THE THEORY OF CONSUMER CHOICE:
The Supply of Savings

1. Introduction

So far, the theory of consumer preferences was presented without making allowance for time. That is, the satisfactions of only current (contemporary) preferences were considered. However, reality dictates that decisions made now affect not only our current well-being but also our future circumstances. Thus, when this interdependence between current and future preferences are acknowledged, it becomes relevant to consider *how best to satisfy current preference with due consideration of also satisfying future preferences.* The implicit assumption here is that consumers currently have a preference for satisfying future preferences.

Naturally, the idea of intertemporal preference satisfaction implies that individual consumer have to think of *savings*. Furthermore, how much one will save depends on two things:

- On how much *weight* an individual consumer attaches to her immediate preferences relative to her future preferences. That is, how much she cares today about her future well-being. In general, the greater her concern about her future condition, the more she will save today, and the vice versa.

- On the *rate of interest*. In general, the higher the interest rate, the more money she will have in the future for each dollar that she chooses not to spend today.

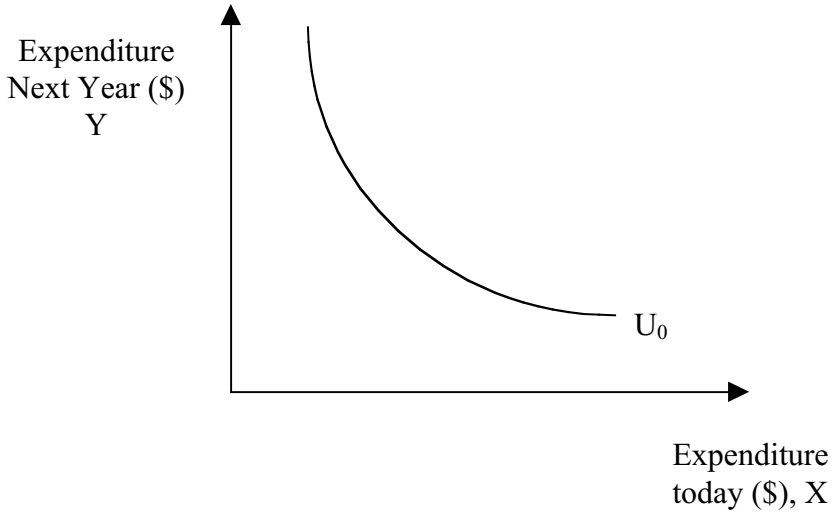
In light of the above two factors, how can we use the *Equi-marginal Principle* to help us determine the *optimal* saving rate?

2. The Preference Function of an individual Consumer: The Choice between present and future consumption

In any theory that deals with consumer choice, identification of the exact nature of the relevant preference function is an absolute necessity. In this particular case the consumer preference function deals with choices between consumption today (current period) and consumption next year (future period). To analyze this formally let, X represents expenditure on current consumption and Y represents money set aside (saving) for future consumption. Hence, we can write the general form of our consumer utility function as:

$$U = f(X, Y). \qquad (1)$$

The indifference curve associated with the above utility function can be graphically depicted as shown below. This indifference curve is *convex* from the origin and it assumes that the marginal utility from both goods (X, Y) are positive. Furthermore, the indifference curve traces the locus of all the combinations of present and future expenditures or consumption (X, Y) that yield the same level of utility or satisfaction.



What exactly does the slope of the above indifference curve, dY/dX, inform us? As you would expect, it measures *the marginal rate of substitution of a dollar expenditure on current consumption for future consumption*. For example, if $MRS_{x/y}$ = 1.10, it suggests that the consumer is willing to substitute (exchange) a dollar consumption today for $1.10 worth of consumption in the future.

3. The Budget Constraint of the Consumer

In order to derive the condition for optimal saving, in addition to a prior knowledge of the preference function (see above), we need to know the exact nature of the relevant budget constraint function of the consumer. As we will see shortly, in this case, the budget constraint function depends on the assumption made regarding the interest rate, **r**.

What exactly does interest rate represent? What is the fundamental rationale for a positive interest rate? Neoclassical economists answer these two questions using the following axiomatic assumption (postulate):

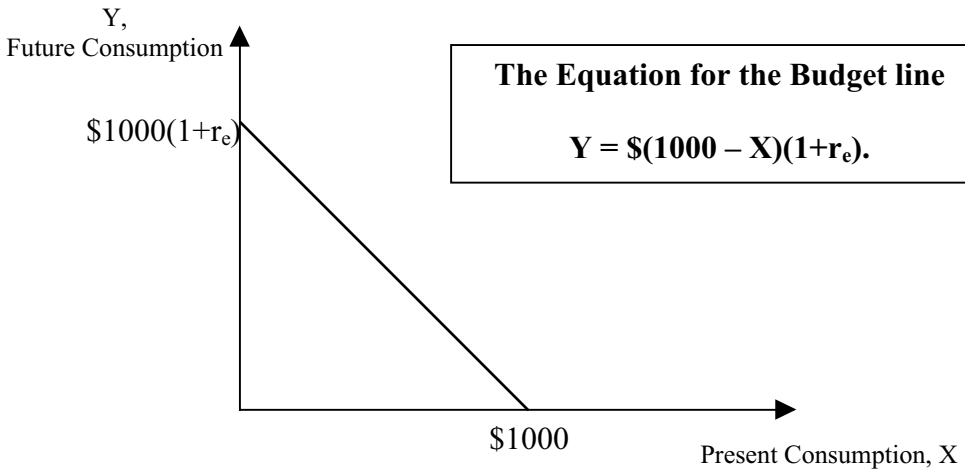
> *Ceteris Paribus, individuals tend to prefer present consumption to future consumption. That is, if offered a unit of benefit or consumption now rather than later, the expectation is that that they will prefer to have the benefit or consumption now.*

The above postulate suggests that consumers have a natural tendency to *discount the future*. Why do we expect people to behave this way? Two reasons are given.

- In general, people tend to be *myopic* or shortsighted (Pigou).
- For most people the future is *uncertain* (Fisher).

Thus, if people are, in deed, myopic and/or uncertain about the future, they will require more than \$1 in future consumption in order to sacrifice a dollar worth of consumption today. That is, the opportunity cost of \$1 consumption today is one dollar *plus* some thing more in the future. The interest rate, r_e, represents that some thing more as established by a freely operating market force. Accordingly, the opportunity cost of \$1 consumption today is $\$(1 + r_e)$ in the future. Suppose the market interest rate is 10% annually. In this case, the opportunity cost of \$1 consumption today is \$1.10 next year.

Given the above explanation, suppose our hypothetical consumer has \$1000 that she can spend as she chooses between two time periods--this year and next years. Given the interest rate, r_e, we can construct the budget line of our consumer as shown below:



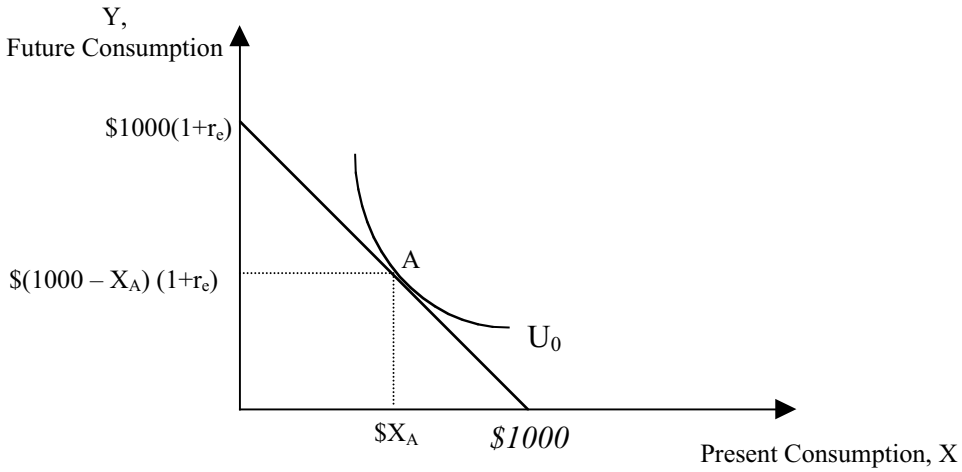
The above budget line shows all the different combinations of present and future consumption expenditures (X, Y) that our consumer can have given her income for these two time periods is limited to $1000 and the market interest rate, r_e. Note that the slope of the budget line is $(1 + r_e)$, and it represents the market *opportunity cost* of a dollar expenditure on current consumption.

4. The Condition for Optimal Saving: The Equi-marginal Principle

Given the above preference and budget information, a straightforward application of the Equi-marginal Principle indicates that the optimal saving is attained when the following condition is met:

$$\mathbf{MRS_{x/y} = dY/dX = -(1 + r).}$$

Or, graphically as shown below, the above condition is met at point A where the slopes of the indifference curve and the budget constraint are *tangent*. What happens if $MRS_{x/y} > (1+r_e)$? Discuss!



Accordingly, the optimal expenditure/ saving are: spend $\$X_A$ now and save $\$(1000 – X_A)$.

Criticisms of the above model: It assumes that we know two things in *advance*: (i) the interest rate, and (ii) not only what preferences a consumer will have next year but also exactly how to weigh current relative to future preferences. Are these realistic assumptions? Why or why not?