CHAPTER 7: CONSUMPTION FUNCTION

Content

- Meaning of consumption
- Consumption Function
- APC and MPC and its Relationship

Meaning of Consumption

It is an act to use the goods or service to satisfy the wants. In economics, Consumption is destruction of utility. Consumption is typically defined as final purchased by an individual that are not investments of some sort.

In someone buys a house to live in, that should be defined as consumption. If they buy a house to rent out it to someone else, that should be defined as an investment. In short, the reason for the purchase determines whether something is viewed as on investment or as consumption

Consumption is defined as the satisfaction of human wants through the use of goods and services.

Determinants of consumption:

- Present Disposable Income
- Future income
- Wealth income

The most important determinant of consumption is income. The relationship between consumption and income is termed as consumption function or the propensity to consume.
Keynes' analysis of the consumption function is a major landmark in the history of economic doctrines. Keynes's invention of the consumption function is perhaps the single most important contribution of Keynes to modern macroeconomics.

Concept of Consumption Function:

According to Keynes, the total volume of private consumption expenditure in an economy depends in the total current disposable income of the people and the proportion of income which they decide to spend on consumer goods and services.
The positive relationship between consumption spending and disposable income is described by the Consumption function.

(OR)

Consumption function expresses the functional relationship between aggregate consumption expenditure and aggregate disposable income, expressed as:

$$C = f(Y)$$

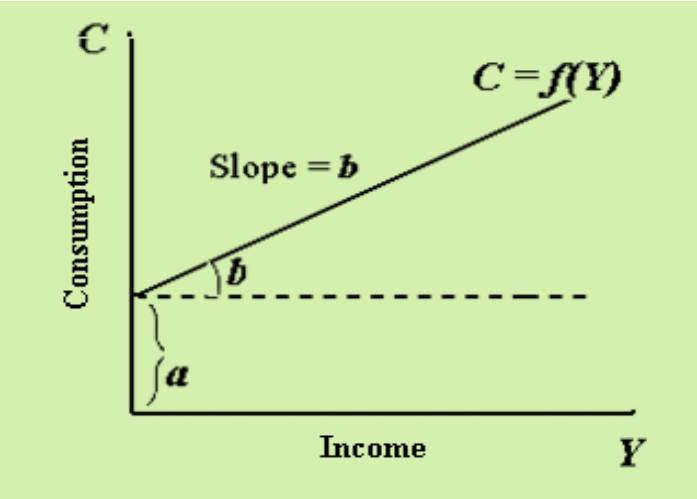
The Consumption Function, proposed by Keynes is as follows:

$$C = a + By$$

Where, C = aggregate consumption expenditure;
Y = total disposable income;

a is a constant term(intercept) i.e., the positive value of consumption at zero level of disposable income;
b, the slope of the function, ($\Delta C/\Delta Y$) is the marginal propensity to consume

The Keynesian Consumption Function



From the above graph:

- The consumption function shows the level of consumption (C) corresponding to each level of disposable income (Y) and is expressed through a linear consumption function, as shown by the line marked C = f(Y)
- The intercept for the consumption function, can be expressed as a measure of the effect on consumption variables other than income.
- When income is low, consumption expenditure of households will exceed their disposable income and households dis-save i.e. they either borrow money or draw from their past savings to purchase consumption goods.

Conclusion:
The Keynesian assumption is that consumption increases with an increase in disposable income, but that the increase in consumption will be less than the increase in disposable income (b<1) i.e. 0<b<1.

Propensity to Consume
Marginal Propensity to Consume (MPC):
MPC describes the relationship between change in consumption (ΔC) and the change in income (ΔY).
MPC= = b
MPC is always less than unity, but greater than zero, i.e., 0<b<1. Although the MPC is not necessarily constant for all changes in income (in fact, the MPC tends to decline at higher income levels),

Average Propensity to Consume (APC):

The ratio of total consumption to total income is known as the average propensity to consume (APC).

APC= =

It is obvious that the proportion of income spent on consumption decreases as income increases.

Consumption Schedule

Income (Y)	Consumption (C)	APC (C/Y)	MPC ($\Delta C/\Delta Y$)	MPS($\Delta S/\Delta Y$) (1-MPC)
0	500	500/0=∞		
1000	1250	1250/1000=1.25	750/1000=0.75	0.25
2000	2000	2000/2000=1	750/1000=0.75	0.25
3000	2750	2750/3000=0.92	750/1000=0.75	0.25
6000	5000	5000/6000=0.83	1500/2000=0.75	0.25
10,000	8000	8000/10,000=0.80	3000/4000=0.75	0.25

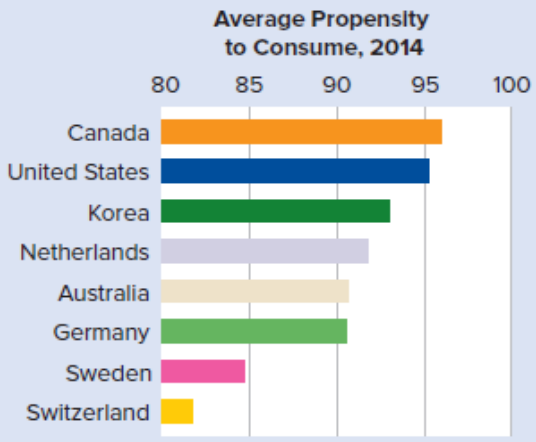
Relationship between APC and MPC

1. While the MPC refers to the marginal increase in consumption (AC) as a result of marginal increase in income (AY), that is, the slope of the consumption curve; the APC refers to the ratio of total consumption (C) to total income (Y), that is, the position of the consumption curve.
2. According to Keynes, as income increases the MPC and the APC fall, but the decline in MPC is greater than the decline in APC.
3. If the consumption function is linear as in equation (2), that is, the consumption curve is a straight line as in Fig., the MPC is constant but the APC falls as income increases.

GLOBAL PERSPECTIVE 10.1

Average Propensities to Consume, Selected Nations

There are surprisingly large differences in average propensities to consume (APCs) among nations. In 2014, Canada, the United States, Korea, and the Netherlands in particular had substantially higher APCs, and thus lower APSs, than several other advanced economies.



Source: Organization for Economic Cooperation and Development, OECD, **www.oecd.org**. Derived from OECD household saving rates as percentages of disposable income. *Econ Outlook 98*, Annex Table 23, extracted April 2016.

CONSIDER THIS . . .

Source: © Digital Vision/Getty Images RF

The Great Recession and the Paradox of Thrift

The Great Recession of 2007–2009 altered the prior consumption and saving behavior in the economy. Concerned about reduced wealth, high debt, and potential job losses, households increased their saving and reduced their consumption at each level of after-tax income (or each level of GDP). In Figure 10.4, this outcome is illustrated as the downward *shift* of the consumption schedule in the top graph and the upward *shift* of the saving schedule in the lower graph.

This change of behavior illustrates the so-called **paradox of thrift**, which refers to the possibility that a recession can be made worse when households become more thrifty and save in response to the downturn. The paradox of thrift rests on two major ironies. One irony is that saving more is *good* for the economy in the long run, as noted in Chapter 1 and Chapter 6. It finances investment and therefore fuels subsequent economic growth. But saving more can be *bad* for the economy during a recession. Because firms are pessimistic about future sales, the increased saving is not likely to be matched by an equal amount of added investment. The extra saving simply reduces spending on currently produced goods and services. That means that even more businesses suffer, more layoffs occur, and people's incomes decline even more.

The paradox of thrift has a second irony related to the *fallacy of composition* (Chapter 1, Last Word): Households as a group may inadvertently end up saving less when each individual household tries to save more during a recession. This is because each household's attempt to save more implies that it is also attempting to spend less. Across all households, that collective reduction in total spending in the economy creates additional job losses and further drives down total income. The decline in total income reduces the ability of households as a group to save as much as they did before their spending reduction and subsequent income decline.

Saving Function

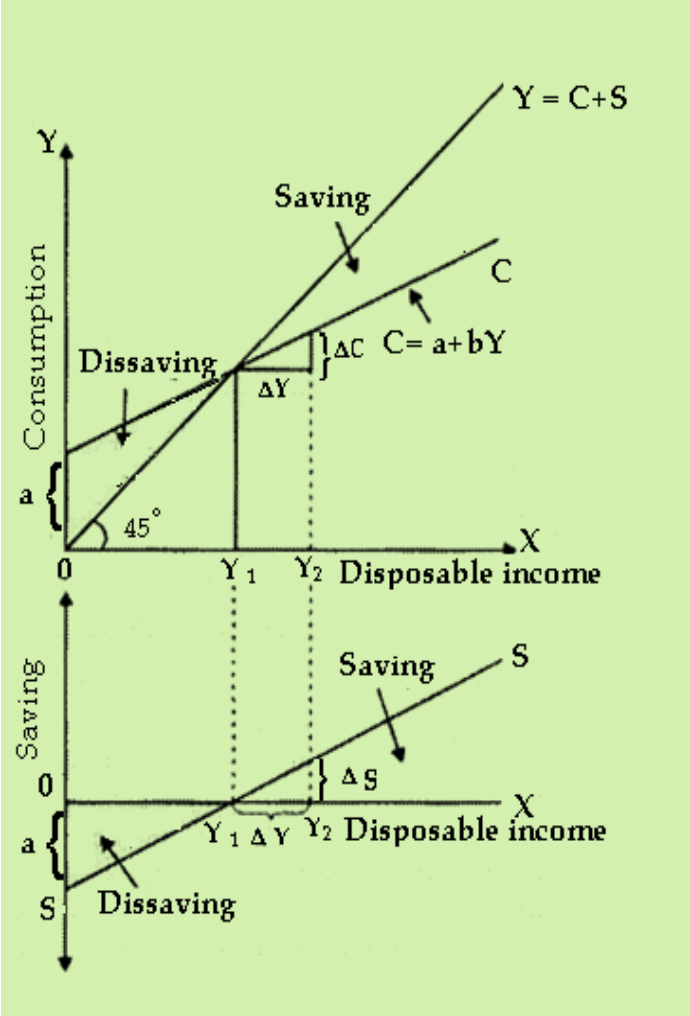
Saving is also a function of disposable income. The saving function shows the function shows the functional relationship between national income (= disposable income in two sector model) and saving.

The saving function shows the level of saving (S) at each level of disposable income (Y).

Y = C = S (Where Y = Disposable income)

Therefore, S = Y-C.

Diagrammatically representation



From the above graph

The 45° line (Y= C + I) is drawn to split the positive quadrant of the graph and shows the income-consumption relation with Y = C (AD=Y) at all levels of income.

All points on the 45° line indicate the aggregate expenditure (C+I) equal aggregate output (Y); and the line maps out all possible equilibrium income levels.

As long as the economy is operating at less than its full-employment capacity, producers will produce any output along the 45° line that they believe purchasers will buy.

Propensity to save

The table shows the relationship between income consumption and saving.

Income (Y)	Consumption (C)	APC (C/Y)	MPC ($\Delta C/\Delta Y$)	MPS($\Delta S/\Delta Y$) (1-MPC)
0	500	500/0=∞		
1000	1250	1250/1000=1.25	750/1000=0.75	0.25
2000	2000	2000/2000=1	750/1000=0.75	0.25
3000	2750	2750/3000=0.92	750/1000=0.75	0.25
6000	5000	5000/6000=0.83	1500/2000=0.75	0.25
10,000	8000	8000/10,000=0.80	3000/4000=0.75	0.25

Marginal Propensity to Save (MPS):

The marginal propensity to save is the increase in saving per unit increase in disposable income. The slope of the saving function is the marginal propensity to save.

MPS==1-b

Marginal Propensity to Consume (MPC) is always less than unity, but greater than zero, i.e., 0 < b < 1 Also, MPC + MPS = 1; we have MPS 0 < b < 1.

Thus, saving isan increasing function of the level of income because the marginal propensity to save (MPS) = 1- b is positive, i.e. saving increase as income increases.

The Average Propensity to Save (APS):

The ratio of total saving to total income is called average propensity to save (APS). Alternatively, it is a part of total income which is saved.

APS= =

Self-Review Question

1. State the relationship between Consumption and Income
2. Explain the Concept of APC and MPC
3. What do you mean by Saving Function?
4. State the relationship between APC and APS and MPS and MPS

Chapter 8: Investment

Content

- Meaning of Investment
- Financial and Real Investment
- Autonomous and Induced Investment

- Marginal Efficiency of Capital

Meaning of Investment

Ordinarily investment refers to purchases of financial assets such as shares, bonds, etc.
In economics restrict the use of the term investment to the creation of real assets which add to stock of physical capital.
Investment can be made by households in the form of its residential construction, by business firms in the form of and equipment and buildings associated with them and by government in the form of construction and plant and equipment

Real and Financial Investment: In Keynesian economics investment means real investment which refers to the addition to the stock of physical capital. It does not include the purchase of existing stocks, shares and securities which merely represents a change in the ownership of assets that already exist. Such an investment is called and, a financial investment income which does not affect aggregate demand and hence, income and employment in the economy. However, a real investment increases the aggregate economy. demand and brings about an increase in income and employment in the economy.

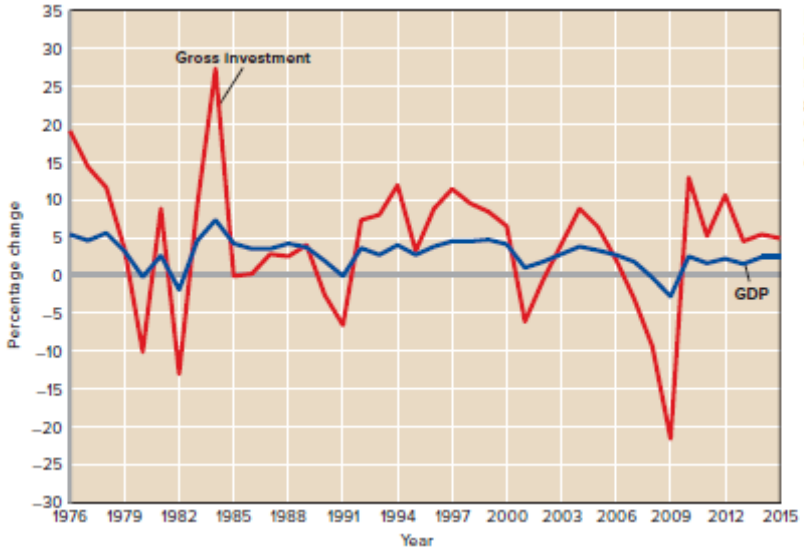


FIGURE 10.7 The volatility of investment, 1976–2015. Annual percentage changes in investment spending are often several times greater than the percentage changes in GDP. (Data are in real terms. Investment is gross private domestic investment.)

Autonomous and Induced Investment: Investment is also classified into autonomous investment and induced investment. Autonomous investment does not change with the changes in income and is, therefore, independent of income. It generally takes place in houses, roads, public buildings and other parts of the infrastructure. Autonomous investment depends more on population growth and technical progress than on the level of income. A large part of the investment undertaken by the government is of autonomous nature. On the other hand, induced investment is that investment which changes with the change in income. It increases with the increase in income.

Determinant of Investment

Investment is determined principally by the marginal efficiency of capital and the rate of interest.

- Marginal Efficiency of Capital
- Rate of Interest

The marginal efficiency of capital is ordinarily called the expected rate of profit. The prospective investors will keep on comparing the marginal efficiency of capital with the rate of interest.

• MEC > ROI – Investment
• MEC< ROI – No investment

The rate of interest is relatively "sticky", that is, it does not change much in the short run. Thus, the inducement to invest primarily depends upon the marginal efficiency of capital. Changes in the marginal efficiency of capital cause changes in investment which in turn causes fluctuations

CONSIDER THIS . . .

Source: © Stephanie Dalton Cowan/Getty Images RF

The Great Recession and the Investment Riddle

During the severe recession of 2007–2009, real interest rates essentially declined to zero. Figure 10.5 suggests that this drop in interest rates should have boosted investment spending. But investment declined substantially during this period. On an annual basis, it declined by 9 percent in 2008 and 26 percent in 2009. Does this combination of lower real interest rates and reduced investment make Figure 10.5 irrelevant?

Definitely not! The key to the investment riddle is that during the recession, the investment demand curve shifted inward, as from ID_0 to ID_2 in Figure 10.6. This inward shift overwhelmed any investment-increasing effects of the decline of real interest rates. The net result turned out to be less investment, not more.

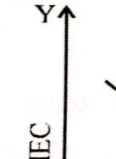
The leftward shift of the investment demand reflected a decline in the expected returns from investment. Firms envisioned zero or negative returns on investment in new capital because they were facing an overstock of existing capital relative to their current sales. Understandably, they therefore were not inclined to invest. Also, firms were extremely pessimistic about when the economy would regain its strength. This pessimism also contributed to low expected rates of return on investment and thus to exceptionally weak investment demand. Further, even though the interest rate was so low, firms that wanted to borrow and invest found that lenders were reluctant to lend them money for fear that they would not be able to pay back the loans.

in aggregate demand.

As investment increase in a particular capital asset the marginal efficiency of that capital falls, partly because the prospective yield falls as the supply of that capital is increased, and partly because the price of that capital asset increases on account of pressures on the facilities for producing that type of capital asset*.

Thus, MEC falls as investment increases due to fall in the prospective yield and rise in the supply price of the capital asset. A hypothetical MEC schedule is given in Table

Investment Demand Schedule or MEC



Investment	MEC
25000	15
50000	12
75000	10
10000`	8

The MEC curve is downward sloping. it shows, that is, as investment increases MEC declines.

SELF REVIEW QUESTION

1. Explain the meaning of investment
2. On what things investment in an economy depends on
3. Is financial investment and real investment same
4. What do you mean by marginal efficiency of capital?
5. State the relationship between MEC and investment in an economy

Chapter 9: Investment Multiplier

- Meaning of Multiplier
- Working of Multiplier
- Relationship between Multiplier MPC and MPS
- Leakages in Multiplier

Meaning of Multiplier

The multiplier refers to the phenomenon whereby a change in an injection of expenditure will lead to a proportionately larger change (or multiple change) in the level of national income.

Investment multiplier

Investment multiplier explains how many times the aggregate income increases as a result of an increase in investment.

- Level of investment increases by an amount say ΔI,
- Equilibrium level of income will increase by some multiple amounts, Δ Y.

The ratio of ΔY to ΔI is called the investment multiplier, k K = ΔY/ ΔI

The multiplier refers to the phenomenon whereby a change in an injection of expenditure will lead to proportionately larger change (or multiple changes) in the level of national income.

For Example

Investment multiplier for example, Change in investment of Rs. 2000 million causes a change in national income of Rs. 6000 million, then the multiplier is 6000/2000 =3.

Thus, multiplier indicates the change in national income for each rupee change in the desired investment. The value 3 in the above example tells us that for every ` 1 increase in desired investment expenditure, there will be ` 3 increase in equilibrium national income.

Working of Multiplier

The multiplier explains the cumulative effect of a change in investment on income via its effect on consumption expenditure. It the mechanism through which income gets propagated as a result of original investment. This is explained by the following arithmetical example. Let us suppose that MPC is 4/5 and, therefore, the multiplier is 5. Then an increase in investment of 1000 will increase the total income by 5000. The process of income generation from the original investment is explained in Table

It can be seen from the table 9.1 that an investment of 1000 increases the income by 1000 of the people whose factors of production get employed as a result of new investment. Since MPC is 4/5, the income recipients spend 800 on consumption. Thus, in the second-round income will increase by 800 because one person's expenditure is another person's income. Out of 800, 80 percent will again be spent on consumption and, therefore, income will increase by 640 in the third round, by 512 in the fourth, by 409.60 in the fifth and so on till the income has increased to 5000.

Increase in Investment	Increase in Income	Increase in Consumption	Increase in Saving
100.0	100.0	80.0	20.0
	80.0	64.0	16.0

	64.0	51.2	12.8
	51.2	41.0	10.2
	41.0	32.8	8.2
	32.8	26.2	6.6

Thus, there is an infinite geometric series of the descending variety, viz, 1000 + 800 + 640 + 512... so on. The formula for an infinite geometric progression is

$$1+ r + r1 + r2 + r3 + \ldots. + rn = 1 / 1 – r$$

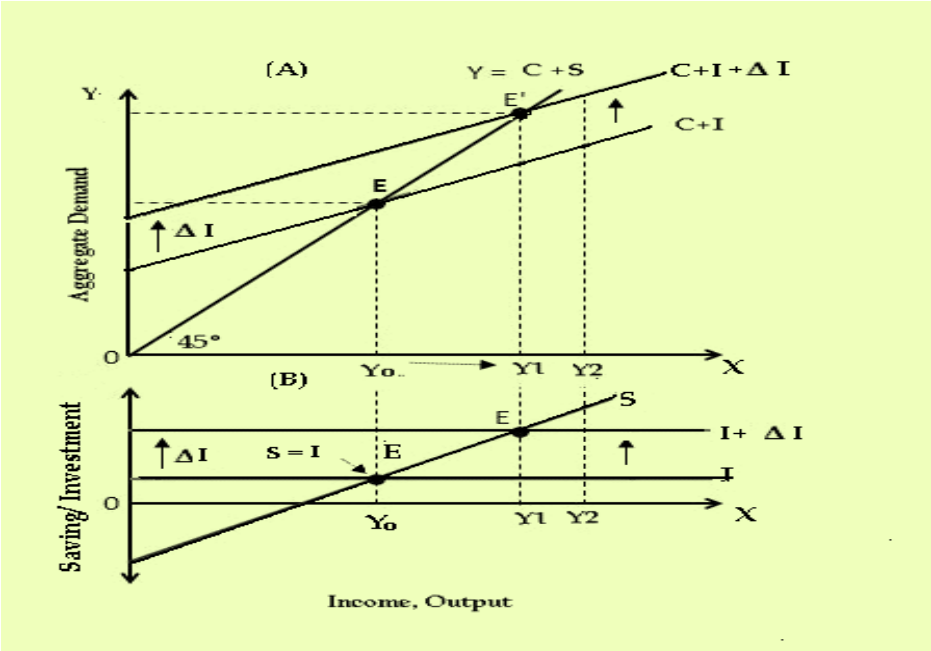
where r is MPC which is less than one. Thus, the simple multiplier formula is

Change in income = 1/ 1 – MPC x change in investment
= 1 / MPS x change in investment

Thus, it follows from our example that

Change in income = 1/ 1 – 4/5 x 1000
= 1/ 1/5 x 1000
= 5 x 1000
= 5,000

Effect of changes in Autonomous Investment:



From the above graph

An increase in autonomous investment by ΔI shifts the aggregate demand schedule from C+I to C+I+ΔI.

Thus, due to the operation of the investment multiplier equilibrium shifts from E to E^1 and the equilibrium income increases more than proportionately from Y_0 to Y_1.

The increase in national income (ΔY) is the result of increase in investment (ΔI), the multiplier is called 'Investment Multiplier'.

LAST WORD

Toppling Dominoes

A Humorous Look at the Multiplier

CLEVELAND—Yesterday, the local economy was plunged into a recession in less than 6 hours.

Many people are trying to explain the sudden change in local prospects. Here's one conjecture.

At precisely 9 a.m., Humbug, the Ford dealer, called Mr. Ajani, of Ajani's Men's Wear. "It's a great day, Mr. Ajani! The new models are in. Per your request, I've put in an order for you."

Source: © Tim Boyle/Getty Images

Agitated, Mr. Ajani responded, "That's not going to work Mr. Humbug. I just got hit with an unexpected tax bill. It's huge and I can't afford a new car right now. Sorry."

Humbug hung up. Two minutes later, his cell phone rang.

"This is Tanaka the landscaper. When do you want us to start working on your yard?"

"I'm sorry, Tanaka, but I can't do that right now," said Humbug.

Perplexed, Tanaka responded, "You were so excited about your new yard. What happened?"

"It's one of my customers. He canceled an order because he got hit with an unexpected tax bill."

Two hours later, Tanaka received a call from his wife, Samantha. "I'm so excited! Goldman's Electronics just received our new TV. They said they can install it tomorrow."

"We're going to have to send it back."

Relation between MPC & MPS with Multiplier:

K = ==

- MPC is the determinant of the value of the multiplier.
- There exists a direct relationship between MPC and the value of multiplier (i.e. higher the MPC, more will be the value of the multiplier, and vice-versa).
- The maximum value of multiplier is infinity when the value of MPC is one and therefore the economy decides to consume the whole of its additional income.
- On the contrary, higher the MPS, lower will be the value of multiplier and vice-versa. i.e. the value of the multiplier is the reciprocal of MPS.

Leakages in Multiplier

Increase in income due to increase in initial investment, does not go on endlessly. The process of income propagation slows down and ultimately comes to a halt.

Causes responsible for the decline in income are called leakages

Income i.e., not spent on currently produced consumption goods and services may be regarded as having leaked out of income stream.

If the increased income goes out of the cycle of consumption expenditure, there is a leakage from income stream. It reduces the effect of multiplier.

The more powerful these leakages are the smaller will be the value of multiplier.

The leakages are caused due to:

- Even though there is an increase in income but because of progressive rates of taxation there is no considerable increase in consumption.

- High liquidity preference and idle saving.
- Holding of cash balances and equivalent fall in MPC.
- Increased demand for consumer goods being met out of the existing stocks or through imports.
- Additional income spent on purchasing existing wealth or purchase of government securities and shares from shareholders or bond holders.
- Undistributed profits of corporations.
- Part of increment in income used for payments of debts.
- Cases of full employment additional investment will only lead to inflation, and
- Scarcity of goods and services despite having high MPC.

Conclusion:

The MPC, on which the multiplier effect of increase in income depends, is high in under developed countries; ironically the value of multiplier is low. Due to structural inadequacies, increase in consumption expenditure is not generally accompanied by increase in production.

E.g. Increased demand for industrial goods consequent on increased income does not lead to increase in their real output; rather prices tend to rise.

SELF-REVIEW QUESTION

1. What do you mean by investment multiplier?
2. What role does multiplier play in an economy?
3. The value of multiplier is dependent on what factors
4. State the relationship between multiplier, MPC and MPS

Chapter 10: Aggregate Demand and Aggregate Supply

Content

- Classical and Keynesian View of Full employment
- Effective Demand
- Aggregate Demand/ Aggregate Expenditure
- Determinants of Aggregate Demand
- Aggregate Supply
- Inflationary Gap and Deflationary Gap

Figure 11.1 New Home Construction At the peak of the housing bubble, many people across the country were able to secure the loans necessary to build new houses. (Credit: modification of work by Tim Pierce/Flickr Creative Commons)

Case Study

Bring it Home

From Housing Bubble to Housing Bust

The United States experienced rising home ownership rates for most of the last two decades. Between 1990 and 2006, the U.S. housing market grew. Homeownership rates grew from 64% to a high of over 69% between 2004 and 2005. For many people, this was a period in which they could either buy first homes or buy a larger and more expensive home. During this time mortgage values tripled. Housing became more accessible to Americans and was considered to be a safe financial investment. **Figure**

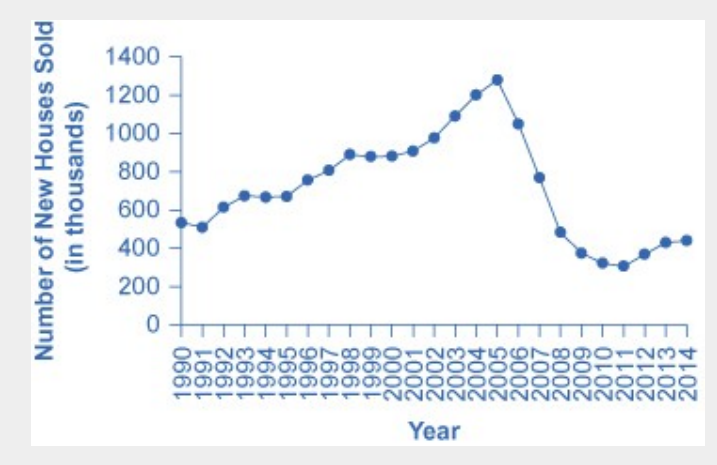


Figure 11.2 New Single-Family Houses Sold From the early 1990s up through 2005, the number of new single-family houses sold rose steadily. In 2006, the number dropped dramatically and this dramatic decline continued through 2011. By 2014, the number of new houses sold had begun to climb back up, but the levels are still lower than those of 1990. (Source: U.S. Census Bureau)

The housing bubble began to show signs of bursting in 2005, as delinquency and late payments began to grow and an oversupply of new homes on the market became apparent. Dropping home values contributed to a decrease in the overall wealth of the household sector and caused homeowners to pull back on spending. Several mortgage lenders were forced to file for bankruptcy because homeowners were not making their payments, and by 2008 the problem had spread throughout the financial markets. Lenders clamped down on credit and the housing bubble burst. Financial markets were now in crisis and unable or unwilling to even extend credit to credit-worthy customers.

The housing bubble and the crisis in the financial markets were major contributors to the Great Recession that led to unemployment rates over 10% and falling GDP. While the United States is still recovering from the impact of the Great Recession, it has made substantial progress in restoring financial market stability through implementing aggressive fiscal and monetary policy.

The economic history of the United States is cyclical in nature with recessions and expansions. Some of these fluctuations are severe, such as the economic downturn that occurred during the Great Depression in the 1930s which lasted several years. Why does the economy grow at different rates in different years? What are the causes of the cyclical behavior of the economy?

This chapter will introduce an important model, the aggregate demand–aggregate supply model, to begin our understanding of why economies expand and contract over time.

Classical view regarding full employment

- The classical economists maintained that the economy is self-regulating and is always capable of automatically achieving equilibrium at the 'natural level' of real GDP or output, which is the level of real GDP that is obtained when the economy's resources are fully employed.
- While circumstances arise from time to time that cause the economy to fall below or to exceed the natural level of real GDP, wage and price flexibility will bring the economy back to the natural level of real GDP.
- If an excess in the labour force (unemployment) or products exist, the wage or price of these will adjust to absorb the excess.
- According to them, there will be no involuntary unemployment.

Keynes view regarding full employment

- Keynes' theory of determination of equilibrium real GDP, employment and prices focuses on the relationship between aggregate income and aggregate expenditure.
- There is a difference between equilibrium income (the level toward which the economy gravitates in the short run) and potential income (the level of income that the economy is technically capable of producing, without generating accelerating inflation).
- Keynes argued that markets would not automatically lead to full-employment equilibrium and the resulting natural level of real GDP. The economy could settle in equilibrium at any level of unemployment.
- Keynesians believe that prices and wages are not so flexible; they are sticky, especially downward. The stickiness of prices and wages in the downward direction prevents the economy's resources from being fully employed and thereby prevents the economy from returning to the natural level of real GDP.
- Therefore, output will remain at less than the full employment level as long as there is insufficient spending in the economy. This was precisely what was happening during the great depression.

The British Economist John Maynard Keynes is his master price 'The General Theory of Employment Interest and Money' published in 1936 put forth a comprehensive theory on the determination equilibrium aggregate income and output in an economy.

The principle of effective demand is the starting point of Keynes theory of employment. It is an integral part of Keynes theory. According to Keynes, unemployment is due to lack of effective demand. Thus, employment tan be raised by increasing the level of effective demand.

Meaning Of Effective Demand

- Keynes used the term "effective "demand to designate the point where aggregate demand curve intersects the aggregate supply curve. Thus, according to Keynes, effective demand is determined by two factors, that is, aggregate demand price and aggregate supply price.

- Total employment depends on effective demand and, therefore, unemployment results from the deficiency of effective demand. The greater the level of effective demand the greater is the amount of employment in the economy.

- It is necessary to maintain high level of effective demand through expenditure on consumption and investment to maintain a high level of income and output.

Aggregate Demand

Aggregate demand (AD) is what economists call total planned expenditure. In a open economy, the ex- ante aggregate demand (AD) for final goods oraggregate expenditure consists of only four components:

Four Components of Aggregate Expenditure

- **Consumption (C):** Spending by households on goods and services.
- **Planned investment (I):** Planned spending by firms on capital goods, and by households on new homes.
- **Government purchases (G):** Spending on all levels of government on goods and services.
- **Net exports (NX):** The value of exports minus the value of imports.

Aggregate expenditure is the sum of these components: AE = C + I + G + NX

Components of Real Aggregate Expenditure

Expenditure Category	Real Expenditure (millions of 2012 dollars)
Consumption	1 262 516
Planned Investment	426 708
Government Spending	550 728
Net Exports	–32048

Clearly consumption is the largest portion, with government spending next followed by investment. From the given Table, we can infer that, in the short run, AD depends largely on the aggregate consumption expenditure.

Determinants of Aggregate Demand

1. **Consumption**

Consumption tends to follow a relatively smooth, upward trend; its growth declines during periods of recession.

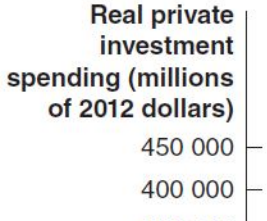
SOURCE: Statistics Canada, "Gross Domestic Product, Expenditure-Based, Canada, Quarterly (*1 000 000)," Table 36-10-0104-01.

What affects the level of consumption?

- **Current disposable income**
  Consumer expenditure is largely determined by how much money consumers receive in a given year.
  disposable income = personal income - personal income taxes + plus government transfer payments
  Income in Canada expands in most years and so does consumption.
- **Household wealth**
  Consumption depends in part on the wealth of households
  A household's wealth can be thought of as its assets (like homes, stocks and bonds, and bank accounts) minus its liabilities (mortgages, student loans, etc.).
  Households with greater wealth will spend more on consumption, even with similar incomes.
- **Expected future income**
  Most people prefer to keep their consumption fairly stable from year to year, a process known as consumption-smoothing.
  Example: people who go back to school.
- **The price levels**
  As prices rise, the real value of household wealth falls.
- **The interest rate**
  Higher real interest rates encourage saving rather than spending; so they result in lower spending, especially on durable goods.

2. Planned Investment

Investment has increased over time, but not as smoothly as consumption. Recessions can cause investment to fall rapidly



SOURCE: Statistics Canada, "Gross Domestic Product, Expenditure-Base, Canada, Quarterly (*1 000 000)," Table 36-10-0104-01.

What affects the level of investment?

- **Expectations of future profits**
  Investment goods, such as factories, office buildings, machinery, and equipment, are long-lived. Firms build more of them when they are optimistic about future profitability.
  Recessions reduce confidence in future profitability, hence during recessions, firms reduce planned investment.
  Purchases of new housing are included in planned investment.
  In recessions, households have reduced wealth, and less incentive to invest in new housing.
- **Interest rate**
  Since business investment is sometimes financed by borrowing, the real interest rate is an important consideration for investment.
  A higher real interest rate results in less investment spending, and a lower real interest rate results in more investment spending.
- **Taxes**
  Higher corporate income taxes on profits decrease the money available for reinvestment and decrease incentives to invest by diminishing the expected profitability of investment.
  Similarly, investment tax incentives tend to increase investment.

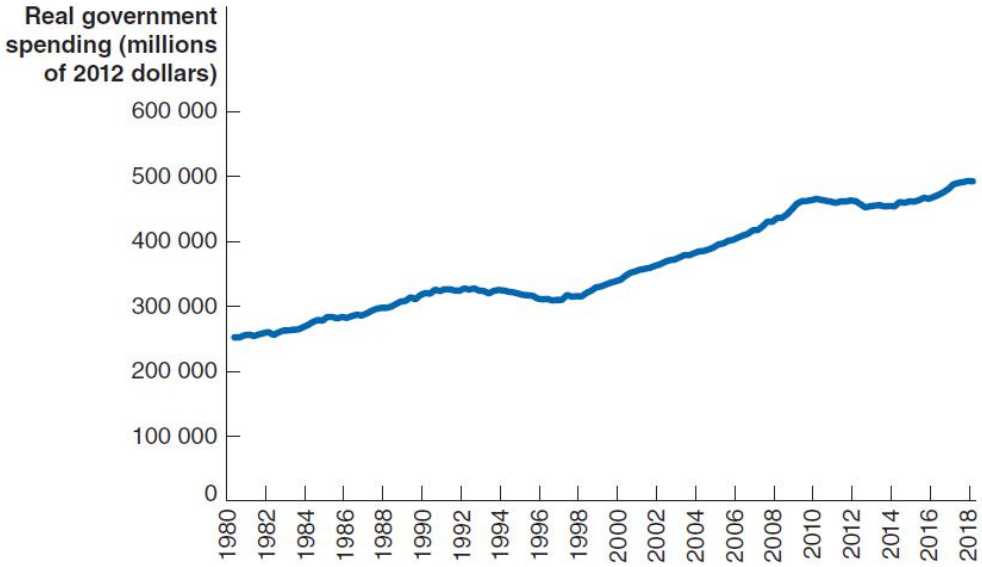
- **Cash flow**
  Firms often pay for investments out of their own cash flow, the difference between the cash revenues received by a firm and the cash spending by the firm. The largest contributor to cash flow is profit.
  During recessions, profits fall for most firms, decreasing their ability to finance investment.

3. Government Purchase

Real government purchases include purchases at all levels of government: federal, provincial and local.

This category does not include transfer payments; only purchases for which the government receives some good or service.

Government purchases have generally increased over time; exceptions include the early 1990s and the early 2010s as the federal government made cuts to balance the budget.



SOURCE: Statistics Canada, "Gross Domestic Product, Expenditure-Based, Canada, Quarterly, (*1 000 000)," Table 36-10-0104-01.

4. Net Export

The value of net exports is affected by:

- Price level in India vs. the price level in other countries
- Indian growth rate vs. growth rate in other countries
- Indian Rupee exchange rate

If…	Net Exports will…	…because…
…Indian price level rises faster than foreign price levels…	decrease	Indian goods become more expensive relative to foreign goods; so imports rise and exports fall.
…Indian GDP grows faster than foreign GDP…	decrease	Indian demand for imports rises faster than foreign demand for our exports.

…Indian Rupee rises in value relative to other currencies…	decrease	Imports are cheaper, and our exports are more expensive. So imports rise and exports fall.

Do imports diminish aggregate demand?

We have seen that the formula for aggregate demand is AD = C + I + G + X - M, where M is the total value of imported goods. Why is there a minus sign in front of imports? Does this mean that more imports will result in a lower level of aggregate demand? The short answer is yes, because aggregate demand is defined as total demand for domestically produced goods and services.

When an American buys a foreign product, for example, it gets counted along with all the other consumption. Thus, the income generated does not go to American producers, but rather to producers in another country. It would be wrong to count this as part of domestic demand. Therefore, imports added in consumption are subtracted back out in the M term of the equation.

Determination of National Income

According to Keynesian theory of income determination, the equilibrium level of national income is a situation in which aggregate demand is equal to aggregate supply

Assumptions:

The income of the consumer must be either spent or saved and hence,
Consumption is a function of income i.e. C = f(Y) and also
Saving is a function of income i.e. S = f(Y)

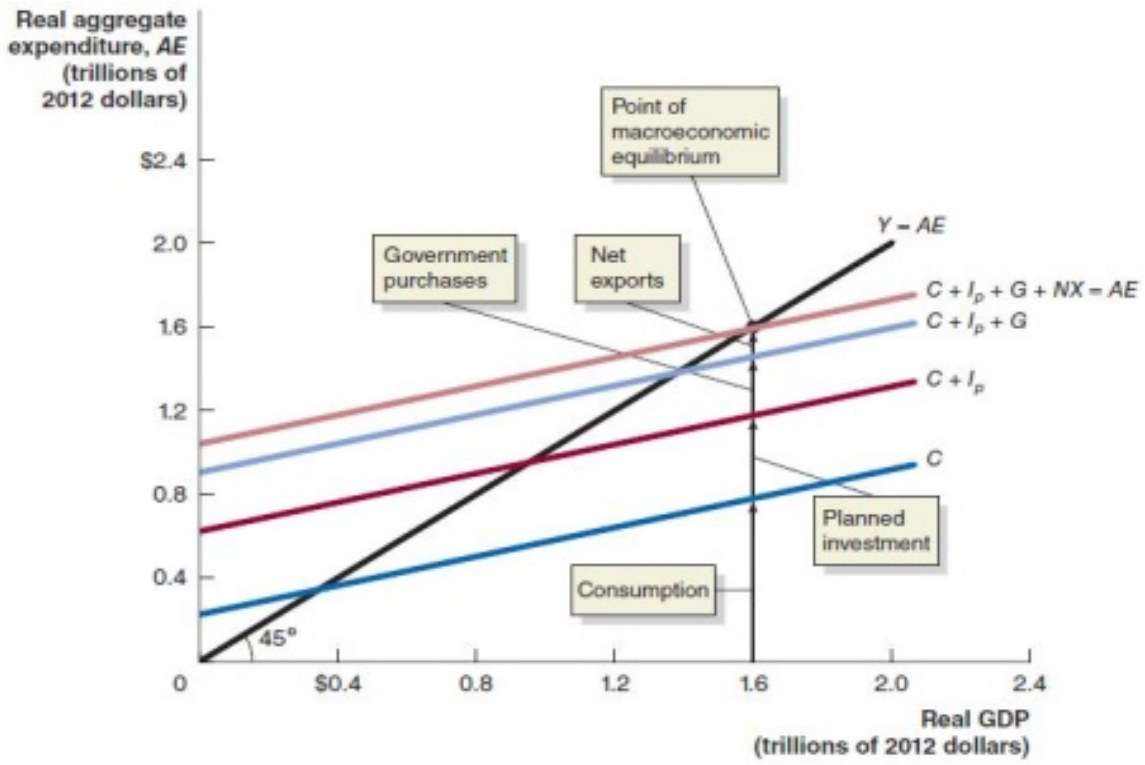
Income is measured along the horizontal axis and the components of aggregate demand, C and I, are measured along the vertical axis.

Aggregate Demand or Aggregate Expenditure

The aggregate demand (C+I +G+ NX) refers to the total spending in economy
The AD curve is linear and positively sloped indicating that as the level of national income rises, the aggregate demand (or aggregate spending) in the economy also rises.
The AD line is flatter than the 45° line because, as income rises, consumption also increases but, by less than the increase in income.

Aggregate Supply or Aggregate Output

Ex ante or planned aggregate supply is the total supply of goods and services which firms in a national economy plan on selling during a specific time period. It is equal to national income of the economy, which is either consumed or saved.



Determination of Equilibrium Income

Equilibrium will be established at a point where aggregate demand is equal to the aggregate supply (or) The aggregate expenditure equals aggregate income Equilibrium level of income is such that aggregate demand equals output (AS) (which in turn equals income).

Only at point E and at the corresponding equilibrium levels of income and output (Y_0), does aggregate demand exactly equal output (AS).

Other than Equilibrium Points

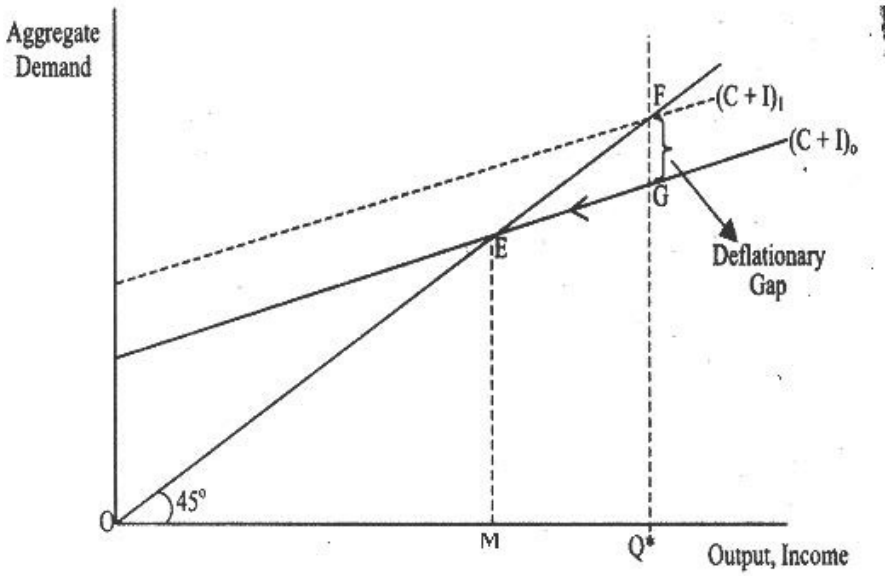
At level of income below 1.6 **the aggregate demand exceeds income**; i.e., the (C+1) schedule is above the 45° line. Equivalently, at all those levels I is greater than S, as can be seen in panel (B).

Excess demand will result in **less inventory investment** than business firms planned. They will react by hiring more workers and expanding production. This will increase nation's aggregate income. It also follows that with demand outstripping production, **desired investment will exceed actual investment.**

At levels of income above 1.6, **output exceed demand** (the 45° line is above the C+I schedule). The business firms' **actual inventories would increase**. Therefore, there will be a tendency for output to fall. This process continues till output reaches Y_0 (where there is no tendency for output to change).

Deflationary Gap

If the aggregate demand is for an amount of output less than the fullemployment level of output, then we say there is deficient demand. Deficient demand gives rise to a 'deflationary gap' or 'recessionary gap' or contractionary gap.



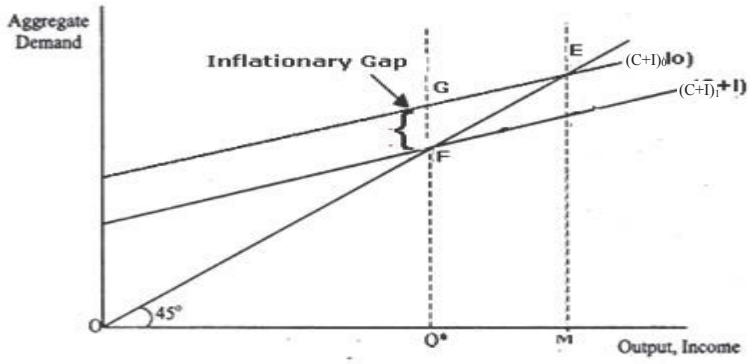
In figure 1.2.5, OQ* is the full employment level of output. For the economy to beat full employment equilibrium, aggregate demand should be Q*F. If the aggregate demand is Q*G, it represents a situation of deficient demand. The resulting deflationary gap is FG.

Deflationary gap is thus a measure of the extent of deficiency of aggregate demand and it causes the economy's income, output and employment to decline, thus pushing the economy to under- employment equilibrium.

The macro- equilibrium occurs at a level of GDP less than potential GDP; thus, there is cyclical unemployment i.e. rate of unemployment is higher than the natural rate. (Demand deficient unemployment is the same as cyclical unemployment)

Inflationary Gap

If the aggregate demand is for an amount of output greater than the full employment level of output, then we say there is excess demand. Excess demand gives rise to 'inflationary gap' which is the amount by which actual aggregate demand exceeds the level of aggregate demand required to establish the full employment equilibrium.



In figure 1.2.6, the economy will be at full employment equilibrium at F with OQ* full employment level of output and income. Suppose the aggregate demand isfor Q*G, there is excess demand and the resulting inflationary gap FG.

Nature of shift in aggregate demand curve and its effect on equilibrium level of national income.

Given the intercept, a steeper aggregate demand function—as would be implied by a higher marginal propensity to consume—implies a higher levelof equilibrium income.

For a given marginal propensity to consume, a higher level of autonomous spending implies a higher equilibrium level of income.

- An increase in aggregate spending makes the aggregate demand schedule shift upward. As a result, the equilibrium point would shift upward along the *AS* schedule causing an increase in the national income.
- Likewise, a fall in the aggregate spending causes a fall in the national income. This relationship between the aggregate spending and the national income is simple and straightforward.

From Housing Bubble to Housing Bust

We can explain economic fluctuations, whether those experienced during the 1930s Great Depression, the 1970s stagflation, or the 2008-2009 Great Recession, can be explained using the AD/AS diagram. Short- run fluctuations in output occur due to shifts of the SRAS curve, the AD curve, or both. In the case of the housing bubble, rising home values caused the AD curve to shift to the right as more people felt that rising home values increased their overall wealth. Many homeowners took on mortgages that exceeded their ability to pay because, as home values continued to rise, the increased value would pay off any debt outstanding. Increased wealth due to rising home values lead to increased home equity loans and increased spending. All these activities pushed AD to the right, contributing to low unemployment rates and economic growth in the United States. When the housing bubble burst, overall wealth dropped dramatically, wiping out the recent gains. This drop in home values was a demand shock to the U.S. economy because of its impact directly on the wealth of the household sector, and its contagion into the financial that essentially locked up new credit. The AD curve shifted to the left as evidenced by the Great Recession's rising unemployment.

Understanding the source of these macroeconomic fluctuations provided monetary and fiscal policy makers with insight about what policy actions to take to mitigate the impact of the housing crisis. From a monetary policy perspective, the Federal Reserve lowered short-term interest rates to between 0% and 0.25 %, to loosen up credit throughout the financial system. Discretionary fiscal policy measures included the passage of the Emergency Economic Stabilization Act of 2008 that allowed for the purchase of troubled assets, such as mortgages, from financial institutions and the American Recovery and Reinvestment Act of 2009 that increased government spending on infrastructure, provided for tax cuts, and increased transfer payments. In combination, both monetary and fiscal policy measures were designed to help stimulate aggregate demand in the U.S. economy, pushing the AD curve to the right.

While most economists agree on the usefulness of the AD/AS diagram in analyzing the sources of these fluctuations, there is still some disagreement about the effectiveness of policy decisions that are useful in stabilizing these fluctuations. We discuss the possible policy actions and the differences among economists about their effectiveness in more detail in **The Keynesian Perspective**, **Monetary Policy and Bank Regulation**, and **Government Budgets and Fiscal Policy**.

SELF REVIEW QUESTION

1. State the difference between classical and Keynesian Economics view regarding full employment
2. State the components of aggregate demand
3. On what factors consumption of economy is dependent
4. Investment of economy is dependent on which factor
5. Explain the concept of inflationary gap and deflationary gap on the basis of Full employment
6. Explain the effective demand and relationship between effective demand and unemployment within the economy