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Accounting of International Linkages-The Balance of Payments

INTRODUCTION

To see whether the flow of goods, services and financial assets across the countries (which is broadly covered under the nomenclature 'international linkages') are beneficial to the trading countries, that is both the home and foreign countries, we need first to account for the items of international linkages. The system by which we can account for all the cross border movements of goods, services and assets is known as Balance of Payments. *Balance of payments* (BOP) of a country is the systematic record of all economic transactions between the residents of the country and the rest of the world in a particular period commonly over a year. These transactions are made by households, firms and government bodies of a country. The accounting system is like a double entry (credit side and debit side) book keeping system in which every transaction or event changes at least two different nominal ledger accounts. The credit side in the open economy transactions includes all the items which earn foreign currency as incoming items and the debit side includes all the items which needs foreign currency to pay for the items and thus treated as outgoing items. Hence, one of the most important policy issues for the open economies is how to keep the BOP in equilibrium. It has been a pertinent question today since almost all the countries in the world have entered into the phase of globalization. India has liberalized/globalized its economy during the period of 1991-92 almost after a decade of Chinese liberalization.

A country will face favorable situation in its BOP if all the credit items supersede all the debit items in value terms. Reversely, there will be unfavorable BOP to the country if all debit items supersede all the credit terms in value terms. If, by any chance, all the credit and debit items are identical then we term it as balance in the BOP. The first two cases stand for disequilibrium in BOP but the last case stands for equilibrium in BOP (it is the ultimate target of the policy makers).

COMPONENTS OF BOP

Broadly there are two components of BOP of a country in relation to its foreign counter part depending on the flow and stock concepts. They are Current Account and Capital Account were the first one is the flow concept that includes all transactions other than capital assets at current period and the second one is the stock concept which includes all transactions of capital assets. Both of these two components have their own credit (incoming) sides and debit (outgoing) sides. But there is a puzzle in dealing with the credit and debit sides of current and capital accounts. The credit items in current account earns foreign currency through exports of goods and services (a movement from the home country) but the credit side in the capital account earns foreign currency through imports of capital (a movement to the home country from the abroad). The readers thus will have to be careful in understanding the BOP system.

A. Current Account: It captures exports (credit items) and imports (debit items) of all goods and services in international transactions along with unreturned transfers to and from abroad. When we have trade in goods only without any service and transfers accounts then we call it as *trade account* which includes all merchandize exports and imports of goods. This is the *visible items* in the current account. Similarly we have service account which includes all returns from sale or exports of factors, shipping service, banking and insurance service, etc. to the foreign country and its import counterparts from the foreign country to the home country. Finally we have transfer accounts which include receiving gifts and remittances from the relatives residing in foreign countries and its counterpart are the gifts, remittances

from home country to the foreign country. The service and transfer accounts constitute the *invisible items* in the current account. Therefore,

$$\text{Current Account (CA)} = \text{Trade Account (TA)} + \text{Service Account (SA)} + \text{Transfer Account (TA)}$$

$$\text{Or, CA} = \text{Visible Account (=TA)} + \text{Invisible Account (SA+TA)} \quad (1)$$

Similarly,

$$\text{Current Account Balance (CAB)} = \text{TAB} + \text{SAB} + \text{TAB} \quad (2)$$

$$\text{Or, CAB} = (\text{Export of goods} - \text{Import of goods}) + (\text{Export of service items} - \text{Import of service items}) + (\text{Export of transfer items} - \text{Import of transfer items})$$

$$\text{Or, CAB} = \text{Net exports of goods (NX)} + \text{Net export of service} + \text{Net inflow of transfers}$$

$$\text{Or, CAB} = \text{NX} + \text{Net transfers from abroad} \quad (3)$$

where TAB is balance of trade account(BOT) which is NX, SAB is balance in service account and TAB is balance in transfer account. We have taken all invisible transactions as transfer accounts.

Current Account Surplus and Deficit: Surplus in current account will arise if there will be surplus in either all the three items (trade, service and transfer) or surplus in one item and deficits in other items but the sum of all surplus and deficits is positive. There may be any other combinations to justify surplus in CA. Surplus in trade account is the situation when $\text{NX} > 0$, i.e. merchandise exports value is greater than merchandise imports value. Again surplus in transfer accounts means the home country gets more transfers and service incomes from abroad than what they pay to the foreigners.

On the other hand, deficit in CA means the reverse. That means, the sum of all the sectors' debit items will be more than the credit items.

Now here is a question. Does a country have anything to do if it experiences prolong deficits and surplus in the current account? Yes, it has something to do. If the country faces long term deficits, its importers will continue to demand foreign exchange to pay for import items and there will be depletion of Forex reserves with the central bank of the country. That is not a good sign so far as economic sovereignty of the home country is concerned. At the same time, if there is prolong surplus in the current account, then there will be extra Forex reserve which may not be useful to the home country. Therefore, the home country needs to think for the deficit or surplus in the current account. The source which can adjust the deficits or surplus in current account is the Capital Account Transaction which is another component of BOP.

B. Capital Account: Like the trade and transfer account, home countries can get foreign currency as loan from abroad, sale of corporate bonds to the foreigners, banks' loan from the foreigners; all account for the inflow of foreign currency. Reversely, the foreign country can take loan from the home country, sale their corporate bonds and foreign banks extends loan to the home residents that all account for outflow of foreign currency. All the above heads of transactions are recorded as Capita Account which deals with assets, not the goods.

Capital Account Surplus and Deficit: Capital account surplus will emerge when receipts from sale of assets, government borrowings from foreign, etc. supersede the payment on purchase of assets, government lending to foreign, etc. Analogously, there will be deficit in the capital account if receipts are less than payments.

Now BOP is the sum of A and B. That means,

$$BOP = \text{Current Account} + \text{Capital Account}$$

$$\text{Or, Balance in BOP} = \text{Balance in current account} + \text{Balance in capital account}$$

$$\text{Or, Balance in BOP} = NX + \text{Net transfer} + \text{Capital Account balance} \quad (4)$$

BOP surplus and deficit: Surplus in BOP arises when there may be surplus in both the current and capital accounts or surplus in current account but deficit in capital account but the former outweighs the latter and or deficit in current account and surplus in capital account and the latter dominates the former. Again, the BOP will be in deficit, which is a major concern to most of the countries today, if there will be either deficits in both accounts, or deficit in either of them so that the net result is negative.

What happens if the BOP is in surplus or deficit? BOP surplus means $BOP > 0$ and all heads of both the current and capital accounts have incomings of foreign currency in overall sense. So where will go the surplus foreign currency? At the same time, if BOP is in deficit then $BOP < 0$ and there will be net loss of the foreign currency reserve. So where from it will be adjusted? The answer can be given by introduction of two concepts of capital flows: one is autonomous and another is accommodating. *Autonomous capital flows* are ordinary capital flows which take place regardless of the other items in the BOP. Transactions are said to Autonomous if their value is determined independently of the BOP. On the other hand, *accommodating capital flows* are the capital flows which take place specifically to equalize the balance of payments in the double entry book keeping system so that the BOP is balance in overall sense. Accommodating capital flows again are determined by the net consequences of the autonomous items. An autonomous transaction is one undertaken for its own sake in response to the given configuration of prices, exchange rates, interest rates etc, usually in order to realize a profit or reduced costs. It does not take into account the situation elsewhere in the BOP. An accommodating transaction on the other hand is undertaken with the motive of settling the imbalance arising out of other transactions. Hence, through the concept of accommodating capital flows, we can say that *the balance of payments is always in balance*.

Table 1: A hypothetical example on BOP accounting

Sl. No.	Credits	Amount (\$)	Sl. No.	Debits	Amount (\$)
1	Exports of goods to foreign	1000	1	Imports of goods by home	1200
A1-Trade account	BOT = 1000-1200 = -200 => trade deficit by 200\$				
2	Exports of services	300	2	Imports of services	100
A2-Service account	SAB = 300-100 = + 200 => surplus in service account by 200\$				
3	Unreturned receipts and remittances from abroad	200	3	Unreturned receipts and remittances to abroad	400
A3-Transfer account	TAB = 200-400 = -200 => transfer account deficit of 200\$				
A = A1+A2+A3 = Current Account	-200+200-200				
		- 200 => current account deficit of 200\$			

4-Capital Account- Autonomous capital flows	Capital receipts	1000	4	Capital payments	1500
B	CAB = 1000-1500 = -500 => capital account deficit by 500\$				
A + B = BOP	(1000+300+200+1000) – (1200+100+400+1500)	-700 =>BOP deficit by 700\$ => BOP imbalance			
5	Accommodating capital receipts	700		Accommodating capital payments	0
BOP in book keeping sense	(1000+300+200+1000+700) – (1200+100+400+1500 + 0)	0 =>BOP is balanced in accounting sense			

Table 1 presents a hypothetical BOP accounting. There is BOT deficit of 200\$ (row 3), surplus in service account of 200\$ (row 5) and deficit of 200\$ in the transfer account (row 7). The current account (row 8) is therefore in deficit of 200\$. On the other hand, the capital account has deficit (CAB) of 500\$ which makes BOP deficit (A+B) of the amount 700\$. The accommodating capital flow should be of 700\$ to keep the BOP in balance in book keeping sense.

BOP IMBALANCE AND EXCHANGE RATE ADJUSTMENTS

Now it is time to discuss the role of exchange rate adjustments in correcting BOP imbalance. We know that imbalance in BOP means either there is deficit or surplus in the overall accounts of international linkages. At first we discuss about the role of fixed exchange adjustments.

Suppose there is deficit in the BOP. That means, the country under concern suffers from foreign exchange crisis to meet up its payments as it earns less foreign currency compared to its payments. There is excess demand for foreign currency, say \$. The central bank will have to release \$ from its reserves through intervention to maintain its currency exchange rate at pegged rate. And if such deficit continues for long, there may be exhaustion of total forex reserves in the home country, say India. Hence, the central bank of the country will have to take strong decision to boost up the export volume so that the deficits through more imports can be curtailed down. Most popular policy under the fixed exchange rate regime to boost up export is *devaluation* of the home currency, Rupee vis-à-vis the foreign currency, \$. We have already pointed out that devaluation makes the export goods cheaper and import goods dearer. Hence, devaluation will make inflow of foreign currency by more export and less import and will help in reducing the magnitudes of BOP deficit. On the other hand, suppose there is surplus in BOP. That means, there is excess supply of \$. To peg the home currency at the fixed exchange rate, the central bank will have to purchase more dollars means more supply of rupee that will boost up commodity prices. Hence, the appropriate policy to reduce the magnitude of surplus into balance, the central bank will *revalue* the home currency means now less rupee will be required to get one unit of \$. That means, export will be dearer and import will be cheaper and ultimately the BOP surplus can be adjusted to zero. Besides devaluation and revaluation mechanism in the current account, the country can also adjust through the capital account by means of loan from the foreign country, allowing foreign direct investment (FDI) and foreign portfolio investment (FPI) to the home country from foreigners during deficit phase and give loan to foreign individuals or FDI and FPI to foreign country during the surplus phase.

Let us consider the flexible exchange system of adjustments. If the BOP faces deficit, more demand for \$ can be mitigated by automatic *depreciation* of home currency through the free exchange market mechanisms. As home currency depreciates, export will be cheaper and import will be costlier. Therefore, the deficit problem of the BOP can be sorted out. On the other hand, if there is surplus in BOP, then home currency will *appreciate* means its value will increase vis-à-vis \$. Hence, export will be less and import will be more. So surplus in BOP can be handled through appreciation of currency. The adjustment process have been shown in Figure 20.3 (of chapter 20) where deficit (or excess demand for \$) takes the Rupee to Rs. 35 a dollar (point G) and surplus (or excess supply of \$) takes the Rupee down to Rs. 25 a dollar (point J).

CONVERTIBILITY OF HOME CURRENCY

We know so far that international trade provides scope of using home currencies for import of foreign goods, services, giving transfers and capital assets to abroad and earnings of foreign currencies through these channels. The first three items belong to the current account and the last one belongs to the capital account. Whichever be the requirements of foreign exchange receipts and payments, the question is how to get the foreign currencies by exchange of home currency or how to get the home currency from foreign currencies. The simple answer is by converting the home currency into the foreign currency and the reverse. But there is a question of whether all (i.e. 100%) home/foreign currency in both current and capital accounts can be converted into the foreign currency. If this happens then it is called the situation of full currency convertibility or there are full convertibility of the home and foreign currencies in the transactions of both current and capital accounts. During the early phases of liberalization of the economies, most of the countries had imposed restrictions upon convertibility of the home and foreign currencies. Over time, the home/foreign currencies required for goods import through the trade account was allowed to convert and then a part of the current account was allowed to convert. After that full current account convertibility was allowed but the requirements for the capital asset transactions were not allowed. India now has allowed its full current convertibility of Rupee starting from February, 1992 but there are certain limitations/restrictions on capital account convertibility because macroeconomic parameters have to be stable before it is implemented. The low current account deficit should be sustained and the fiscal deficit needs to be contained. India's external sector was vulnerable till recently, with the current account deficit above the comfort level of 2.5 per cent of the gross domestic product. It was 4.2 per cent of GDP in 2011-12 and rose to 4.7 per cent in 2012-13. After severe control, including restrictions on import of precious metals, the deficit fell to 1.7 per cent in 2013-14. In 2014-15, it continued to stay low, with the third quarter showing a deficit of 1.6 per cent. The fiscal situation remains fragile. The turning point was in 2007, the year of the global financial crisis. The fiscal deficit of the central government has been 4.6-6.5 per cent in the past six years, before falling to 4.1 per cent in 2013-14. The government is committed to keeping the fiscal deficit low and the target of 3.9 per cent has been retained for this year. The deficit target will be progressively reduced to 3.5 and three per cent in 2016-17 and 2017-18, respectively. Experts believe paramount care should be taken along the path of convertibility. Government of India has set up Tarapore II Committee to recommend suggestions for initiation of the full capital account convertibility. The committee has recommended going for full convertibility in a phased manner: first phase is by 2006-07, second phase by 2007-09 and third phase by 2009-11. India is still struggling for application of full capital account convertibility of the currencies.

The volatility and panic in other sectors of the East Asian economies widened the currency crisis in the zone during 1997-98 and has alerted the rest of the world in dealing with full capital account transactions in an unrestricted manner. The experience from the East Asian currency crisis could not hit India because of its restrictions on transactions in capital accounts. The developed countries have their historical evidences of full convertibility in all the accounts of international transactions.

Box V: Advantages and disadvantages of full convertibility in India

Advantages

- * Indian consumers will have better access to a variety of goods and services produced in different countries that can maximize their well being.
 - * Local businesses can benefit from easy access to foreign loans at comparatively lower costs (low interest rates). Companies will be able to directly raise equity capital from overseas markets.
 - * Indian businesses will be able to issue foreign currency-denominated debt to local Indian investors. Indian businesses will be able to hold foreign currency deposits in local Indian banks for capital requirements. Indian banks will be able to borrow/lend to foreign banks in foreign currencies.
 - * Regulators like to keep control on their territories. Free and open entry to an enormous number of global market participants would increase the risk of losing regulatory control due to large market size and huge flow of capital.
 - * Full capital account convertibility opens up the country's markets to global players, including investors, businesses and trade partners through easy access to capital for different businesses and sectors, positively impacting a nation's economy.
- With increased participation from global players, new businesses, strategic partnerships new employment opportunities across various industries, as well as nurturing entrepreneurship for new businesses will arise.

Disadvantages

- * The domestic commodity producing sectors may be worst hit by full convertibility of rupee because import demand may increase and contraction arises in the import competing industries.
- * In the midst of a lack of suitable regulatory control and rates subject to open markets with large number of global market participants, high levels of volatility in forex rates may happen, challenging the country's economy.
- * Business houses can easily raise foreign debt, but they are prone to the risk of high repayments if exchange rates become unfavorable.
- * Increasing unregulated rupee makes Indian exports less competitive in the international markets. Once the regulations on exchange rates go away, India may face risks losing its competitiveness in the international market.
- * Full capital account convertibility has worked well in well-regulated nations that have a robust infrastructure in place. India's basic challenges—high dependence on exports, explosive population growth, corruption, socio-economic complexities and challenges of bureaucracy—may lead to economic setbacks after the full rupee convertibility.

PERFECT AND IMPERFECT CAPITAL MOBILITY

In the capital account of the BOP we saw that after international openness countries used to exchange capital assets among them. Now the question is-why there are movements of capital assets from one country to another? Is it only because countries need fund for investment? If so, what is the price of such capital? The answers are as follows-

Countries need additional capital from foreign source to finance for its current account deficit. The channels of such capital flow, as we have already mentioned, are FDI, FPI, etc. Once funds flow to the home country from any foreign country, the foreigners expect returns on such capital investments. We take this return as *rate of interest* for simplicity. If there is the opportunity that the home interest rate is more than foreign rate of interest, there will be

interest arbitrage from the foreign country to the home country and vice versa. If the capital market is perfect, there will be no restrictions on the flow of capital funds from low interest to high interest country. If this process continues, the need of the home country for the foreign capital will be fulfilled and rate of interest in the home country will start declining. On the other hand, there will be relatively shortage of capital in the foreign country which will push up the interest rate there. Hence, a scenario of *equalization of rate of interest* will appear. This is the crucial feature of *perfect capital mobility*.

On the other hand, if there is any control or restriction in the free movements of capitals from one country to another then there arises the situation of *imperfect capital mobility*. In spite of shortage of capital in the home country and related high rate of interest, the foreign countries are not allowed to enter into the home market and hence the scope of interest rate equalization does not arise here. There is perpetual difference in rate of interest remain in the global markets.

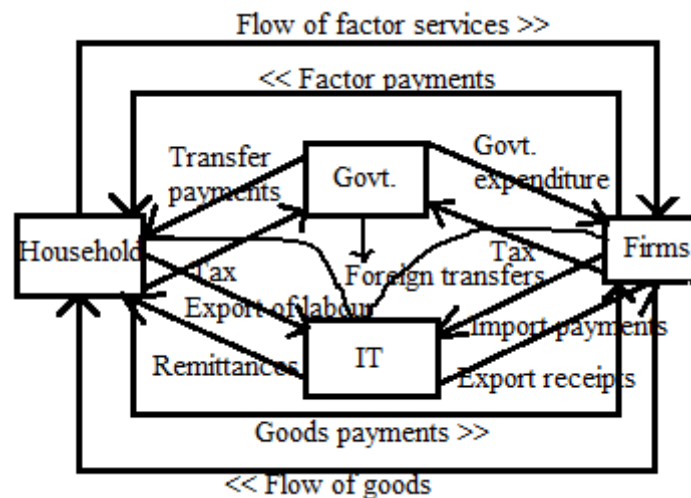
Box VI: The EURO Zone crisis

The launching of the common currency, Euro, in the European Union in the 1999 was in the motive to stable economic growth in the zone that can challenge the dominance of the widely accepted US currency, Dollar. Unfortunately the vision was proved to be wrong. The investors heavily invested upon Spain and Ireland and lent out huge sums to Greece, Italy, and Portugal to support their budget challenges. But the outbreak of global financial crisis during 2007-09 originated from the fall of Lehman Brothers in USA spread to the other countries that are highly interlinked with the country. The worst hit were the countries of EURO Zone, mainly Greece, Italy, Ireland, Portugal and Spain(GIIPS countries) who faced the recession and sovereign debt crisis and the crisis was unmanageable by them because of the single common currency, euro. For example, Greece experienced debt to GDP ratio of 105%, 113%, 129%, 134% and 162% for the years 2008, 2009, 2010, 2011 and 2012. There was a loss of confidence of the investors and the consumers upon the economies and hence there was little chance of recovery through large scale investments. The business confidence index for Greece, for example, 104, 68, 76, 69, 68 and consumer confidence index stood at -29, -55, -45, -66, and 83 for the years 2008, 2009, 2010, 2011 and 2012. The GIIPS countries faced huge deficits in their current account and there were limited scopes of balancing by the capital account transactions. Due to common currency, the countries could not follow the devaluation or more money printing like policies to handle the crisis and as a result the loss of competitiveness could not be recovered. Had there been the limited degree of openness and particularly of the capital account and separate currencies then the countries could have been capable to save their domestic economies.

CIRCULAR FLOW IN A SIMPLE FOUR SECTOR ECONOMY

We recall the flow of national output/income in a three sector closed economy-households, firms and government. A closed economy accounts for the flow of goods and services which are produced and used within the economic territory of the country; no components of international transactions (IT) are included. If we add the international transactions of goods, services and financial assets then the system turns into open economy. In a simple system we take the open sector where only the current account transactions (i.e trade, services and transfer accounts) are dealt with. Figure 1 presents the circular flow of income in an open economy.

Figure 1: Circular flow of income in an open economy



Since we have already given the flow concepts for three sectors in a closed economic set up, no need to repeat them here, rather, we concentrate on the flow concepts under international linkage sector. Firms export goods to the foreign market (IT) and in turn get export receipts and make the payments for imports of goods from abroad. On the other hand, the households sell factor services, the labour, and gets remittances from abroad. Households, firms and the government net transfer to the foreign citizens (R_f) which balances the trade account, i.e. net exports ($NX = X - M$). The capital account transaction does not enter into the GNP accounting since it is not directly related to the current production rather involves only the transfers of capital assets. Therefore, the real GNP identity in an open economic system is-

$$GNP \equiv Y \equiv C + I + G + (X - M) \equiv C + S + T + R_f \quad (5)$$

Export is an injection item and import and net foreign transfer are the leakage items in the open economy circular flow. Increase in X will expand the volume of GNP and increase in M or R_f will contract the volume of GNP. The left side term, $C + I + G + (X - M)$, indicates aggregate demand or expenditure by the home and foreign sectors and the right side term, $C + S + T + R_f$, indicates the aggregate supply or payments by the home and foreign sectors. Simplifying the above identity we get

$$I + G + (X - M) = S + T + R_f \quad (6)$$

$$\text{Or, } I + G + X = S + T + (M + R_f) \quad (7)$$

Or, (Private + Public investment) |_{domestic} + Foreign investment = Private + component of public savings) |_{domestic} + components of foreign savings
Or, total incoming = total outgoing

DETERMINANTS OF EXPORT AND IMPORT

Export of products by the home country depends on the price of the home products (P), and exchange rate (e). We exclude the foreign income (GNP_f) from deciding export because it does not affect the circular flow and accounting of the home country's national income. Hence, the export function is –

$$X = f (P, e) \quad (8)$$

where both dX/dP and dX/de are negative since as domestic price increases, foreigners will reduce export demand and as 'e' increases, the home country's currency appreciates, export items become costlier and hence export falls.

On the other hand, the import demand function by the home country depends on the home citizens' income, price of the competing products in the home market and exchange rate. Hence, the import function is –

$$M = f(Y, P, e) = f(Y, P, e) / e \quad (9)$$

where dM/dY , dM/dP and dM/de all are positive. Since, as home country becomes richer, its citizens now have more money, then import demand will rise; as price of the competing goods in the domestic market increases, import is then relatively cheaper and hence import will rise and as exchange rate appreciates, import products are relatively cheaper and so import increases.

A SIMPLE KEYNESIAN OPEN ECONOMY MODEL

Let us recall our simple Keynesian model (SKM) in a two sector closed economy with autonomous government expenditure (G_0) supported by a lump sum tax T_0 (for the sake of simplicity), and autonomous investment expenditure (I_0). The equilibrium output is balanced in the following equation-

$$Y = C + I + G$$

$$\text{Or, } Y = a + b. (Y - T_0) + I_0 + G_0 \quad (10)$$

where 'a' (> 0) is the autonomous consumption expenditure, 'b' is MPC ($0 < b < 1$). The equilibrium output is

$$Y = (a + I_0 + G_0 - b.T_0) / (1 - b) \quad (11)$$

We also get the autonomous expenditure multiplier as $dY/da = dY/dI_0 = dY/dG_0 = 1/(1 - b) > 1$. That means, the increase in autonomous expenditures from any head (C, I or G) will lead to increase in national income at a multiplier rate and with such continuous expenditure enhancing policies, the magnitudes of depression may be recovered. This is the essence of the Keynesian revolution.

Let us add the trade account component as the simplified model for an open economy Keynesian model. The income equilibrium relation is, thus, converted into

$$Y = C + I + G + X - M \quad (12)$$

$$\text{Or, } Y = a + b.(Y - T_0) + I_0 + G_0 + X_0 - M_0 - m.Y \quad (13)$$

$$\text{Or, } Y = a + (b - m).Y + I_0 + G_0 - b.T_0 + X_0 - M_0 \quad (14)$$

$$\text{Or, } Y = (a + I_0 + G_0 - b.T_0 + X_0 - M_0) / (1 - b + m) \quad (15)$$

where X_0 and M_0 are respectively the autonomous exports by the abroad and imports by the home country which are positive and $0 < m < 1$ ($m = dM/dY =$ propensity to import= MPI) meaning increase in income induces to more import and the increase in import should not exceed increase in income.

Effects of autonomous expenditure, export and imports on domestic income

We can derive effects of autonomous expenditure on income (which is the open economy expenditure multiplier), export on income (which is the export multiplier = dY/dX_0) and import on income (which is the import multiplier = dY/dM_0) from equation (16) by simple differentiation. They are as follows-

$$dY/da = dY/dI_0 = dY/dG_0 = 1/(1 - b + m) < 1/(1 - b) \quad (16)$$

We can also write the multiplier as $dY/da = dY/dI_0 = dY/dG_0 = 1/(1 - MPC + MPI) = 1/(MPS + MPI)$. The value of the open economy expenditure multiplier is positive and greater than unity because of the stability condition of national income equilibrium which is $(b + m) < 1$. But the magnitude of the open economy multiplier is less than that of the closed economy since mathematically $m > 0$ term has been added to the denominator of the multiplier (17) which means as autonomous expenditure in the home economy increases, national income will increase in the multiplier rate (since $1/(1-b) > 1$) and a part of this incremental income will be paid for increased import demand which will further bring down the volume of Y since home country's income outflows to the foreign country. Therefore, the value of SK multiplier gets reduced after the international linkages are taken into account.

Now see what happens to the national income when autonomous export (X_0) increases by dX_0 . Since export is an injection item to the open system circular flow, as its volume increases, equilibrium national income of the home country will increase at a multiplier rate like the autonomous expenditure multiplier. The export multiplier is thus-

$$dY/dX_0 = 1/(1 - b + m) \quad (17)$$

The export multiplier is alternatively called as *foreign trade multiplier* as it boosts up the national income of the home country.

Now attempt the effect of import increase upon the national income. It gives us the import multiplier which shows the effect of increase in autonomous import upon the income of the domestic economy and it is expressed as-

$$dY/dM_0 = -1/(1 - b + m) < 0 \quad (18)$$

The import multiplier is negative in sign which means as import increases there is outflow from the income stream like savings and taxation which pulls down the level of income. In the contrary, if import goes down, national income increases. That is why; import is a debit item in the BOP.

The BOP equation

As we have already mentioned that BOP is the club of current account and capital account. Again current account balance (CAB) is NX less net foreign transfer (R_f) (assuming the net transfer into import items). That means

$$CAB = NX - R_f = X - M - R_f \quad (19)$$

We have the export function (from 9) as $X = f(P, e)$ and import function (from 10) as $M = f(Y, P, e)/e$. If 'x' be the unit of home export at price P and 'm' be the import quantity by the home country at price P_f then CAB is transformed into the following relation-

$$X - M - R_f = P.f(P, e) - (P_f/e).f(Y, P, e)$$

$$\text{Or, } X - M = P.f(P, e) - (P_f/e).f(Y, P, e) \quad (20)$$

where foreign transfer term has been included into the import function. The import function has been divided by the exchange rate since the home importers will have to convert their home currency into the foreign currency, otherwise they will have to depend upon the domestic goods in spite of their high income levels.

Again capital account is $F = F(r)$ where $F' = dF/dr < 0$.

This shows that capital inflow to any country depends on the relative difference of the interest rate in home and abroad. For example, flow of capital from US to India will be there if India's capital market provides more interest rate to the investors than that of the US capital market and vice-versa.

Hence, the BOP equation looks like

BOP = Current account - Capital account

$$\text{Or, } BOP = P.f(P, e) - (P_f/e).f(Y, P, e) - F(r) \quad (21)$$

If BOP is in balance, BOP is equal to zero. That means, current account balance (the first two terms) will be equal to capital account balance (the third term). With P, P_f and e fixed, we get the BOP equation as the function in (Y, r) plane. Any combination of (Y, r) can make BOP to be zero. Other combinations may make BOP in surplus or deficit. As Y increases, import will increase which will reduce net export and hence current account deficit. To absorb the deficit, there should be surplus in the capital account that can be ensured by increase in rate of interest in the home market that will invite inflow of foreign capital. Therefore, as Y increases, r also increases and vice versa. Hence, the BOP (shortly BP) line will be upward sloping. Mathematically we can derive the slope of BP line from (22) by putting BOP = 0. That means,

$$P.f(P, e) - (P_f/e).f(Y, P, e) = F(r) \quad (22)$$

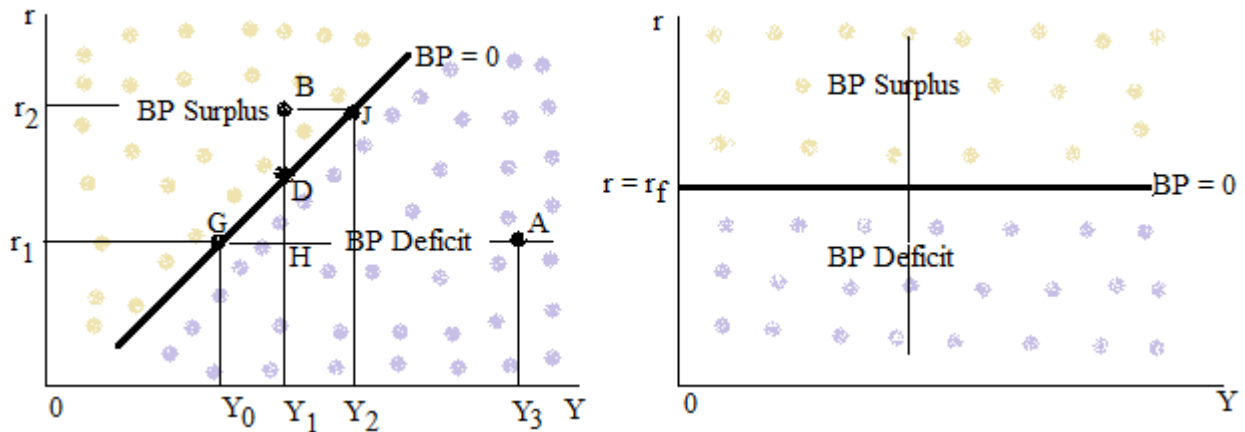
Taking derivative of 'r' from the above equation with respect to Y we get

$$0 - (P_f/e).dM/dY = F'.dr/dY \quad (\text{since } M = f(Y, P, e))$$

$$\text{Or, } dr/dY|_{BOP=0} = - (P_f/e).dM/dY / F' > 0 \quad (23)$$

since $dM/dY > 0$, and $F' < 0$. Figure 2 presents the BP line with balancing position (i.e. $BP = 0$).

Figure 2: BP under imperfect capital mobility Figure 3: BP under perfect capital mobility



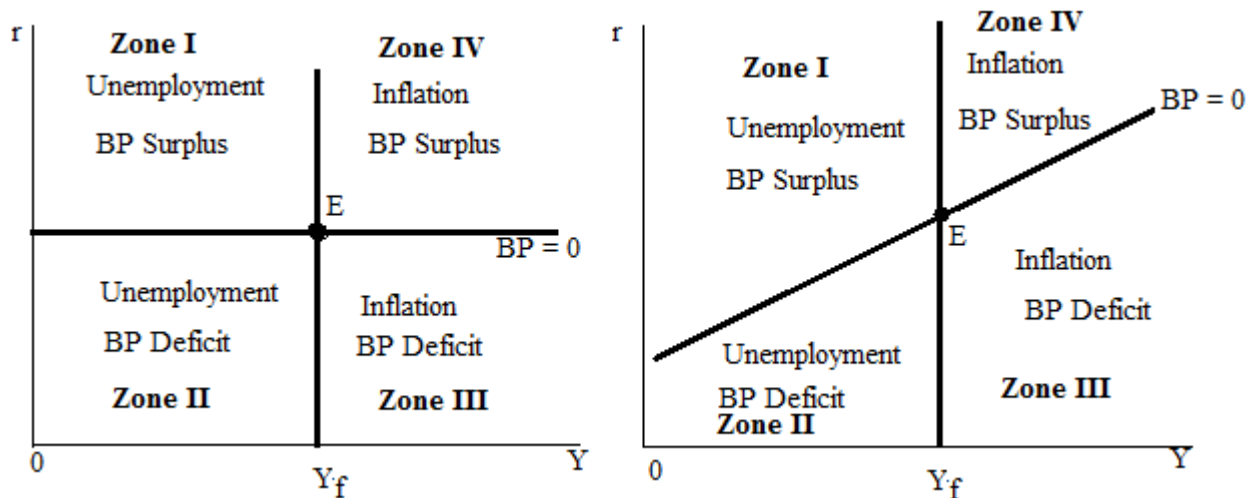
The upward sloping line $BP = 0$ separates two zones—one is BOP surplus zone which is left to the $BP = 0$ line and another is BOP deficit zone which lies right to $BP = 0$ line. Why? Let us take the case of surplus zone. At any rate of interest, say r_2 , the point J represents the BOP balance, but any point left to it, say B, represents low income ($Y_1 < Y_2$) which means the quantity of import of good will fall and current account surplus will occur. Not that at the fixed rate of interest r_2 , there will be capital account surplus or deficit. Hence, BOP will be surplus in the leftward zone of the $BP = 0$ line due to the surplus in current account only. By the reverse logic, at any rate of interest, say r_1 , the optimum level of income is Y_0 that keeps the BP in balance. Any income level more than Y_0 corresponding to r_1 , say at point A, there is $Y_3 > Y_0$ and more income leads to more demands for import from the foreign country which ultimately results into current account deficit with unchanged position of the capital account. Therefore, there is BOP deficit in the rightward zone of the $BP = 0$ line. The readers can verify the alternative arguments in explaining the two zones as surplus or deficit by taking income level fixed and make variations in interest rates to make adjustments through the capital account, not by the current account. *Note that the upward sloping $BP = 0$ line indicates the scenario of imperfect capital mobility i.e. $r \neq r_f$. We have differences in the interest rates of the home and foreign countries in variety of ways.*

If we take the situation of *perfect capital mobility* then there will be automatic equalization of interest rates in the home and away countries, i.e. $r = r_f$. The $BP = 0$ line will then be a horizontal straight line passing through the point at which $r = r_f$ (Figure 3). The home and foreign capitals are perfectly substitutable. Any increase of rate of interest of any country will immediately increase the flow of capital to the country from the other country with relatively low interest rates. The capital account will be in always balance since $F' = \infty$. From the slope of the BP line (equation 23) we see that $dr/dY = 0$ (since $F' = \infty$). Therefore, the $BP = 0$ line is a horizontal line. Above the $BP = 0$ line, there is higher value of domestic interest than the foreign and there will be inflow of capital. Hence, there will be surplus in the BOP and reversely, below is the zone of deficit in BOP.

Internal and external balances

Prior to the discussions on the topic on international linkages, we were concentrating upon the equilibrium or balance in the closed economy or internal economy. The internal economy's balance refers to the situation of full employment of all the factors at the existing factor prices. Any economy falling short of full employment faces unemployment problem and on the other hand, if any economy reaches at the position of more than full employment will face inflationary situations. In both the under employment and inflationary situations the economy faces internal imbalance. In Figure 4 and 5, the internal balance is shown by the vertical line corresponding to the full employment output Y_f .

Figure 4: Internal balance with perfect mobility Figure 5: Internal balance with imperfect mobility



The external balance or the $BOP = 0$ lines have been shown as horizontal line (Figure 4) because of perfect capital mobility and upward sloping line (Figure 5) because of imperfect capital mobility among the trading countries. In both the cases of perfect and imperfect capital mobility, E is the only point where both internal and external balances of the home country are ensured. There is neither unemployment nor inflation, and neither BOP deficit nor surplus at E. Deviations from E (not along the internal and external balance lines) produces imbalances in either of the sectors. In Zone I of both the diagrams, there are unemployment and BOP surplus (i.e. unfavourable internal economy but favourable external economy), in Zone II, there are unemployment but BOP deficit, in Zone III, there is inflation and BOP deficit and in Zone IV, there is inflation in the internal economy but surplus in the external economy. All the economies strive to reach at E or to solve the internal and external imbalances by means of different policy prescriptions. The next chapter will cover the policy issues.

SUMMARY

In the above discussion on the accounting and related issues of open economic transaction we now have the summary results as follows-

- BOP has two broad items -Current Account and Capital Account. Current Account has trade accounts and transfer accounts and Capital Account has all sorts of import and export of financial services.

- Current Account deficit plus Capital Account deficit give rise to BOP deficit unambiguously. Again Current Account surplus plus Capital Account surplus give rise to BOP surplus unambiguously. These two features constitute BOP imbalance.
- Autonomous capital flow and accommodating capital flows are used to make the BOP always in balance.
- Introduction of open economic transaction into the Keynesian model gives the computation of national income in an open economy.
- Increase in government expenditure in the open economy model gives more income but with a lesser rate compared to the closed economic system because the import demand swallows a part of the increase in income.
- In Indian economy, all the current account's transactions amount can be fully convertible; capital account transactions are yet to be fully convertible.
- The BOP = 0 line is horizontal for perfect capital markets and BOP = 0 is upward rising for the imperfect capital markets. The area above the BOP = 0 line in both the cases indicates BOP surplus and the area below indicates BOP deficit.
- Internal balance is maintained along the full employment line. Left to it represent recession phase or deflationary phase and right to it represents boom phase or inflationary phase.

MULTIPLE CHOICE QUESTIONS AND ANSWERS

For Self-assessment

1. If there is deficit in the balance of trade, it refers to the situation where
 - a. Merchandise export is more than merchandise import
 - b. Merchandise import is more than merchandise export
 - c. Current account receipt is more than current account payment
 - d. Current account payment is more than current account receipt
2. A balance in BOP means
 - a. Current account is in balance
 - b. Capital account is in balance
 - c. Current account deficit and equal magnitude of capital account surplus
 - d. All of the above
3. Devaluation policy is applied for correcting the situation of
 - a. BOP deficit
 - b. BOP surplus
 - c. Capital account deficit
 - d. None of the above

Answers

1(b), 2(d), 3(a)

DESCRIPTIVE QUESTIONS

For Self-assessment

1. Explain the terms -Current Account, Capital Account and Trade Account. Taking a hypothetical example, show that BOP is always in balance.
2. What do you mean by Autonomous Capital Flows and Accommodating Capital Flows? Use these terms to show that there is neither deficit nor surplus in balance of payments.
3. What are Devaluation and Depreciation of home currency? Explain in detail the effects of these two policies in restoring BOP equilibrium. Mention the conditions when these two policies will fail to correct BOP imbalance.
4. Construct Circular Flow of Income table in an open economy system. Identify the injection and leakage items in such circular flow of income.
5. What is Net Export? Derive its slope with respect to income. Reorient the simple Keynesian model to incorporate net export function into it. Derive the equilibrium income in a simple Keynesian open economic system.
6. State the investment expenditure multiplier in a closed economy. Derive the equilibrium income under the functional relations, consumption function is $C = 500 + 0.65Y$, investment, $I = 200$, export, $X = 60$ and import function $M = 50 + 0.15Y$. Compare the investment expenditure multiplier under closed economy and open economy. Explain why the results get differ.
7. What are internal and external balances? Sketch the diagrams for presenting an economy's positions of internal as well as external balances under the conditions of both perfect and imperfect capital market conditions.
8. Suppose that the RBI embarks on a tight money policy. What is the lively impact on India's exports under (i) fixed exchange rate and (ii) flexible exchange rate?
9. Explore the foreign exchange market reform in India.
10. Why are countries reluctant to explore the use of nominal devaluation to improve balance of payments? Explain.

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