① B. Com (Prog.) Semester VI ....../....../2020

Subject : International Business

Ms. Harmanpreet Kaur
Department of Commerce

Topic : Exchange Rate Determination

▶ Measuring exchange rate movements

- A decline in a currency's value is known as depreciation
- An increase in a currency's value is known as appreciation

$$\text{Percent change in foreign currency Value} = \frac{S - S_{t-1}}{S_{t-1}}$$

where, S = spot rate at more recent date
S_{t-1} = spot rate at earlier date

- A positive % change indicate foreign currency has appreciated over time.
- A negative % change indicate foreign currency has depreciated over time.

Exchange Rate Equilibrium

- Exchange rate represents the price of a currency, or the rate at which one currency can be exchanged for another.

- Price of a currency is determined by the demand for that currency relative to its supply. i.e. for each possible price of a British pound, there is a corresponding supply of pound for sale [to be exchanged for Rupees (INR)].

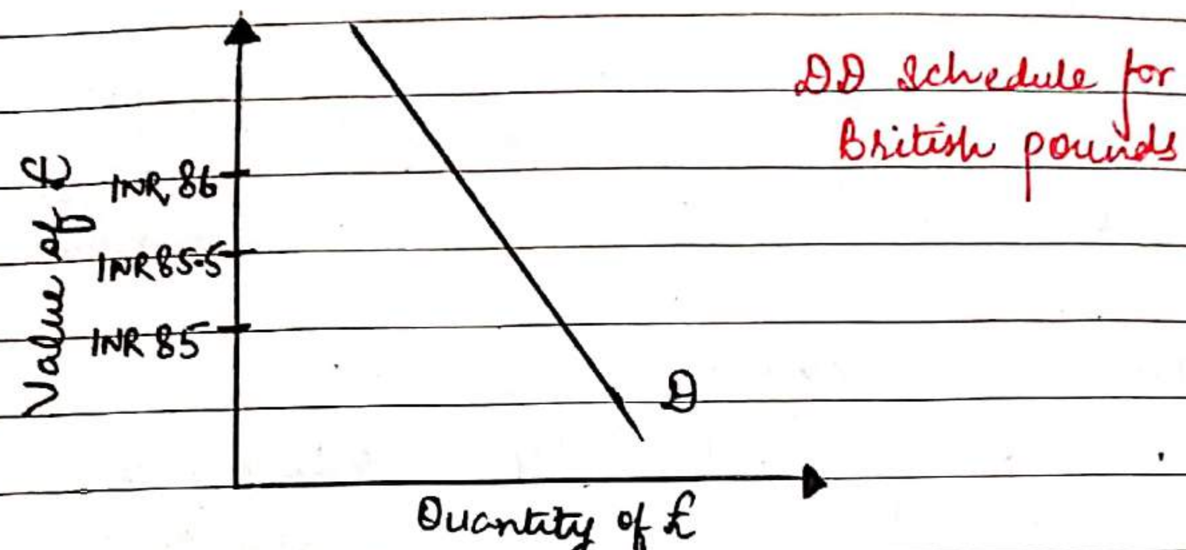
- Equilibrium exchange rate is when demand for that currency is equal to supply.

Demand for a Currency

- Suppose the Indian dd for British pounds (£) results partly from international trade, as Indian firms purchase £ to purchase British products.

- Also, there is Indian dd for £ due to capital flows, as Indian firms & investors obtain £ to invest in British securities.

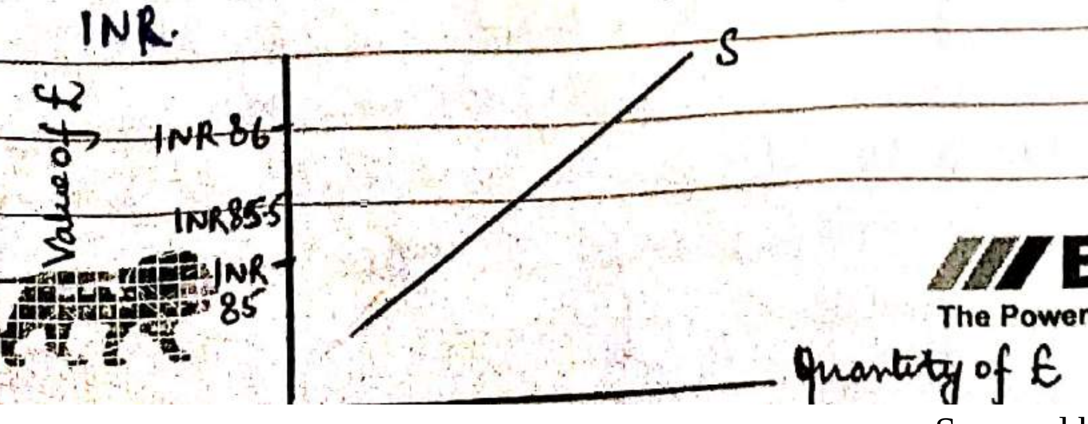
The following figure shows how many pounds would be demanded at various exchange rates for given time



Demand schedule is downward sloping because corporations & individuals in India would purchase more British goods when pound is worthless (because it takes fewer ₹ to obtain the desired amount of pounds) and vice-versa.

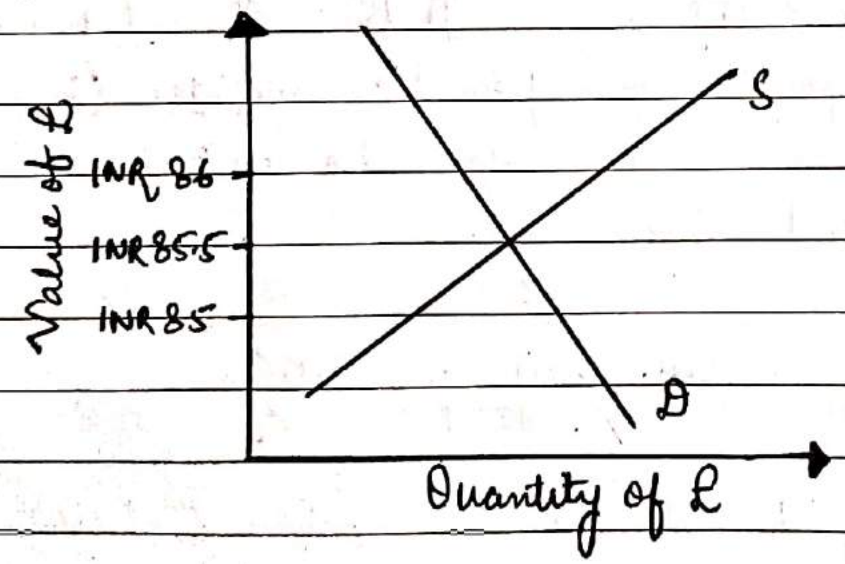
Supply of a Currency for Sale

- Consider the British dd for Indian ₹ (INR).
- i.e. British supply of pounds for sale, because pounds are supplied in for. exch. market in exchange for INR.



• Upward sloping supply curve
• When the pound's valuation is high, British consumers & firms are more willing to exchange their pounds for INR to purchase Indian products or securities; hence they supply a greater number of pounds to market to be exchanged for INR. and vice-versa.

Equilibrium Exchange Rate
• DD & SS schedules for British pounds are combined in the following fig. for a given moment in time.



• At an exchange rate of INR 85, the qty. of pounds dd > ss of pounds for sale. {Shortage of pounds at that exchange rate}
• At an exchange rate of INR 86, the qty. of pounds dd < ss of pounds for sale. {Surplus of pounds}
• Equilibrium exchange rate is INR 85.5 because this rates equates qty. of pounds dd with ss of pounds for sale.

Change in equilibrium exchange rate

- four possible changes in ~~each~~ market conditions that can affect this rate.
- Exchange rate varies because banks that serve as intermediaries in foreign exchange market adjust the price at which they are willing to buy or sell a particular currency in the face of sudden shortage or excess of that currency.

1. Increase in demand schedule
2. Decrease in demand schedule
3. Increase in supply schedule
4. Decrease in supply schedule.

▸ Factors that influence Exchange Rates

- factors that cause supply & demand to change i.e. can influence a currency's spot rate:

$$e = f(\Delta INF, \Delta INT, \Delta INC, \Delta GC, \Delta EXP)$$

where e = percentage change in the spot rate

ΔINF = change in the differential between Indian inflation & foreign country's inflation

ΔINT = change in differential between Indian interest rate & foreign country's interest rate

ΔINC = change in differential between the India income level and foreign country's income level.

ΔGC = change in government controls

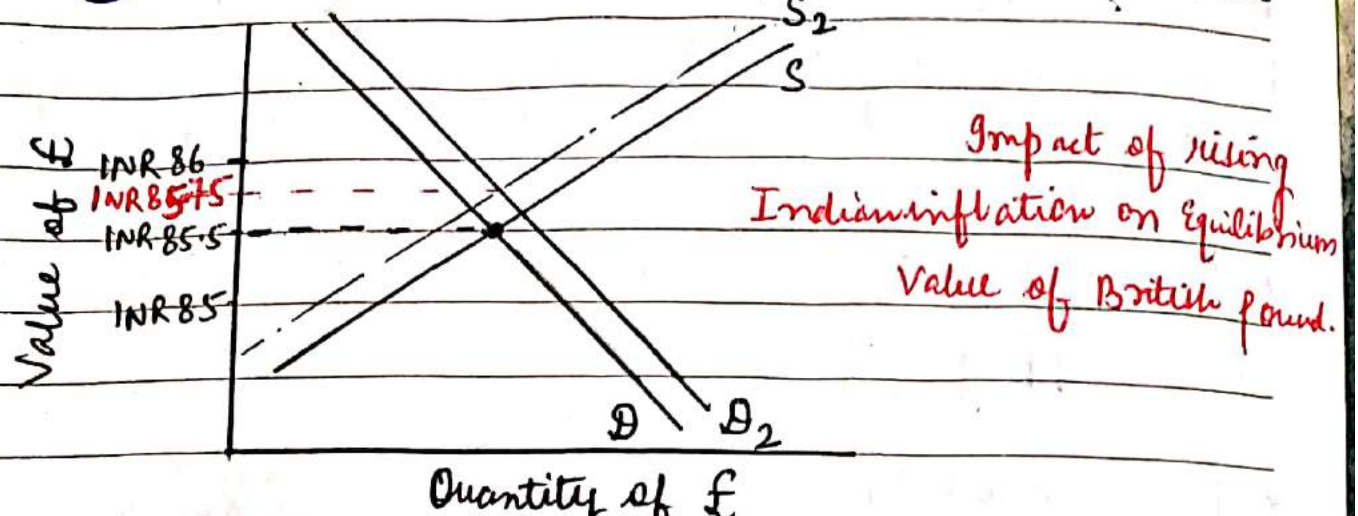
ΔEXP = change in expectations of future exchange rates.

(a) Relative Inflation Rates

- Suppose, Indian inflation rate suddenly ↑ed while British inflation remained the same.
- ↑ in Indian inflation cause Indian consumers to buy more British products instead of Indian products.
- At given exchange rate, ↑ in Indian dd for British goods, ↑s the Indian dd for British pounds.
- Also, ↑ in Indian inflation — ↓s the British desire for Indian goods — ↓s the supply of pounds for sale at any given exchange rate.

- In the following figure, At previous eqm exchange rate of INR 85.5, there will be now shortage of pounds in foreign exchange market.

7



↑ Indian dd for pounds and ↓ supply of pounds for sale together put upward pressure on the value of pound. ∴, new equilibrium value is INR 85.75. If British inflation ↑ed (rather than India's inflation), the opposite dynamic would prevail.

(b) **Relative Interest Rates**

- change in relative interest rates affect investment in foreign securities → influences dd & ss of currencies → thus affects eq^m exchange rate.

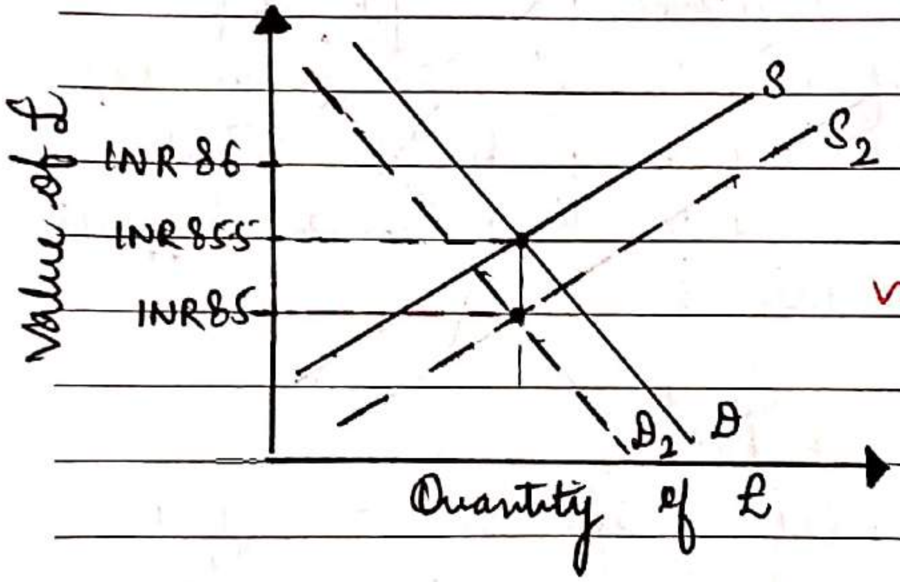
- Assume that India's & British interest rate are initially equal.
- Then India's ~~int~~ interest rate ↑s while British rates remain same.
- India's investors would likely reduce their dd for pounds, because India's rates are now more attractive than British rates.

(8)

- India now becomes more attractive for Britishers to invest excess cash so SS of pound for sale by British investor ↑s.

- Inward shift in dd & outward shift in supply of pounds

- Thus, equilibrium exchange rate should decrease as depicted in following figure.



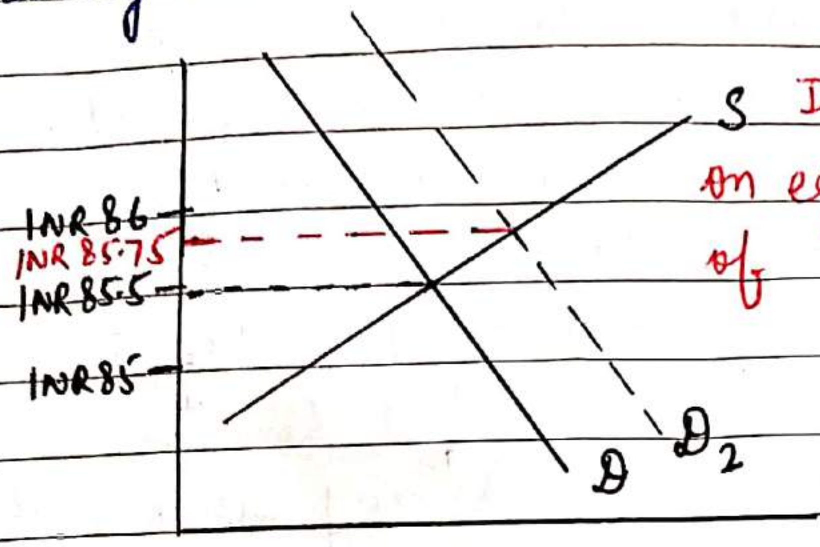
Impact of Rising Indian Interest Rates on Equilibrium value of British pound.

(c) Relative Income levels

- Income can affect amount of imports demanded it can also affect exchange rates.

- Assume India's income level rises substantially while ~~India's~~ British income level remains unchanged.
- DD for pounds will ↑ shifting dd curve outward reflecting India's increase in income & ↑ dd for British goods.

- pounds for sale is not expected to change.



Impact of rising Indian Income levels on equilibrium value of the British pound.

(d) Government Controls

- Govt. of foreign countries can influence the equilibrium exchange rate in the following ways:
  - (i) Imposing foreign exchange barriers.
  - (ii) imposing foreign trade barriers.
  - (iii) Intervening (buying & selling currencies) in the foreign exchange markets
  - (iv) affecting macro variables such as inflation, interest rates, & income levels.

(e) Expectations of future exchange rates

- like financial markets, forex market react to any news that may have future effects!

- Impact of favorable expectations

Many institutional investors (such as commercial banks & insurance companies) take currency positions based on anticipated interest rate movements in various countries.

forex: investors may temporarily invest in Canada if they expect Canadian interest rate to ↑s, because this may cause further capital flows into Canada, which could place upward pressure on Canadian dollars value.

- Impact of Unfavourable expectations

Similarly, speculators can place downward pressure on a currency when they expect it to depreciate.

NOTE: In reality, the dd & SS schedules can be affected by several factors simultaneously. In the previous section, examples demonstrate how change in a single factor can affect exchange rate. Each factor can be assessed in isolation to determine its effect on exchange rate ~~in isolation~~ while holding all other factors constant. Then, all factors can be together fully explain exchange rate movements.

Reference: Jeff Madura

SUMMARY OF HOW FACTORS AFFECT EXCHANGE RATES

Trade-Related Factors

- Inflation differential → Indian DD for foreign goods
- Income differential → Indian DD for foreign goods / Foreign DD for Indian goods
- Govt. Trade Restrictions → Foreign DD for Indian goods

Indian DD for foreign goods → Indian DD for foreign currency

Foreign DD for Indian goods → Supply of the foreign currency for sale

→ EXCHANGE RATE BETWEEN THE FOREIGN CURRENCY & THE INR

Financial Factors

- Interest Rate differential → Indian DD for foreign securities
- Capital flow Restrictions → Indian DD for foreign securities / Foreign DD for Indian Securities
- Exchange Rate Expectations → Foreign DD for Indian Securities

Indian DD for foreign securities → Indian DD for foreign currency

Foreign DD for Indian Securities → Supply of the foreign currency for sale

→ EXCHANGE RATE BETWEEN THE FOREIGN CURRENCY & THE INR

....../....../2020