Saving and Investment Equality—An Alternative Approach to Determination of Income and Employment

There is another way to determine the equilibrium level of income and employment by bringing equality between saving and investment.

Saving is the excess of income over consumption expenditure (S = Y – C). According to Keynes, aggregate saving is the result of the saving of individuals in the economy. It is current income which determines the current saving and not the past income as stated by Robertson. Swedish economists have defined saving in ex-ante and ex-post sense. According to them, ex-ante savings are planned or expected savings of the economy. Ex-post savings are actual or realized savings.

Investment, according to Keynes, is the additions to the stock of real capital assets such as the construction of roads, new factories, infrastructure, etc in the economy. His definition excludes investment on financial assets such as purchase of stocks, securities, bonds, etc. Investment also includes additions to inventories (stock of goods). Ex-ante investment is planned or expected investments of the economy. Ex-post investment is actual or realized investment.

Saving, in a sense, is withdrawal of money from the income stream whereas investment is injection of money into the income stream. When intended investment is greater than intended saving, it means more money is put into the income stream than what is taken out. Thus, national income will increase in such case. In case, intended investment is less than the intended saving, it would mean more is withdrawn from the income stream than what is put into it. This results in decrease in national income. When intended saving is just equal to intended investment, it would mean that what is withdrawn is put into the income stream. At this position, national income will be in equilibrium. The Fig. 19.3 below shows determination of national income by equality of saving and investment.

Income is measured along x-axis and saving and investment along y-axis. SS and II are the saving and investment curves respectively. Investment at a particular time is assumed to be constant at any level of income. This is the reason why investment curve is straight line parallel to x-axis. SS and II curves intersect each other at point E. At this point intended saving and intended investments are equal. OY is the national income determined.

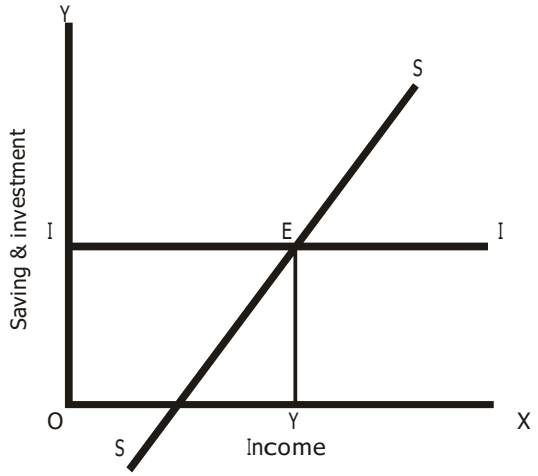

Fig. 19.3

SAVING AND INVESTMENT EQUALITY— A CONTROVERSY

There is a controversy whether saving and investment are always equal. Some economists are of view that savings and investment are made by two different classes of people having different motives. Therefore, it is not necessary that planned (ex-ante) savings may be equal to planned (ex-ante) investment. But actual (ex-post) savings are always equal to actual (ex-post) investment. The equality of saving and investment is derived from the general equality of aggregate demand and aggregate supply (Y = C + I). In macro sense, what the households plan to save is equal to what the firms plan to invest. According to Keynes, national income is derived from the production and sale of consumer and investment goods. That is,

$$Y = C + I \qquad ...(i)$$

We know that income is also equal to saving and consumption. Thus,

$$Y = C + S \qquad ...(ii)$$

Where, C is consumption expenditure and S is saving out of total income.

From equations (*i*) and (*ii*), we get:

$$C + I = C + S$$

$$\therefore \quad I = S$$

When planned savings are less than planned investment, national income will be less than the equilibrium level of income. There will be excess demand in the economy. As such production will have to be increased to meet this excess demand. This will increase income where savings and investment are equal. When planned saving are more than planned investments, national income will be more than the equilibrium level of income. As a consequence, consumption lags behind production. This will lead to stock piling which would compel producers to cut down their levels of production. Thus, income will decline and equilibrium level is restored to its original position, where savings will be equal to investment.

Questions for Review

1. What is effective demand?
2. What happens to the level of income in an economy when ex-ante (intended) savings are less than the ex-ante (intended) investment?
3. How is equilibrium level of income or employment determined?
4. What is aggregate demand? State its components.
5. What is the difference between ex-ante saving and ex-post saving?
6. What is meant by ex-post saving?
7. "Saving and investment are always equal." Discuss.
8. How is the classical concept of aggregate supply different from the Keynesian concept of aggregate supply?
9. Which are the elements important in understanding investment?
10. What is the investment demand function?
11. How does the introduction of government sector affect economy?

20 CONSUMPTION FUNCTION

Households spend a part of their total income on purchase of goods and services to satisfy their wants. This is known as consumption. Moreover, they also save a part of their income by not spending on goods and services. This is known as saving. According to classical economists consumption and savings depend on rate of interest. Keynes stated that consumption expenditure depend on levels of income and relatively unaffected by interest rates.

PROPENSITY TO CONSUME OR PSYCHOLOGICAL LAW OF CONSUMPTION

The relationship between consumption and the level of income is referred to as propensity to consume or *consumption function*. In other words, consumption is a function of income. Thus, $C = f(Y)$ where C stands for consumption expenditure, f = function, and Y is income. Keynes observes that as income increases, consumption also increases, but by less than the increase in income. The reason is that people do not spend the whole of their increased income on consumption. According to Keynes, "The psychology of the community is such that when aggregate real income is increased, aggregate consumption is increased, but not by so much as income." Keynes law of consumption depends upon the following propositions:

(*a*) As aggregate income increases, spending on consumption also increases but by less than increase in income;

(*b*) Amount of increase in income is divided into a certain ratio of saving and spending;

(**c**) Increase in income does not lead to either less saving or less spending than before.

Thus, consumption function shows spending of consumers on goods and services at different levels of disposable income. Thus, consumption function expresses the relation between income (Y) and consumption (C). Consumption is the function of income so that $C = f(Y)$. The following schedule shows consumption expenditure at different levels of disposable income. It is seen that when income increases consumption expenditure also increases. But the rate of increase in consumption expenditure is not same beyond the level of income of Rs. 18 crores as initially. It increases at decreasing rate. This is why the consumption expenditure curve in the Fig. 20.1 below rises upward as income increases and rises at a lesser degree at the later part of the curve.

Disposable income (Y) in Rs. Crores	*Consumption (C) in Rs. Crores*
10	6
12	7
14	8
16	9
18	10
20	10.5
22	10.8
24	10.8

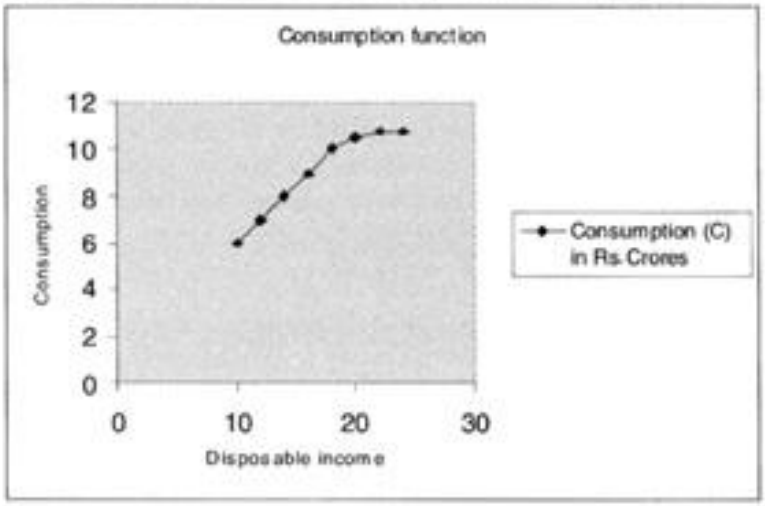

Fig. 20.1

The two ways of measuring this relationship between income and consumption are the following:

(*a*) The average propensity to consume (APC), and

(*b*) The marginal propensity to consume (MPC).

These are explained as under:

The Average Propensity to Consume (APC)

The average propensity to consume is the ratio of consumption to income. It can be expressed as under:

$$\text{APC} = \frac{\text{C}}{\text{Y}}$$

For example, if total income is Rs. 500 crores and total consumption is Rs. 200 crores, then,

$$\text{APC} = \frac{200}{500} \text{ or } 0.4$$

The Marginal Propensity to Consume (MPC)

The ratio of change in consumption to change in income is known as marginal propensity to consume. Symbolically, change (Δ) in the income is denoted as ΔY (read as delta Y) and change in consumption as ΔC. Hence,

$$MPC = \frac{\Delta C}{\Delta Y}$$

For example, if income increases by Rs. 40 crores and as a result consumption increase by Rs. 20 crores, then,

$$MPC = \frac{20}{40} \text{ or } 0.5$$

We have shown below a table illustrating the concept of APC and MPC.

Income (Y) in crores Rs.	*Consumption (C) crores Rs.*	*APC = C/Y*	*MPC = ΔC/ΔY*
0	5	–	–
5	7	1.4	0.4
10	10	1.0	0.6
15	12	0.8	0.4
20	15	0.75	0.6
25	17	0.68	0.4
30	20	0.66	0.6
35	22	0.62	0.4

This can also be explained diagrammatically as below:

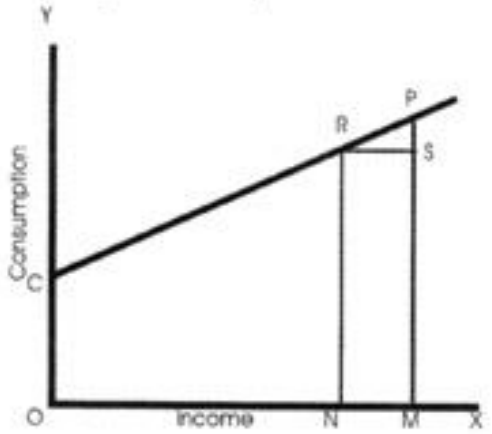

Fig. 20.2

C is the consumption curve. At the income level of ON, consumption expenditure is NR.

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Thus APC can be measured as,

$$APC = \frac{C}{Y}$$

$$APC = \frac{NR}{ON}$$

Similarly, MPC can be found by using the formula as shown under:

$$MPC = \frac{\Delta C}{\Delta Y}$$

Since $\Delta Y = OM - ON (= NM)$ and $\Delta C = PM - NR (= PS)$. Therefore,

$$MPC = \frac{\Delta C}{\Delta Y} = \frac{PS}{NM} = \frac{PS}{RS}$$

PROPENSITY TO SAVE/SAVING FUNCTION

The relationship between the change in income and the change in saving is the propensity to save. We can also express propensity to save in two different ways. These are the following:

(*a*) The average propensity to save (APS), and

(*b*) The marginal propensity to save (MPS).

The Average Propensity to Save (APS)

The average propensity to save is the ratio of total savings to total income. Thus,

$$APS = \frac{S}{Y}$$

where, S = saving and Y = income.

The Marginal Propensity to Save (MPS)

Marginal propensity to save is the ratio of change in saving to change in income. Symbolically, change in income is denoted as ΔY and change in saving as ΔS. Hence,

$$MPS = \frac{\Delta S}{\Delta Y}$$

We know that MPC + MPS = 1. Therefore, MPS = 1 – MPC or

$$MPS = 1 - \frac{\Delta C}{\Delta Y}$$

RELATIONSHIP BETWEEN APC AND MPC

The following relationships arise between APC and MPC:

(*i*) MPC refers to marginal increase in consumption due to marginal increase in income and APC means the ratio of total consumption to total income.