11 International Trade

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I Introduction

International trade comprises the theory of international trade and international finance. The former concerns the theory of trade and gain from it through specialization. The latter concerns a theory of different currencies and currency flows among nations.
Trade can be : inter-personal ; regional ; and national trade. International trade is just a form of exchange and an application of micro-theory of pure exchange. The main conclusion is :

Voluntary exchange is mutually beneficial.

1 Why Do Countries Trade ?

There are many misleading arguments against exchanges (without production) :

- Trade involves the exchange of goods. As the total amount of goods available is the same, exchange itself is not productive.
- Imports will compete with local products so that it leads to an outflow of local currency and decreases the job opportunity of the local citizens.
- Nations with abundant resources and already reaching a level of self-sufficiency need not trade with others for any gain.

2 Special Features Of International Trade

- Factor mobility is low among nations so that absolute advantage exists for long. The differences in endowments of resources make production varied in quantity and quality. The principle of exchange is to explain this idea.
- It involves the exchange of two or more currencies so that a theory of exchange rate is needed.
- Nations have their specific trade policies to deal with international trade problems.
- There are already suitable statistical information for analysis in practice.
- Special terms to note :

Self-sufficiency : nations consume their local products only (may be with exports).
Specialization : the production of goods more than the nation consumes. The remaining output is sold to other nations. The term complete specialization means the production of one goods only.
Autarky : self-sufficiency without any international trade.

3 Basis of Trade

- difference in the tastes of different nations (in MUV or MRS) ;
- difference in the level of technology used in production ;
- difference in the cost of production (production function, economies of scale, factor endowment ...)
- well-defined property rights and negligible transaction costs in exchange.

II The Principles of Exchange

1 Theory of Trade

It proposes that labour time determines the value of production of goods and services. That is, the cost of production depends on the amount of labour time needed.

Absolute Advantage

A nation, using the **same** (quantity / amount / cost on) resources, can produce a goods or service more than another nation and is said to have an absolute advantage over the other nation.

Comparative Advantage (Relative Opportunity Cost Or Relative Efficiency)

A nation can produce a goods or service at a lower opportunity cost than another nation (or any other nation) and is said to have a comparative advantage on that goods or service.
A lower opportunity cost means that a nation can forgo less labour (time) in the production of the **same** amount of goods compared with another nation.

2 Gain From Specialization

Assumptions of Comparative Advantage

- It is a **two** nations and **two** goods model.
- Perfect competition prevails, i.e. there is perfect mobility of factor within the nation but immobile among other nations ; and zero transportation cost.
- Labour is the **only** variable factor in production, i.e. technology is also fixed.
- Specialization occurs at a **constant** opportunity cost.
- Resources can be aggregated into some composite units.

Conclusion :

Whenever a nation enjoys a comparative advantage on a goods, it can produce **more** of the goods and has **more real income** after specialization on production of that goods and **imports** other goods that are comparatively disadvantage in production.

Sources of Comparative Advantage

- geographical diversity, e.g. climate.
- difference in the capital-labour endowment.

Other Forms of Gain From Trade

- economies of scale from production and economic efficiency achieved.
- competition leads to economic growth.

3 Terms of Trade

If a nation is in autarky, the exchange ratio of goods is the same as the relative opportunity cost in equilibrium, i.e. the market equilibrium price = its marginal cost in production.
The terms of trade means the amount of domestic produced goods that must be exported in order to get one unit of imported goods, i.e. Q_X / Q_M .
Whenever two nations trade, their international terms of trade (I T T) must lie between the exchange ratios that have prevailed in the nations in the absence of trade.

An Example :

	Cloth	**Wine**

Exchange ratio : A	**2**	**1**
Exchange ratio : B	**1**	**1**

If nation A wants to get 1 unit of wine, its domestic sacrifice is 2 units of cloth. Hence trade is only possible if nation A can get 1 unit of wine by giving up no more than 2 units of cloth.
If nation B is willing to sacrifice 1 unit of wine, its domestic gain is 1 unit of cloth. Hence trade is only possible if the gain is greater than 1 unit of cloth by giving up 1 unit of wine.
In other words, to get 1 unit of cloth, the domestic sacrifice of nation B is 1 unit of wine so that trade is only possible if the sacrifice is less than 1 unit of wine. The international terms of trade (I.T.T.) is :

1 W : 1 to 2 C

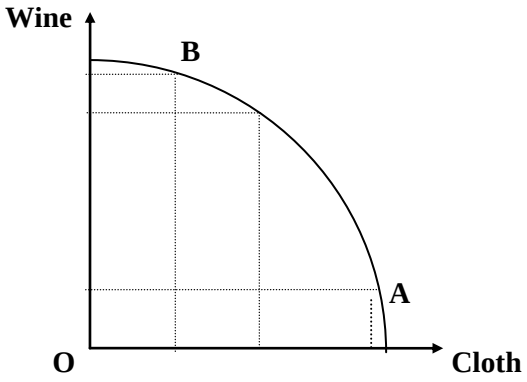
The terms of trade is important because it determines how much a nation will gain. The I.T.T. of a nation is more favourable if it can use a **lesser** amount of exports to exchange for the **same** amount of imports.
The greater the divergence between the I.T.T. and the domestic exchange ratio (the more favourable the terms of trade), the greater the gain in real income by that nation.
An index is used to express the overall price level.

$$\text{Terms of Trade Index} = \frac{\text{Index of Export Prices}}{\text{Index of Import Prices}} = \frac{P_X}{P_M}$$

If the index increases, it is said to be **favourable** to the nation and vice versa.

4 Gain From Trade With A Production Possibility Curve

The Supply Side : A Concave P.P.C.
It implies that the opportunity costs vary along the PPC.
In terms of cloth (wine), the opportunity cost of wine (cloth) is increasing from point A to B.



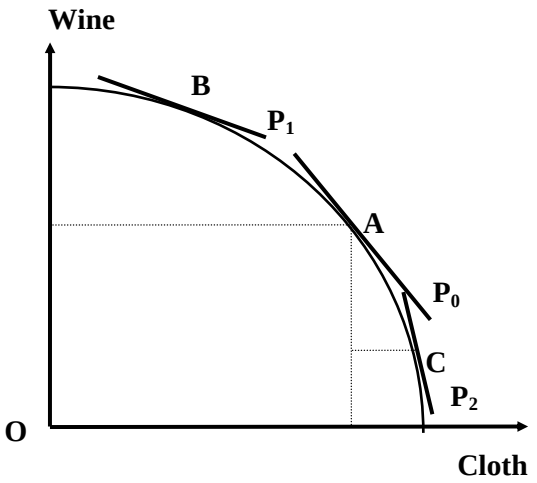
The P.P.C. With Relative Prices
If prices are initially denoted by the price line $\mathbf{P_0}$ and the optimal point is A where the relative price ratio ($\mathbf{P_0}$) is tangent to the P.P.C.
That is, **Opportunity Cost in production = Relative Prices**

If $\mathbf{P_0}$ changes to $\mathbf{P_1}$ that implies the price of wine relative to the price of cloth rises.

$\mathbf{P_1}$ is greater than MC of wine. Firms would increase the production of wine by reducing the output of cloth. The production point moves from A to B.

Producers should produce more wine as it is now profitable and the new optimal point is B.

Likewise if $\mathbf{P_w}$ drops or $\mathbf{P_c}$ rises, the new optimal may be at C.



The Demand Side : The Community Indifference Curve
It illustrates the demand of a whole nation with a constant income distribution.
Together with the P.P.C. both demand and supply conditions are known and beneficial exchanges can

then be explained. The gain from trade is in fact consisted of :

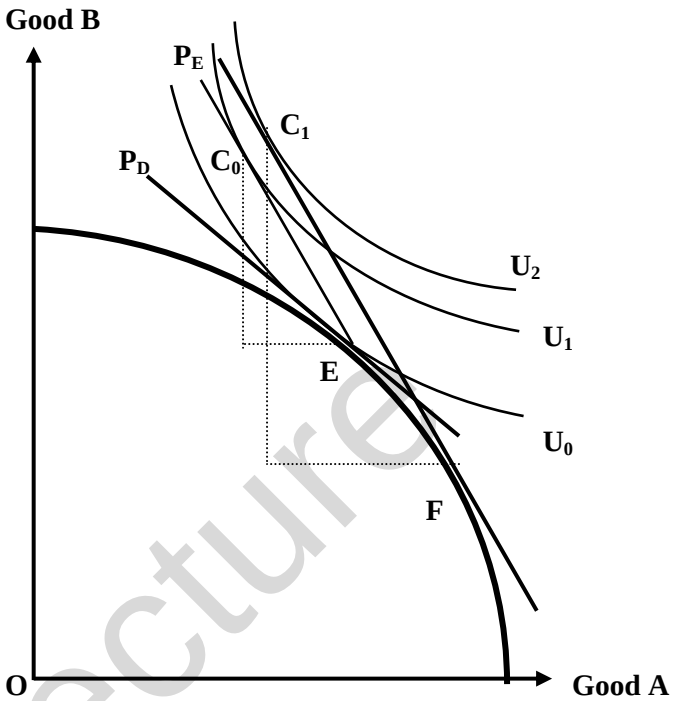
- One is the gain from exchange with the presence of international price ratio.
- The other one is the gain from specialization based on the principle of comparative advantage.

Finally the gain is obtained through the actual export and import of goods.

Gain From : Exchange & Specialization

- Initially the domestic price is P_D with an autarky equilibrium at E.
- With free trade the nation, having a comparative advantage on the goods A, faces a higher price of A = P_E .
- The consumers gain by reaching their optimum at C_0 ; ignoring temporary the reaction of the producers.

  The gain from exchange is from point E to C_0 or from U_0 to U_1 .
- The domestic producers will then expand its production on goods A and lower the production of goods B. In equilibrium the production optimum is at point F .



Final Results :

- The overall gain from trade is composed of a gain from exchange and a gain from specialization.
  Total Gain (U_0 to U_2) = Gain from exchange (E to C_0) + Gain from specialization (C_0 to C_1)
- The re-allocation of resources should be based on the principle of comparative advantage and the process of specialization. There is a diversity in consumption (C_1) and production (F) with trade. The final pattern of consumption is a combination somewhere outside the PPC.
- Any nation can enjoy a level of consumption well beyond its production capacity so long as trade is allowed. It provides a theoretical ground to support the argument of free international trade.

III International Finance

1. The Balance of Payments Accounting

A financial or accounting statement of all transactions between one nation and the rest of the world is called the balance of payments. These transactions include :
- the trade on goods (visible) and services (invisible) either **in** (import) or **out** (export) of the nation ;
- the transfer of capital **in** and **out** of the nation.

Any dollar **inflow** or that goes **into** the account is recorded in the credit (+) side in the B/P.
Credit (debit) refers to any transaction that increases the money inflow (outflow) or the supply (demand) of foreign currencies. Any dollar **outflow** is recorded in the debit (-) side.

There are 3 main types of accounts in the balance of payments accounting.

- The current account includes all visible and invisible items together with transfer payments and military expenditures.
- The capital account includes all capital outflow and inflow of all forms.
- The financial or gold and forex account acts as the balancing account of the two accounts above.

The balance of payments of a nation refers to the balance of **both** the current and capital accounts.
If the financial account is also considered, then the overall balance will always be **zero**. The reason is that if there is either a surplus or deficit in the B/P, it must lead to a corresponding change in the flow of local and

foreign currency in order to support the payments involved.

For example, a $2 billion surplus of the current and capital accounts of a nation would imply that the foreign nations would need to buy $2 billion currency of nation A by its own currency. The financial account would appear a transaction of $2 billion local currency outflow, i.e. debit. This amount will offset the amount of surplus in the current and capital accounts.

Balance of Payments Categories

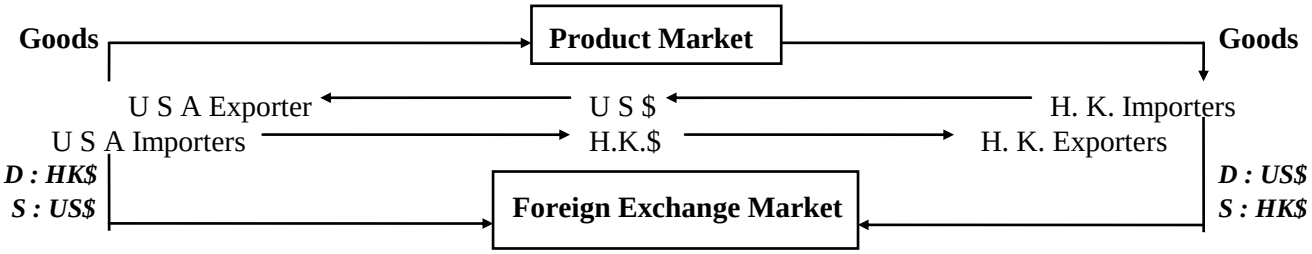
	Debit (-)	Credit (+)	Balance
1. Current Account			
Visible Items			
Exports		$270	
Imports	$300		
Balance of visible trade			- $30
Invisible Items			
Exports		180	
Improts	60		
Balance of invisible trade			120
Net factor income from abroad	50		50
Unilateral Transfers		80	- 80
Balance of the current account			+ 60
2. Capital & Financial Account			
I. Capital Account			
Net capital transfers and net change in non-produced / non-financial assets	140		
II. Financial Account			
Net change in financial non-reserve assets		30	
Net change in official reserve assets		50	
Balance of the capital & financial account			- 60
OVERALL BALANCE OF PAYMENTS			**0**

Before 1999, there is no official record of the flows of capital in & out of HK so that the HK government simply has no accurate results about these figures.

2 Exchange Rate System

Nature of Foreign Exchange (Forex)

The demand for foreign currency is a derived demand from the desire of goods and services traded (a form of transaction motive). When one currency is used to exchange with another, the exchange rate becomes the price of that currency and the one desired being the quantity magnitude considered.

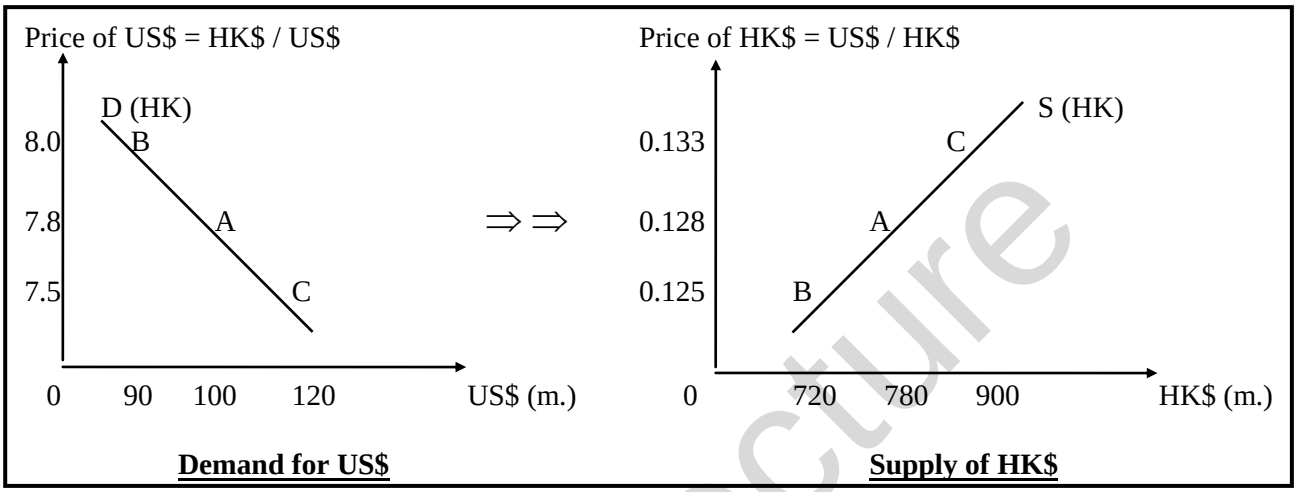


(1) Demand & Supply of Forex

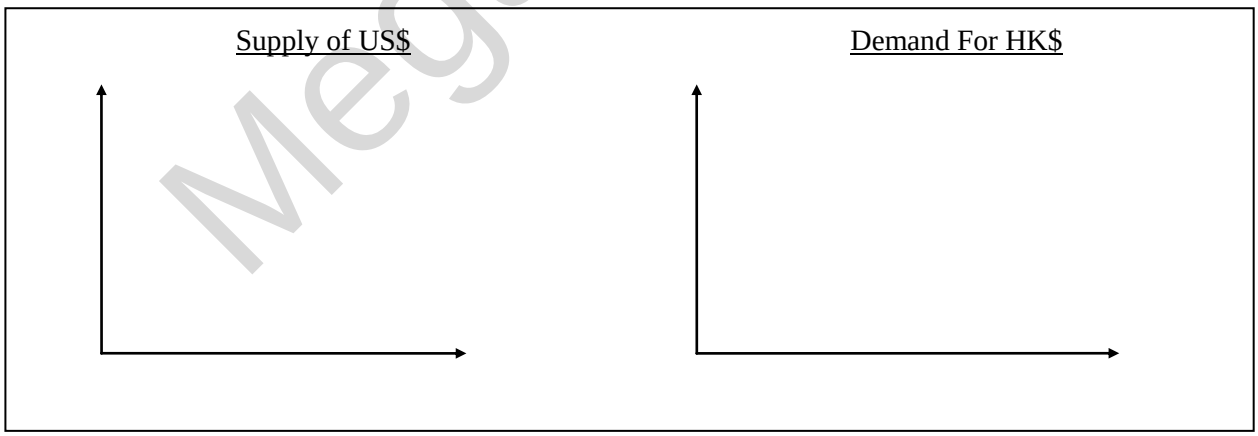
These variables are held constant so as to focus the analysis on the relation between the exchange rate :
* prices of foreign goods and services ;
* income, taste & preferences of foreigners ;
* expectation on exchange rate and inflation rate changes ;
* prices of domestic goods and services.

Demand & Supply of A Currency

In a simplified case, the demand for a foreign currency is the result of a demand for foreign goods and services by the local consumers. For example, the demand for US dollar by the H.K. importers is a **derived** demand (curve) of U.S.A. goods and services.



- Assume the demand for imports by the HK consumers is **elastic**.
- Along the demand curve for US$, when the price of US$ rises then the price of our imports rises also. Based on the law of demand, the quantity demanded on imports falls and the value of imports (= M) falls.
  We demand less US$ and **at the same time** supply less HK$ in the forex market, i.e. a movement along point A to B.
- A similar case exists for the supply of US$ and the demand for HK$.



Market of US$

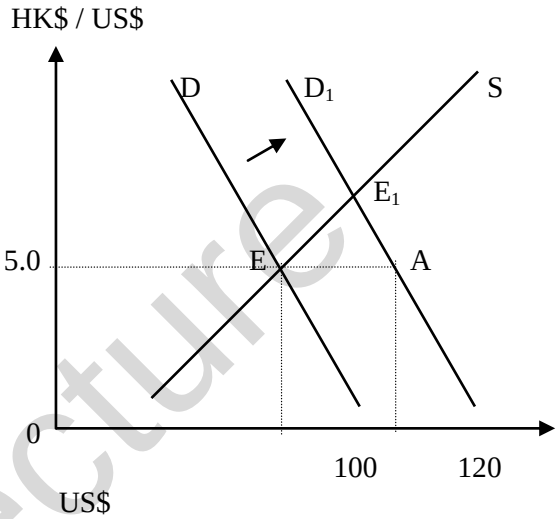
(2) Flexible Exchange Rate System

The Automatic Adjustment In The Forex Market

Initially, the equilibrium situation is at point E. Suppose H.K. increases the demand for USA goods & services due to a change in real income, taste etc.

The H.K. importers had to demand for more US$ in the forex market.

The demand curve for US$ shifts to the right as a result. At the original exchange rate, there is an excess demand (EA) of US$.
The exchange rate will go up, i.e. the **HK$ depreciates against the US$** (or the US$ appreciates).



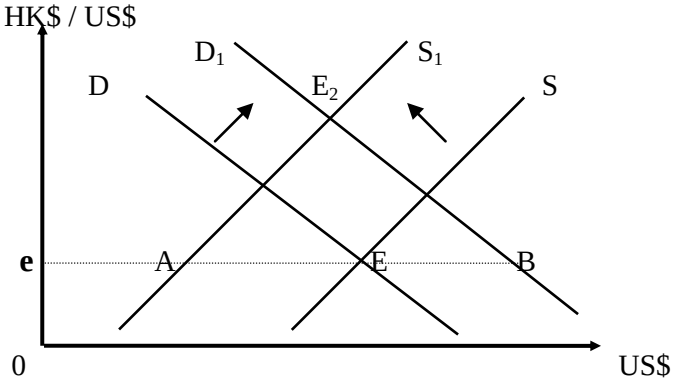
- At the original exchange rate, there is also a balance of payments deficit (EA) where the value of exports (US$ 100) is smaller than the value of imports (US$120), assuming that the balance of the capital account is zero.
- With the assumption of an elastic demand for exports and imports, the prices of our exports fall and that of imports rises. Our export value rises back and the import value falls.
- Finally the new equilibrium point E_1 is reached with a new balance in the balance of payments. The exchange rate has risen with the HK$ depreciated.
- The overall results are as follows :
  - The HK$ is weaker than before, i.e. depreciation. The amount of currencies exchanged in the forex market increases.
  - Both the value of X & M rise with a larger volume of international trade.
  - The balance of payments is maintained.
  - The flexible adjustment works like the case of a price-taking product market.

When the import (export) of a nation increases, its currency depreciates (appreciates), ceteris paribus.

The Effect of Inflation & Changes In Interest Rate On The Forex Market

* Suppose the inflation rate in H.K. is relatively higher than that of the USA, the relative prices are affected.
P_M falls and P_X rises or (P_X / P_M) rises with the value of M rises and the value of X falls.

* With an elastic demand for Q_X & Q_M, the demand for US$ rises and the demand for HK$ falls. In equil., the HK$ depreciates and reaches the point E_2.



* In case of a relative higher interest rate in the USA, capital will outflow from H.K. to the USA.

The demand for US$ rises. The graph is similar as above.

Exchange rate adjusts to any change in trade balance and prices of goods. The international transfers of funds are possible due to the interest differentials under a flexible exchange rate system.

* The demand for US$ increases causing a shift of the demand curve for US$ by H.K.
  The possible reasons are :
  - H.K. has a relatively higher inflation rate or some prices of domestic goods get higher.
  - The real income increases, so the demand for imports also rise.
  - The interest rate is low and leads to a stimulus of investment abroad.

The Purchasing-Power Parity (PPP) Theory

The theory tells the relation of the exchange rate of any two nations with their rates of inflation.

* For example, the exchange rate of HK$ against US$ is HK$7.8 = US$1, i.e. a ballpen of the same quality is sold at HK$7.8 in H.K. or US$1 in the USA. Suppose H.K. has an inflation and a ballpen becomes HK$8 (or H.K. has a relatively higher inflation rate than the USA), this would affect the balance of payments of H.K.
* Assume there is no transportation cost and no barrier of trade (no tariff), the USA-made ballpens are imported to H.K. due to the lower price.
* H.K. buys more imports from the USA with a balance of payments deficit. HK$ depreciates.
* With a flexible exchange rate system, the automatic adjustment operates until the B/P is maintained again but HK$ has depreciated to HK$8 = US$1.
* Inflation leads to a new exchange rate, i.e. the two currencies have the **same** purchasing power again.

Percentage Change (Depreciation or Appreciation) of a currency
= World Rate of Inflation - Domestic Rate of Inflation

* In other words, the PPP theory tells that the exchange rate between any 2 currencies adjusts itself to reflect the differences in the price levels (thus inflation) in these 2 nations. Exchange rate is related to the movement in price levels because the purchasing power of a currency is negatively related to the price level. The exchange rate reflects the purchasing power of a currency on imports.
* Somehow the theory has limitations :
  - goods affected by inflation may be non-tradable among the nations.
  - there are trade barriers in reality with positive transportation costs.

The Effective Exchange Rate (Index) (***Optional***)

The effective exchange rate index (EERI) was introduced in H.K. during the floating exchange rate era to represent the purchasing power of the HK$ over the currencies of H.K.'s 15 most important trading partners.

* Under a flexible exchange rate system, such an index was necessary because the movements of any one exchange rate do not give an accurate picture of the general purchasing power of HK$.
* In H.K. 3 indexes are compiled. The **import-weighted** EERI is calculated by using weights showing the relative importance of each of the 15 currencies (of our most important trading partners) in the total imports of H.K. The **export-weighted** EERI is similarly calculated. The **trade-weighted** EERI is based on our total volume of trade, i.e. both exports and imports are included. This is also the most commonly used index in H.K.
* The EER itself is a measure of the value of 1 currency relative to a weighted average of other relevant currencies.

$$EERI = \frac{\sum W_I \; E_{I\,0}}{\sum W_I \; E_{I\,T}} \times 100$$

where : W_I = weight or the proportion of the total value of H.K. trade with the nation I.
E_I = nominal exchange rate of the nation I, i.e. the price of currency of nation I in terms of HK$ and is found by the mean value of a transaction at a certain day.
0 & T stands for the base period and the current period respectively.

Suppose HK$ depreciates against the currency of nation I, E_{IT} would rise and the EERI would fall, vice versa.

* The latest EERI has its base period one week after the linked exchange rate was set in October 17, 1983, i.e. the period of October 24 to 28, 1983. The former one has a base period in Dec.18, 1971.

Problems of The Flexible Exchange Rate System

* There is factor mobility in reality : there exists unemployment due to a change in structural demand with relative price of export to import changed.
* Speculation brings about stabilizing as well as destabilizing effects.
* Advanced communication technology encourages capital movement especially the hot money and oil money that make the movement more frequent.
* The presence of spot and forward market makes the situation more complicated.

* Market adjustment has side effects :
  - depreciation may bring about inflation ;
  - appreciation may be hindered by the possibility of price rigidity.

(3) Fixed Exchange Rate System

If the value of import is greater than that of export, say, the supply of HK$ rises with a surplus of HK$ under the fixed rate. The central bank, if any, would buy HK$ by supplying US$ to the open market with a change in its foreign reserves.
The demand for HK$ increases and the demand curve shifts out to clear any disequilibrium.

Other means to maintain equilibrium at the fixed rate are :
- an exchange control up to the original equilibrium.
- interest rate rises to attract foreign capital with the supply of forex rises, but I & C may fall as a result.
- quota and tariff to lower the value of import.
- monetary and fiscal policy to lower the aggregate demand and import, but unemployment may arise. The real output and investment would fall with limited economic growth. (In the long run, export rises.)

Devaluation & Revaluation

A change in the fixed rate refers to a parity (rate) changing to another parity.
In case of a balance of payments deficit, devaluation of a currency by a central bank may help to alter the relative price of export and import to eliminate the deficit. However its effect depends on :
- the elasticities of demand for export and import ; &
- the income effect of the price changes.

* If the import prices rise, a wage-price spiral may lead to imported inflation. In the short run, import falls but it still takes time with a reallocation of resources at home. If the full employment is reached, the home demand falls.

$$\mathbf{Y = C + I + G + X - M}$$
$$\mathbf{X - M = Y - (C + I + G)}$$
Trade Balance = National Income (or AS) - Domestic Demand (or AD)

If the level of aggregate supply (AS) is greater than the domestic demand (AD) , then the trade balance had to be a surplus to maintain equilibrium. If the level of AD is greater than that of AS at full employment, the excess demand had to be fulfilled by imports, leading to a trade deficit.

* The rate of devaluation or revaluation is difficult to decide by the central bank.

The Relation between Exchange Rate, Trade Balance & Balance of Payments

Assumptions :

There is a trade balance initially. There is an equilibrium exchange rate at first under the flexible exchange rate system. The demand for exports and imports are both **elastic**.
Suppose the demand for the USA products rises in H.K. due to a higher real income or taste etc.

Product Market	**Foreign Exchange Market**

The imports from the USA _____.

The balance of trade has a _____.

The value of imports rises resulting in a larger outflow of local currency (HK$) through the forex market.

The H.K. importers need _____ to buy the imported goods.
The demand for US$ _____ with an excess _____ for US$ in the forex market.

The HK$ _____ against the US$.

Adjustment In A Flexible Exchange Rate System

With a change in exchange rate, the prices of H.K.exports _____.
The prices of H.K. imports_____.

With an elastic demand on exports & imports, the value of exports _____ and the value of imports _____.
The I.T.T. becomes _____.

The value of exports will finally be the same as that of _____ with a balance of trade in the current account of the balance of payments.

When the value of H.K. exports _____ , the quantity demanded for HK$ _____ whereas the quantity supplied of US$ _____.

As a whole compared with the original equil. the HK$ _____ and the US$ _____until the balance of payments is _____.

Adjustment Under A Linked Exchange Rate System : Arbitrage

(1) Banks → HK$7.8 ⇄ US$1 ← Exchange Fund

(2) Banks → US$1 ⇄ HK$8 ← Forex Market

(3) Forex Market : Demand for HK$ _____. Supply of US$ _____.

(4) HK$ appreciates until HK$ _____ = US$ _____.

(5) It is an adjustment through the flows of capital recorded in the capital account.

Conclusion

Balance of trade (Deficit)
↓
Depreciation under a flexible exchange rate system
↓
Exports rise and imports fall with I.T.T. worsened.
↓
Balance of trade maintained and income rises.

* Under a flexible exchange rate system, the changes in the exchange rate will adjust or response to any imbalance in the balance of trade of a nation.

3 International Monetary System : A Brief History

International Monetary Fund (I.M.F.) & The Bretton Woods System

In 1879 the USA adopted the gold standard (Britain adopted it in 1816) and the gold standard became universal. it lasted for 35 years until 1914 - the break of W.W.I. The postwar standard collapsed during the Depression of 1930s.

* The Great Depression of the 1930s led nations to devalue their currencies to encourage exports for economic recovery. Difficulties in trade made nations to impose various types of trade barriers and import-restrictions. It was in this background that made the Allied Powers to plan for an international institution to organize the international monetary system.
* In 1944 Bretton Woods, New Hampshire in the US, 44 nations discussed the plan and in July the IMF and the Bank for Reconstruction & Development (The World Bank) were formed.

Purposes of The I.M.F.

* The need for worldwide convertible currencies in the forex market with the elimination of exchange controls to facilitate international specialization.
* To restore the stability of exchange rates.
* To combine exchange rate stability with national independence in monetary and fiscal policies.
  In the 1940s USA helped the European nations to reconstruct their economies. Huge government transfers & private investments implied huge capital outflow & the flow of US$ to Europe.

  The US government used monetary policy to finance such policy. Inflation and the balance of payments deficits emerged. By 1960 the Vietnam War increased the US deficit and increased the money supply to finance the war. Inflation appeared again. The confidence of dollar declined with growing speculation on US dollar. In 1970 USA entered a recession and things went worst.

* Collapse of The System
  In August 15, 1971 President R. Nixon declared that dollar was no longer convertible officially into gold. The US gold standard ended and US$ exchange rate started to float freely into the forex market. (Managed float and dirty float became widespread.)

Smithsonian Agreement : December 18, 1971

The Group of Ten met in the Smithsonian Institute in Washington, D.C. to discuss the confusion in the international forex market since August. They agreed to devalue the dollar and changed the par value of their currencies in terms of gold and the special drawing rights (SDR).
However, the situation had not improved and they abandoned the agreement in March with the use of the free floating system.

In late 1973 the OPEC announced a four time rise in the price of petroleum. An estimated amount of US$60 billion went to the OPEC members in 1974 - the so-called oil money. The US aid to European nations also led to massive flow of US$ to Europe - the Euro Dollar market emerged.
There was a rise of exchange controls and protectionism from that time on.

The Case of Linked Exchange Rate In Hong Kong

From October 17, 1983 onwards, US$ became the standard of value of HK$.

New Accounting Arrangement

From July 1988, this new arrangement by the Exchange Fund enables the H.K. Monetary Authority to control the money supply together with the linked exchange rate. The government declared that this is a mean to stabilize exchange rate change so as to promote economic growth and stability of H.K.

IV Trade Policy & Fiscal Policy

Expenditure Side	**Income Side**
A D = C + I + G + X - M	A S = C + S + T

In equilibrium,

$$S - I = (G - T) + (X - M)$$

In other words, if we assume the money market is in equilibrium as what the Keynesian theory assumes, S = I can be obtained by an equilibrium market interest rate. Thus the question remains whether the internal balance (G - T) can have a reverse value of the external balance (X - M).

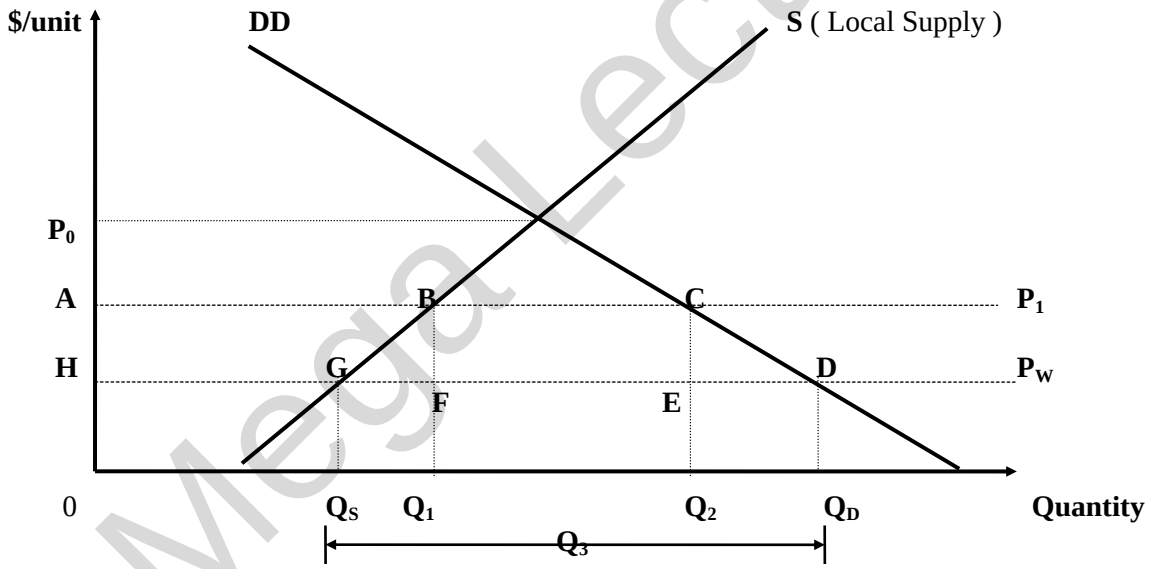
In theory with the money market in equilibrium, when a balance of trade surplus exists, the government should implement a contractionary fiscal policy with a surplus budget - that is, any change in the external balance should be matched by a corresponding change in the internal balance to ensure a general equilibrium.

V Free Trade Vs Protectionism : Trade Barriers

Protectionism or trade barriers usually cover the following means :
- tariff levied on selective or all imports ;
- quota stating the maximum quantity imported for any commodities ;
- subsidy given to local industries to raise their competitiveness ;
- embargo : prohibition on trade mostly on wartime rivalry.

The Case of Quota & Tariff : A Comparison

Assume : - insufficient local supply so that the world price is smaller than the domestic (home) price ;



* Under free trade, price is at P_W or point H. The local quantity supplied is at point G or Q_S.

* With tariff, price rises to P_1 or point A. The local quantity supplied rises to point B or Q_1. The amount of import is equal to BC or EF or $Q_2 - Q_1$.

Consumers' Surplus (lost) by : Area ACDH.

Producers' Surplus (gained) by : Area _____

Government Revenue from tariff : Area _____

Area K : Social cost of production because local cost rises by _____

but the world cost rises by only _____

Area L : The loss in consumers' surplus had to be shared by the nation.

Import : It falls by an amount from Q_3 to (Q_2 - Q_1).

* Tariff provides a source of government revenue and quota gives more profit to the importers.

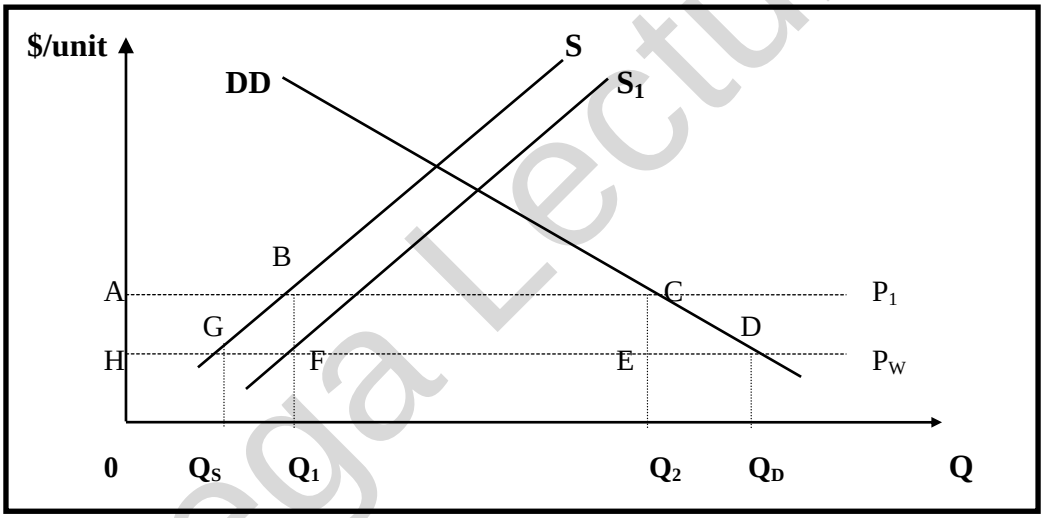
With quota, say an amount of BC, the cost to the importers = 100/unit but the selling price = 125 ;

Hence, ***Profit*** = (125 - 100) X (440 - 300) = 3500

Area BCEF goes to the hands of quota holders.

Case of A Subsidy

There are many ways to apply subsidy. The following analysis is based on a **per unit subsidy** on the suppliers of a nation.



Suppose the subsidy is BF per unit under free trade, with the effect of quota & tariff.
S shifts to S_1 and price is still at P_W & Q_D
Local Q_S becomes Q_2 & the amount of import = $Q_D - Q_1$ (smaller than before).

There is no loss in consumers' surplus & social cost.
Government subsidy replaces the amount of social cost = Area ABFH if subsidy is on **all** Q_2 units.

Consumers : price the same ; buy more locally.
Nation : Subsidy comes from taxpayers who, no matter are consumers or not, help indirectly the local suppliers.

- Compare with a tariff, the subsidy is a type of government expenditure instead of a revenue.
  There is a reallocation of resource & redistribution of income.
  Hence, some other criteria, e.g. the principle of equity in taxation should be considered also.

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