individual, and (2) that consumption relations are

reversible in time" (Duesenberry, 1949, p. 1). Let us first discuss the implications of assumption (1) and then the ones of assumption (2).

Duesenberry (1949, p. 3) starts by arguing that the assumption of independent preferences has "no empirical basis" and then states that "there are strong psychological and sociological reasons for supposing that preferences are in fact interdependent". In the context of consumption theory, this meant that consumers will be influenced by the behaviour of other consumers: "any particular consumer will be influenced by consumption of people with whom he has social contacts" (ibid., p. 48). This idea (labelled as the *demonstration effect*) questioned the established view that absolute levels of income only determine patterns of consumer demand (ibid., p. 27). Consequently, he maintained that a household's consumption would depend not just on its own current level of income, but on its income relative to those in the subgroup of the population with which it identifies itself. The household will attempt to match its consumption behaviour and thus its consumption expenditures with those of other members of its group. It follows that households with lower income within the group will consume a larger share of their income to "keep up with the Joneses," while households with high incomes relative to the group will save more and consume less. As Duesenberry (1949, pp. 27–8) writes:

> We can maintain then that the frequency and strength of impulses to increase expenditure depends on frequency of contact with goods superior to those habitually consumed. This effect need not depend at all on considerations of emulation or "conspicuous consumption".

The frequency and strength of impulses to increase expenditure depend on frequency of contact with goods superior to those habitually consumed. Duesenberry (1949, p. 27) appeals to self-observation in order to support the presence of the demonstration effect:

> The best way to demonstrate that consumption expenditures can be forced up by contact with superior consumption goods is to ask the reader to consult his own experience. What kind of reaction is produced by looking at a friend's new car or looking at houses or apartments better than one's own? The response is likely to be a feeling of dissatisfaction with one's own house or car. If this feeling is produced often enough it will lead to action, which eliminates it, that is, to increase expenditure.

When consumers come frequently in contact with superior goods, they are constantly reminded of their low social status. The result will be "an increase in expenditure at the expense of saving" (ibid., p. 27). Thus, households with lower income within the group will consume a larger share of their income to "keep up with the Joneses," while households with high incomes relative to the group will save more and consume less. The demonstration effect can be understood better with reference to the two short-run consumption function flatter lines labelled C_{SR1} and C_{SR2} in Figure 8.4. Line C_{SR1} might represent the cross-section consumption function of a low-income group and line C_{SR2} might represent the high-income group. As incomes of both groups rise over time, both lines would tend to slide up the steeper "long-run consumption function," with the

average household in each group tending to spend a constant share of its income over time. Figure 8.6 explains Duesenberry's approach to reconcile the two sets of data.

[INSERT FIGURE 8.6 HERE]

In Figure 8.6, C_m shows family consumption expenditures and Y_m shows family real disposable income. Consumption schedules I, II and III indicate the relationship between family income and family consumption at times 1, 2 and 3 respectively. Consumption schedule I depicts this relationship at time t=1. The shape of this family consumption shows that within a distribution of income, the APC falls as we move from low-income to high-income families. This feature is consistent with both the Keynesian absolute income hypothesis and Duesenberry's relative income hypothesis. If we assume that all families receive proportional increases in income in period t=2, the distribution of income remains the same. In terms of the absolute income hypothesis, this would mean a movement along consumption schedule I. In terms of relative income, this would mean that the consumption schedule will shift from I to II. More specifically, assume that in t=1 mean family income is Y_{m1} and the corresponding level of consumption is C_{m1}. After the proportional increase in all incomes, the family will maintain its position in the income distribution by earning Y_{m2} in t=2, thus its APC will remain unchanged resulting in a level of consumption at C_{m2}. The extension of this principle to all families gives consumption schedule II. If the same process is repeated in t=3, we would derive consumption schedule III. In sum, a general proportional rise in the levels of income would cause successive cross-section studies to indicate shifts in family consumption schedule. As the consumption schedule shifts over long periods of

time and with unchanged income distribution, the long-run time series will indicate a proportional relationship between aggregate consumption and aggregate income: C_t = kY_t, with $APC = \frac{Ct}{Yt} = k$. In other words, the APC is constant in the long run, in accordance with Kuznets's findings (see also Venieris and Sebolt, 1977).

The second basic component of the relative income hypothesis is that "consumption relations are reversible in time" (Duesenberry, 1949, p. 1). In his own words:

> Over time, the relation between aggregate consumption and aggregate income is not completely reversible. As income increases secularly, consumption will grow proportionally; but over the cycle, as income falls from its peak, consumers will attempt to maintain consumption standards set previously.
>
> (Duesenberry, 1949, p. 7)

The main difference from the demonstration effect is that instead of comparing their income to those of other households, each household is assumed to consider its current income relative to its own past income levels. A household that has in the past achieved income levels higher than its present levels would attempt to maintain the high consumption levels that it achieved earlier. Thus, when incomes fall, consumption would not fall in proportion. The result of this behaviour for aggregate consumption is also called a "ratchet effect.

In Duesenberry's work, therefore, aggregate consumption depends not only on current disposable income but also on the ratio of current income to previous peak level

income. The consumption function in terms of the average propensity to consume (C_t/Y_t) is written as:

$$\frac{Ct}{Yt} = a - b\left(\frac{Yt}{Yo}\right) \qquad (8.11)$$

where C_t is current consumption, Y_t is current disposable income, and Y_0 is previous peak income.

By referring to Figure 8.6, when incomes rise, consumption increases along the steeper long-run consumption function. However, when a recession hits and incomes decline, households reduce consumption less than proportionally and fall back along the flatter short-run consumption function. During the recovery, they move up along the flat line until they reach their highest attained level of consumption. After recovery, when incomes grow again, they proceed up the long-run line again until the next recession, when they fall back along a flatter line. Thus, consumption ratchets upward, staying relatively near its highest past value when income declines. The implication is that in the long run APC will be constant, but as the economy moves through the business cycle, the ratio of current to previous peak income will vary and thus APC will also follow the cyclical fluctuations. In particular and given that consumption is also related to previous peak income, the consumption function is:

$$Ct = aYt - b(\frac{Yt^2}{Yo})$$

Thus

$$APC = \frac{Ct}{Yt} = a - b(\frac{Yt}{Yo})$$

If income grows over the long run at an average rate of g percent per year, the long-run ratio of current income to previous peak income would be:

$$\frac{Yt}{Yo} = (1 + g)$$

Then the APC will be:

$$\frac{Ct}{Yo} = \alpha - b(1 + g) = k$$

where k is a constant. Further, the MPC is:

$$MPC = \frac{\partial C}{\partial Y} = a - 2b\left(\frac{Yt}{Yo}\right) = \alpha - 2b(1 + g)$$

A comparison shows that MPC < APC, which is in agreement with Keynes's views.

Duesenberry's theoretical approach was able to reconcile the discrepancy between the empirical cross-section studies and the long-run findings. The main theoretical implication, that the APC will be greater than the MPC, lies solidly in the Keynesian tradition (Kosobud, 1998, vol. 4, p. 135). Further, Duesenberry's theory suggests that fiscal changes may have an asymmetrical effect. Tax reductions may well stimulate consumption spending. However, tax increases may not have a significant effect in curbing demand in the short run, as consumers strive to maintain consumption levels.

POLICY IMPLICATIONS AND CONCLUDING REMARKS

In comparison to Keynes and Duesenberry, mainstream consumption functions have very different consequences for economic policy prescriptions. For example, in Friedman's framework of permanent and transitory components, a much larger part of current consumption is considered as autonomous, and a much smaller part as dependent on current income. Since the marginal propensity to consume from transitory income is zero, increases in income arising from increases in government spending and/or falling taxes will have negligible effects on the economy. The fiscal multipliers (assuming the change is viewed as temporary) will be small or even zero. Given the relationship between current consumption and the magnitude of the fiscal multipliers, Friedman's theory implied smaller fiscal multipliers and thus a largely ineffective fiscal policy. It also implied an inherently more stable economic system (Bunting, 1989).

Similar observations hold for the lifetime cycle hypothesis. Although the theory takes into consideration the role of current income, it places greater emphasis on the role of expected income and wealth on consumption decisions than the Keynesian approaches. For instance, changes in current income arising from fiscal policy will have a strong effect on current consumption only if they affect expected lifetime income. Thus, the points regarding the role of the associated multipliers and fiscal policy made in reference to the permanent income hypothesis, also apply here.

Contemporary mainstream macroeconomic models employ consumption functions that combine rational expectations with forward-looking agents. In these models, the role of

economic policy is very limited, given that policy changes will affect consumption only if they are not anticipated. However, the validity of these models (especially after the great recession of 2008) has been questioned even by leading mainstream theorists in terms of "unrealistic micro-foundations for the behavior of households embodied in the 'rational expectations permanent income' model of consumption" (Muellbauer, 2016, p. 2).

By greatly diminishing the role of current income in consumption functions, mainstream consumption theories equally diminish the role of fiscal policy in preventing economic downturns and thus employment fluctuations. In heterodox theories where current or relative income is a major determinant of consumption, changes in income will bring changes in consumption. These changes will be large and occur within a short time span, and this means that fiscal policy can be used as a major instrument in order to curb unemployment and economic recessions.

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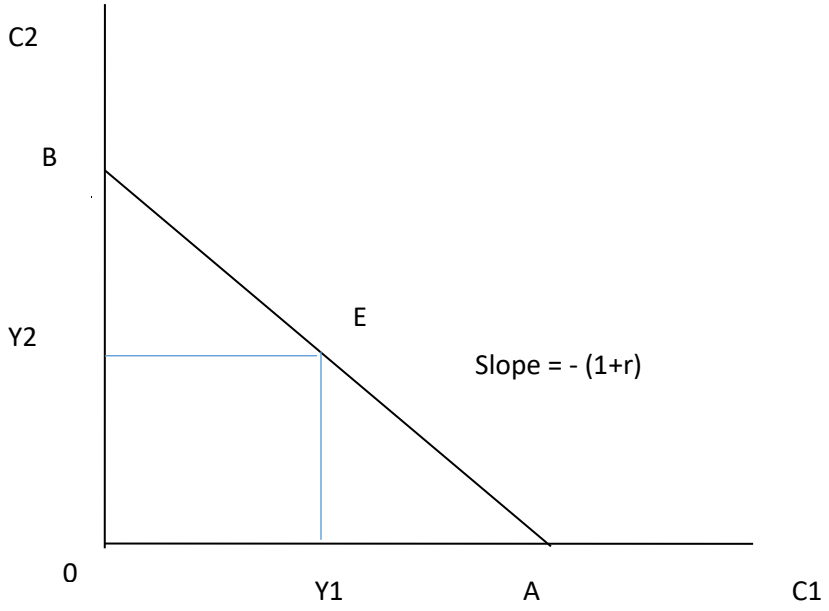

Figure 8.1. The intertemporal budget constraint

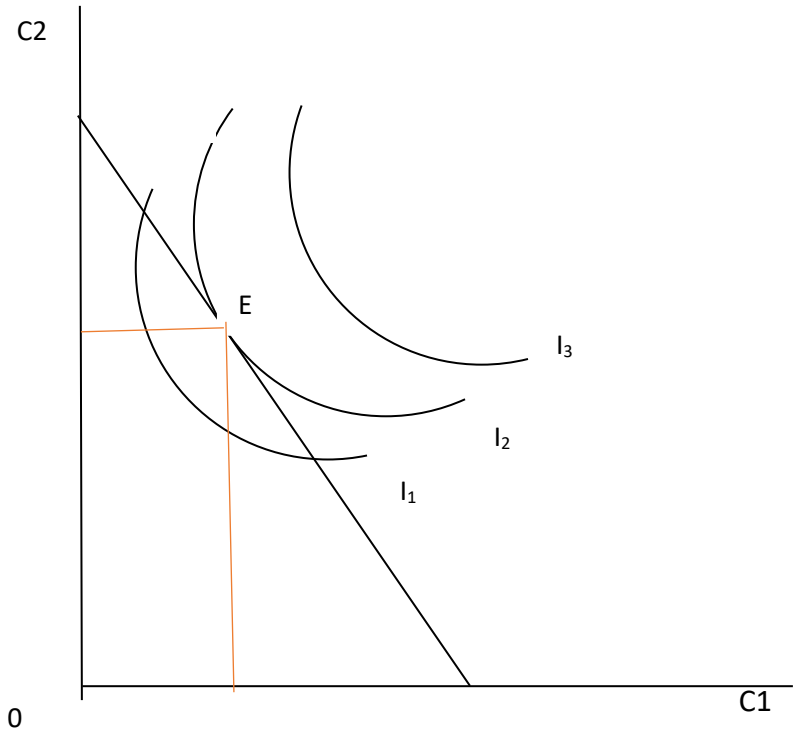

Figure 8.2. Optimization of intertemporal choice

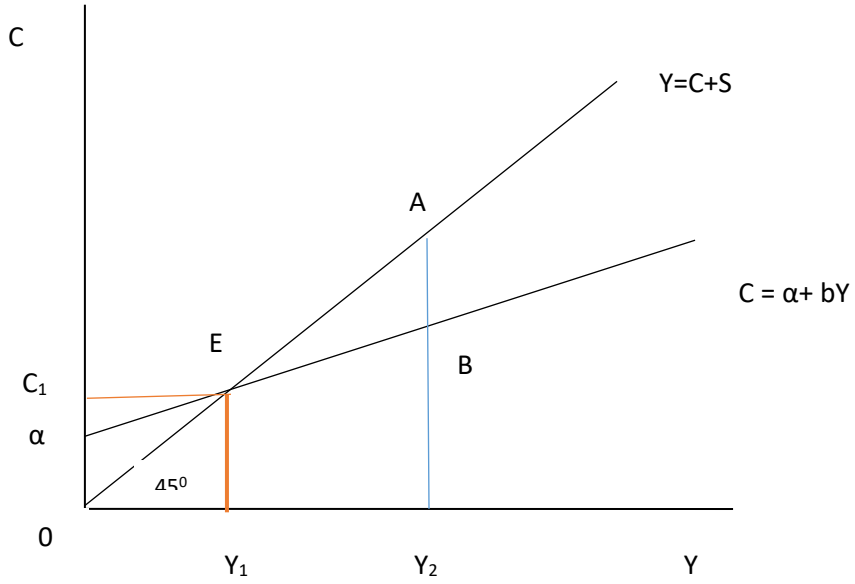

Figure 8.3. The Keynesian consumption function

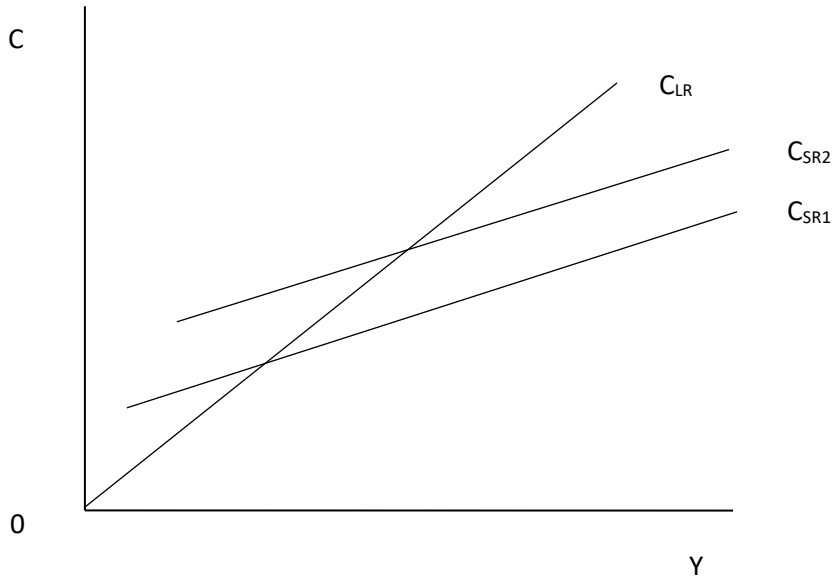

Figure 8.4. Short-run and long-run consumption functions

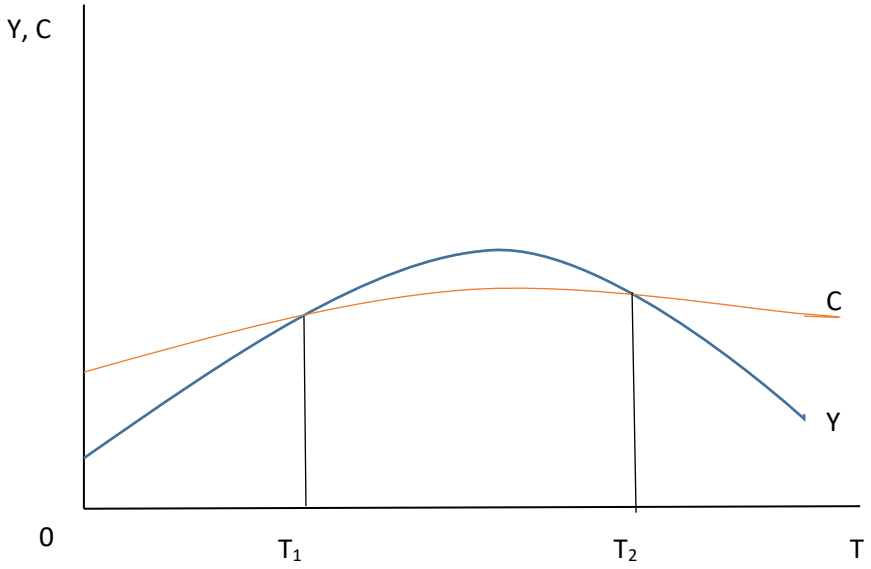

Figure 8.5. The life-cycle hypothesis

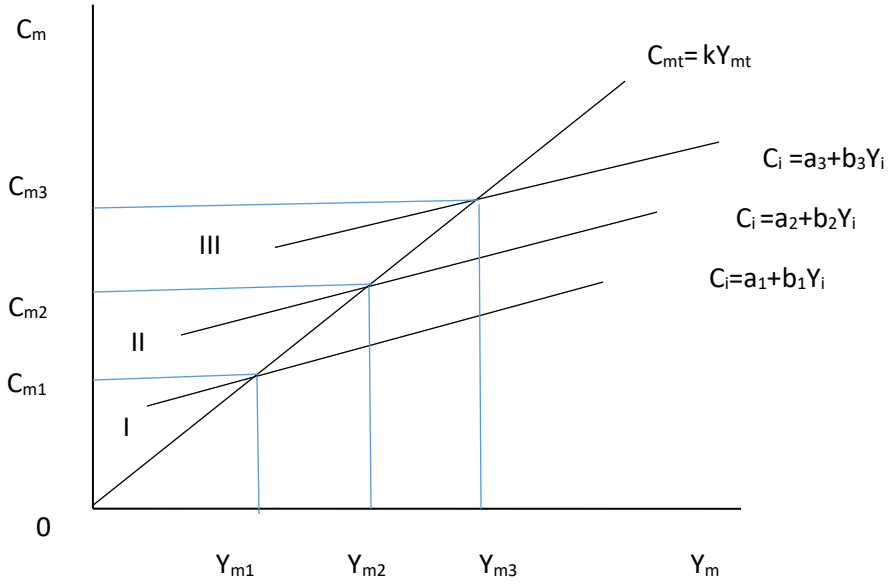

Figure 8.6. Duesenberry's long-run and short-run consumption functions