In order to make our analysis simple and to explain the central issues involved, we take many assumptions. In the first place, we assume that neither the households save from their incomes, nor the firms save from their profits. We further assume that the government does not play any part in the national economy. In other words, the government does not receive any money from the people by way of taxes, nor does the government spend any money on the goods and services produced by the firms or on the resources and services supplied by the households. Thirdly, we assume that the economy neither imports goods and services, nor exports anything. In other words, in our above analysis we have not taken into account the role of foreign trade. In fact we have explained above the flow of money that occurs in the functioning of a closed economy with no savings and no role of government.

Circular Money Flow with Saving and Investment

In our above analysis of the circular flow of money we have assumed that all income which the households receive, they spend it on consumer goods and services. A result, circular flow of money speeding and income remains undiminished. We will now explain if households save a part of their income, how their savings will affect money flows in the economy. When households save, their expenditure on goods and services will decline to that extent and as a result money flow to the business firms will contract. With reduced money receipts, firms will hire fewer workers (or lay off some workers) or reduce the factor payments they make to the suppliers of factors such as workers. This will lead to the fall in total incomes of the households. Thus, savings reduce the flow of money expenditure to the business firms and will cause a fall in economy's total income. *Economists therefore call savings a leakage from the money expenditure flow.*

But savings by households need not lead to reduced aggregate spending and income if they find their way back into flow of expenditure. In free market economies there exists a set of institutions such as banks, insurance companies, financial houses, stock markets where households deposit their savings. All these institutions together are called financial institutions or financial market. We assume that all the savings of households come in the financial market. We further assume that there are no inter-households borrowings.

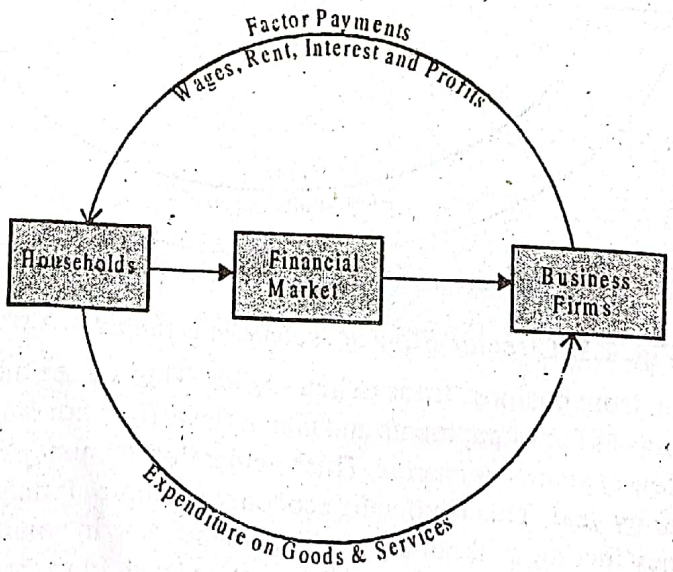

Fig. 2.2. *Circular Money Flow with Saving and Investment*

It is business firms who borrow from the financial market for investment in capital goods such as machines, factories, tools and instruments, trucks. Firms spend on investment in order to expand their productive capacity in future. Thus, through investment expenditure by borrowing the savings of the households deposited in financial market, are again brought into the expenditure stream and as

a result total flow of spending does not decrease. Circular money flow with saving and investment is illustrated in Fig. 2.2 where in the middle part a box representing financial market is drawn. Money flow of savings is shown from the households towards the financial market. Then flow of investment expenditure is shown as borrowing by business firms from the financial market[1].

Condition for the Constancy of Circular Money Flow

Now the question arises what is the condition for the flow of money income to continue at a steady level so that it makes possible the production and subsequent flow of a given volume of goods and services at constant prices. To explain this we have to introduce saving and investment in the analysis of circular flow of income. As mentioned above, saving a part of income means it is not spent on consumer goods and services. In other words, saving *is withdrawal of some money from the income flow*. On the other hand, investment means some money is spent on buying new capital goods to expand production capacity. In other words, *investment is injection of some money in circular flow of income*. For the circular flow of income to continue unabated, the withdrawal of money from the income stream by way of saving must equal injection of money by way of investment expenditure. Therefore, planned savings must be equal to planned investment if the constant money income flow in an economy is to be obtained. Now, what will happen if planned investment expenditure falls short of the planned savings? As a result of fall in planned investment expenditure, income, output and employment will fall and therefore the flow of money will contract. If the equality between planned savings and planned investment is disturbed by increase in savings, then the immediate effect will be that the stocks of goods lying in the shelves of the shops will increase (as some of the goods will not be sold due to the fall in consumption *i.e.*, increase in savings). Owing to the deficiency of demand for goods and the accumulation of stocks, retailers will place small orders with the wholesalers. Consequently, smaller amount of goods will be produced and therefore fewer capital goods like machinery will be indeed with the result that fixed investment will tend to fall. Thus the ultimate effect of either the fall in planned investment or the increase in planned savings is the same, namely, the fall in income, output, employment and prices with the result that the flow of money will contract.

On the other hand, if the equality between planned savings and planned investment is disturbed by the increase in investment demand, the result will be increase in income, output and employment. Consequently, the flow of money income will expant.

It is thus clear from the above analysis that the *flow of money income will continue at a constant level only when the condition of equality between planned saving and investment is satisfied*. It was believed by classical economists that financial market provides a mechanism which coordinates the savings of households and the investment expenditure, by the firms. Rate of interest, which is the price for the use of savings, is determined by saving and investment. If savings exceed investment expenditure, rate of interest falls so that, at a lower rate of interest, investment increases and both become equal. On the contrary, if investment expenditure is greater than savings, rate of interest will rise so that at a higher rate of interest savings increase and become equal to planned investment expenditure.

However, an eminent British economist J.M. Keynes refuted the above argument that changes in rate of interest will cause saving and investment to become equal. According to him, since in a free market capitalist economy, investment is made by business enterprises and savings are mostly done by households and for different reasons, there is no guarantee that planned investment will be equal to planned savings and thus fluctuations in income, output and employment are inevitable. As a

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1. It may be noted that business firms also save when they do not distribute among shareholders all the profits made by them and keep the undistributed profits as reserves. We are ignoring them in our money flow analysis as firms themselves use their savings for buying machinery and making other investment expenditure.

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result, circular flow of income does not continue at a steady level in a free-enterprise capitalist economy unless certain corrective and preventive steps are taken by the government to maintain stability in the economy.

Saving-Investment Identity in National Income Accounts

Despite the fact that people who save are different from the business firms which primarily invest, in national income accounts savings are identical or always equal to investment in a simple two sector economy having no roles of Government and foreign trade. This is a basic identity in national income accounts which needs to be carefully understood. Of course, in our above analysis of circular flow of income, we explained that planned investment by business firms can differ from savings by household. But in that analysis we referred to *planned or intended* investment and savings which often differ and affect the flow of national income. However, in national income accounts we are concerned with *actual saving* and *actual investment.* It is these actual or realised saving and investment that are identical in national income accounts. We can prove their identity in the following way.

In a simple economy which has neither government, nor foreign trade, the value of *output produced* which we denote by Y is equal to the value of *output sold*. Since the value of output sold in a simple two sector economy is equal to the sum of consumption expenditure and investment expenditure we have

$$Y \equiv C + I \qquad \ldots (i)$$

where Y = Value of aggregate output, C = Consumption expenditure and I = Investment expenditure.

A pertinent question which arises here is what happens to the unsold output. The unsold output leads to the *increase in the inventories of goods* and in national income accounting increase in inventories of goods is treated as a part of actual investment. This may be considered as the firms selling the goods to themselves to add to their inventories. Thus, gross national product (GNP) produced is used either for consumption or for investment.

Now, look at the gross national product or income in the simple economy from the viewpoint of its allocation between consumption and saving. Since national income (which is equal to GNP) can be either consumed or saved,[1]. We have

$$Y \equiv C + S \qquad \ldots (ii)$$

From the identities (*i*) and (*ii*) we get

$$C + I \equiv Y \equiv C + S \qquad \ldots (iii)$$

The left hand side of the identity (*iii*), namely $C + I = Y$ shows the components of aggregate demand (that is, aggregate expenditure on goods and services produced) and the right-hand side of the identitiy (*iii*) namely $Y = C + S$ shows the allocation of national income to either consumption or saving. Thus, the identity (*iii*) shows that the value of output produced or sold is equal to the total income received. It is income received that is spent on goods and services produced.

Now subtracting the consumption (C) from both sides of the identity (*iii*) we have

$$I = S$$

Thus, in our two sector simple economy with neither government, nor foreign trade, investment is identically equal to saving.

1. Note that decisions about saving are made both by households and business firms. In national income accounts they are generally put together and referred to as private sector savings.

$$C + I + G = C + S + T \quad \ldots (iii)$$

Since C occurs on both sides of the equation (*iii*) and will therefore be cancelled out, we have

$$I + G = S + T \quad \ldots (iv)$$

By rearranging we obtain

$$G - T = S - I \quad \ldots (v)$$

Equation (*v*) is very significant as it depicts what would be the consequences if government budget is not balanced. If Government expenditure (G) is greater than the tax revenue (T), that is, $G > T$, the government will have a budget deficit. To finance the budget deficit, the Government will borrow from the financial market. For this purpose, then private investment (I) by business firms must be less than the savings(S) of the households. Thus Government borrowing reduces private investment in the economy. In other words, Government borrowing *crowds out* private investment.

Another important conclusion that can be drawn from national income account identity incorporating Government expenditure relates to the condition for equilibrium in the financial market. National income identity with government expenditure is

$$Y = C + I + G$$

or

$$Y - C - G = I \quad \ldots (vi)$$

In the expression (*vi*), the left hand side ($Y - C - G$) represents national saving or simply saving (S). Note that in this National Income Identity all government expenditure is treated as consumption expenditure. To understand the identity (*vi*), we break up its left hand side representing national saving into two parts, namely, (1) *private saving* ($Y - T - C$) and (2) *public saving* (i.e. saving of the government ($T - G$). Thus

$$S = (Y - T - C) + (T - G) = Y - C - G$$

(Note that $Y - T$ is disposable income)

If the economy is to remain in a steady state, the *flows into* the financial market (i.e. private saving and public saving) must balance the *flows out of* the financial market. Thus, for the economy to remain in a steady state

$$Y - T - C + (T - G) = I$$

That is, for the economy to remain in a steady state, the sum of private saving and public saving must equal investment.

Money Flows in the Four Sector Open Economy : Adding Foreign Sector

We now turn to explain the money flows that are generated in an open economy, that is, economy which have trade relations with foreign countries. Thus, the inclusion of the foreign sector will reveal to us the interaction of the domestic economy with foreign countries. Foreigners interact with the domestic firms and households through exports and imports of goods and services as well as through borrowing and lending operations through financial market. Goods and services produced within the domestic territory which are sold to the foreigners are called exports.

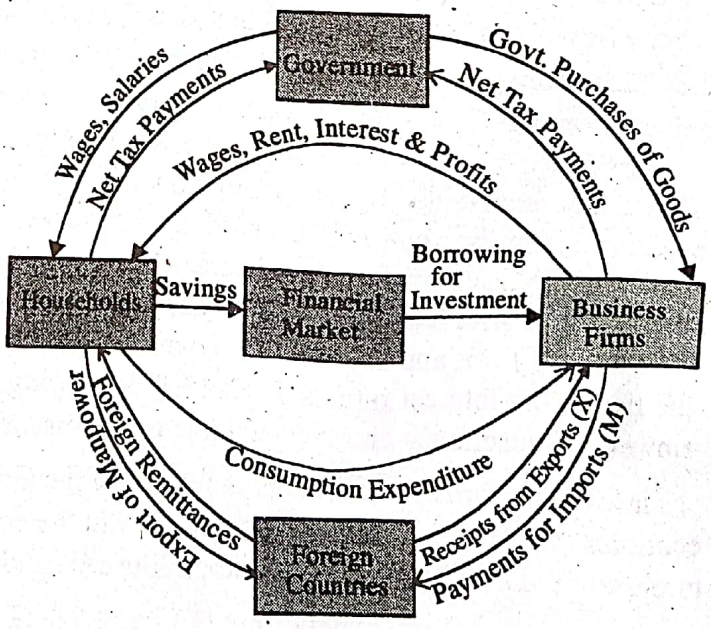

Fig. 2.4. *Circular Flow of Income in an Open Economy with Government and Foreign Sector*

On the other hand, purchases of foreign-made goods and services by domestic households are

called imports. Figure 2.4 illustrates additional money flows that occur in the open economy when exports and imports also exist in the economy. In our analysis, we assume it is only the business firms of the domestic economy that interact with foreign countries and therefore export and import goods and services. A flow of money spending on imports have been shown to be occurring from the domestic business firms to the foreign countries (*i.e.*, rest of the world). On the contrary, flow of money expenditure on exports of a domestic economy has been shown to be taking place from foreign countries to the business firms of the domestic economy. If exports are equal to the imports, then there exists a balance of trade. Generally, exports and imports are not equal to each other. If value of exports exceeds the value of imports, *trade surplus* occurs. On the other hand if value of imports exceeds value of exports of a country, *trade deficit* occurs.

In the open economy there is interaction between countries not only through exports and imports of goods and services but also through borrowing and lending funds or what is also called financial market. These days financial markets around the world have become well integrated. When there is a trade surplus in the economy, that is, when exports (X) exceed imports (M), *net capital outflow* will take place. By net capital outflow we mean foreigners will borrow from domestic savers to finance their purchases of our exports. In this way as a result of net capital outflow domestic savers will lend to foreigners, that is, acquire foreign financial assets.

On the contrary, in case of import surplus, that is, when imports are greater than exports, trade deficit will occur. Therefore, in case of trade deficit, domestic consumer households and business firms will borrow from abroad to finance their excess of imports over exports. This means there will be capital inflow in our economy. As a result, foreigners will acquire domestic financial assets.

Saving-Investment Identity in the Open Economy

From the circular flows that occur in the open economy the national income must be measured by aggregate expenditure that includes net of exports, that is, $X–M$ where X represents exports and M represents imports. Imports must be subtracted from the total expenditure made by foreigners on our domestically produced goods and services exported to them to get the value of net exports. Thus, in the open economy

$$\text{National Income} = C + I + G + NX$$

where NX represents net exports, $X–M$.

Since national income can be either consumed, saved or paid as taxes to the Government we have

$$C + I + G + NX = C + S + T$$

Since C is common on both sides of the above equation we have

$$I + G + NX = S + T \qquad \ldots (vi)$$

The above equation (*vi*) shows that in the open economy sum of private investment (I), Government expenditure (G) and net exports (NX) is equal to the sum of savings and tax revenue.

Relation of Aggregate Domestic Output and Expenditure with Trade Balance. The national income account identity of the open economy can be used further to show how aggregate domestic output (Y) and aggregate expenditure ($C + I + G$) and net exports (*i.e.* trade balance) are related. Rearranging the national income of the open economy ($Y = C + I + G + NX$) we have

$$NX = Y – (C + I + G)$$

Where $C + I + G$ is aggregate domestic expenditure. Thus

Net Exports = National Domestic Product (Y) *– Aggregate Domestic Expenditure*

From above it follows that in an open economy aggregate domestic expenditure need not be equal to the aggregate domestic output of goods and services (*i.e.* Y). If aggregate domestic output (Y) exceeds aggregate domestic expenditure ($C + I + G$), we export the excess of domestic output, that is, net exports (NX) are positive ($NX > 0$). On the other hand, if domestic output is less than domestic expenditure we import this shortfall (i.e. $NX < 0$).

Foreign Capital Flows and Trade Balance. As in the case of a closed economy goods market

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are intimately related to the financial market in the open economy. To show this, let us rearrange the national income accounts identity ($Y = C + I + G + NX$) of the open economy.

$$Y - C - G = I + NX \qquad \ldots (vii)$$

The left hand side of the above equation (*i.e.* $Y - C - G$) represents national saving (S). Note that all Government expenditure is here treated as consumption expenditure. Thus, it follows from above that

$$S = I + NX$$

or

$$S - I = NX \qquad \ldots (viii)$$

The national income identity of expression (*viii*) shows that the *economy's net exports (NX) must always be equal to the difference between saving and investment. The net exports are also called trade balance because it, shows the difference between exports and imports of an economy.* The trade balance (NX) may be positive or negative. If exports exceed imports, trade balance (NX) is positive and if exports fall short of imports, the trade balance (NX) is negative.

But the important result that follows from national income identity of the open economy relates to the link between *international capital flows* and the *goods market*. If $S - I$ in (*viii*) is positive, that is, if the economy's national saving exceeds domestic investment it will be lending the excess funds to foreigners, that is, there will be *net capital outflow* from the economy. On the other hand, if $S - I$ is negative, that is, if domestic investment exceeds domestic saving, the economy will be borrowing from abroad to finance the excess investment. That is, there will be *net capital inflow* into the economy to finance higher capital formation in the economy.

It follows from above that net capital flows ($S - I$) always equal the trade balance or to current account balance which is the broader term that includes *invisibiles* also.

NATIONAL INCOME AND NATIONAL PRODUCT

The sum of all incomes of the people of a country is called national income. This national income is greatly related to the national product. In fact in a two sector economy without the Government and its imposition of indirect taxes and grant of subsidies and also assuming no depreciation national income and national product are one and the same thing. The incomes which different people of the society get are obtained by them for their contribution of labour, land, capital and entrepreneurial services to the national production. Hence the income which the labourers get are wages for the productive services which labourers lend to the various firms which undertake the work of production. Similarly, the owners of land get income as rent because of their contribution of land to the productive firms; the capitalists get interest for lending their money capital to the entrepreneurs for undertaking any work of production or business. The entrepreneurs get profits for starting and organising the work of production and bearing risk and uncertainty involved in it. It is thus clear that the different individuals of a country obtain their income either as wages of their labour, or as interest on their money capital, or as rent for their land, or as profits for their enterprise. The sum of incomes obtained as wages, rent, interest and profits is the national income of the country.

Various households obtain their income from the productive firms or businesses which utilise their labour, land, capital and other services for the production of goods and services. The incomes earned by the various households and individuals from the work of production are in fact costs of production of the goods produced. The total value of all final goods and services produced by various productive firms or businesses in a year is known as national product. Therefore, the national product of a country can be estimated by multiplying the total output of final goods and services with their market prices.

Hence the total national product in terms of rupees or value which is produced by various productive firms in a year, will be distributed among the various productive factors which have contributed to its production. Therefore, out of this national production (in value terms) wages will be paid to those households which have sold their labour to the productive firms. Out of this total value of the national product, land owners would get rent for the contribution of the services of land and

capitalists would get interest for lending money capital to the productive firms. After the payment of wages, rent, interest, what is left is the profits of the entrepreneurs who set up productive firms, organise their work and bear risk and uncertainty and because of these services they get profits. It is thus clear the national product (value of total output of final goods and services in a year of a country) is distributed among wages, rents, interests and profits. As we have stated above, the sum of total wages, total interest, total rents and total profits is national income. Hence national product will be equal to he national income. The above conclusion that in a two-sector economy without Government and foreign trade national inocme equals national product can be expressed in the form of the following equation.

$$\text{National Product} = \begin{bmatrix} \text{Value of Final} \\ \text{Goods and Services} \\ \text{Produced} \end{bmatrix} = \left\{ \begin{matrix} \text{Wages} \\ + \\ \text{Rent} \\ + \\ \text{Interest} \\ + \\ \text{Profits} \end{matrix} \right\} = \text{National Income}$$

From the above analysis it is evident that national income and national product are one and the same thing. Professor J.R. Hicks rightly writes, "*The value of the net social product of the community and the sum of the incomes of its members are exactly equal. The net social product and the social income are one and the same thing.*"[1]

It needs to be emphasised that the above conclusion regarding equality of national product and national income is valid only in our simple two sector eocnomy where we have assumed no depreciation funds are kept and also no role of Government (and therefore no indirect taxes collected by it and no subsidies granted by it). In case of a real economy, firms keep a part of some value created as depreciation allowance which therefore do not become a part of the income of the factors. When role of Government is brought into our analysis, a part of the value of output is taken away by the Government as indirect taxes and therefore the incomes of factor owners are reduced to that extent. Thus, only in the absence of depreciation funds and net indirect taxes, national product will be equal to national income. In our simple economy we assume away these depreciation funds and net indiret taxes levied by the Government on business firms to emphasise the point that national income does not come out of thin air, it is in fact generated by the production of goods and services. Therefore, growth in national income can be achieved by the increase in production of goods and services.