International Economics

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Lecture No. # 08

In today's Lecture, we will discuss about the flexible exchange rate Regime, which is prevalent since 1973. Before that as we discussed in the last lecture, we had a fixed exchange rate Regime. After the inception of this Regime, at the when it was decided at the Breton Woods conference in 1944. The reason, why most of the countries wanted reform in the international monetary system was the problem, which we discussed last time, the nth country problem. The nth country problem is as follows that If you have n countries, then you would have n minus one independent exchange rates; inadvertently U.S played the role of the nth country; the nth country problem also tells you that, the if a country like U.S has a balance of payment deficit, then the other countries would have a balance of payment surplus; inadvertently U.S as I said, played the nth country role. So, you find that till the end of the sixties, U.S started running very high deficits in its balance of payments.

Now, what U.S wanted was that the other country should appreciate their currencies to count this high balance of payment deficits. Germany and Japan which were running balance of payment surplus were reluctant to appreciate their own Currencies; in fact, they were expecting that U.S should depreciate its own currencies. As a result the entire monetary system was in doldrums; it was passing through difficult phase; and in 1971, this system of fixed exchange rate or the Gold exchange rate system failed; and every country now wanted to float their Currencies; floating would mean that you have flexible exchange rate regime, where the exchange rate would change according to the changes in demand and supply of foreign exchange

Now, let me explain the flexible exchange rate regime by using simple diagram, where I would have on the x axis demand, and supply of foreign exchange, and on the y axis I will have the exchange Rate.

So, in the flexible exchange rate regime.

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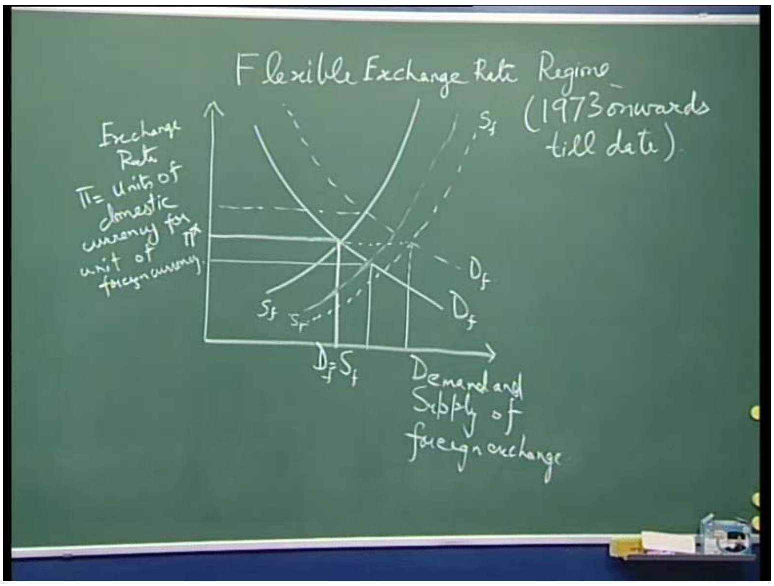

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Now, this is the diagram, where on the y axis, I have the exchange rate denoted by pi, which is units of domestic currency for a unit of a foreign Currency. So, it would mean, say for example, you have one U.S dollars equivalent to say 40 rupees; that is being depicted on the y axis on the x axis I have demand and supply of foreign exchange.

Now, under the flexible exchange rate or the Floating exchange Rate, which was put into practice from 1973 onwards, the exchange rate was determined according to demand and Supply. And the equilibrium exchange rate was where the demand would cut the supply of exchange Rate. This was the equilibrium exchange rate, where demand of firm exchange would be equivalent to the supply of foreign exchange. Now in this freely floating or flexible exchange rate regime, if there was an increase in demand for foreign exchange, pi would increase; the exchange rate would increase; say one U.S dollars which was rupees 40 would now become 50 Rupees. If there was an increase in Supply, the exchange rate would come down one U.S dollars, which was rupees 40 would now become rupees 20.

So, if the pi increases, there is appreciation of the foreign currency or depreciation of the domestic currency; if the pi goes down, then it means that, there is depreciation of the foreign currency, and appreciation of the domestic currency. Now here you see that, demand and supply would determine the exchange rate; this would also show that, if country is adopted the flexible exchange rate regime, then you can have an independent monetary policy; in case of fixed exchange rate regime, that independent monetary policy was undertaken by the monetary authorities, but they do did not have any independence regarding that.

To explain this point, let me go back to this system where you had a fixed exchange rate regime. If it was a fixed exchange rate regime, and if there was an increase in demand for foreign exchange, then the the governments or the central bank has to intervene to maintain the this pi star exchange rate. So, to maintain pi star, it has to supply this much of foreign exchange to have parity in the exchange rates. Now, this would mean that, the reserves with the central bank would go down. Now, if the reserves of the central bank would go down, this would mean that there will be a reduction in the money supply

] So, you cannot have an independent monetary policy in case of the fixed exchange rate regime, but in the case of the flexible exchange rate regime, the demand and supply would determine the exchange rate; there is no need for interventions on the part of the central bank; this would also mean that, central banks in theory, should not maintain foreign exchange reserves for determining the exchange rates. So, in the case of the flexible exchange rate regime, demand and supply would determine the equilibrium exchange rates. But what has been the practice in reality? Now from 1973 onwards, you see that when counties adopted the flexible exchange rate regime, most of the countries have a central bank, and central bank have been accumulating reserves. This would mean that, most of the countries have not been following flexible exchange rate indoor too.

In other words, when you're talking of the flexible exchange rate regimes, they are not. In fact, flexible exchange rate regime, they are somewhere in between the fixed and the flexible exchange rate regime. I am going to write the different regimes, which different countries have been following under the flexible exchange rate regime. So, under the flexible exchange rate regimes, you can have an adjustable peg; you can have a managed float; you can have an optimum currency area you can have a crawling peg; you can have an exchange board; you can have target zones. Now, I have numbered certain exchange rate regimes, which fall under the flexible exchange rate regimes. They are the adjustable peg, managed float, optimum currency area, crawling peg, exchange board, and target zones.

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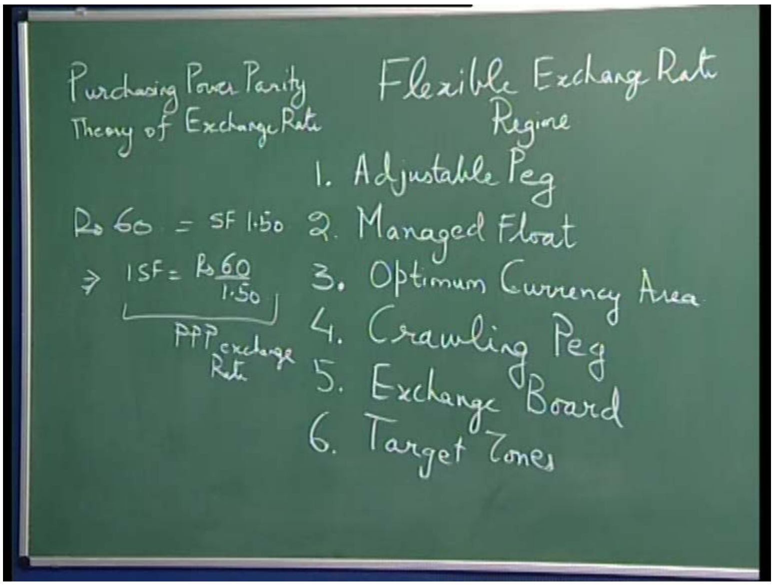

Now, let me explain each one of them; now in the adjustable peg, the exchange rate moves according to certain parameters in the economy; if the domestic inflation rate is greater than the foreign inflation rate, it would mean that the currency would depreciate. For example, in the case of adjustable peg, I want you to understand the purchasing power parity theory of exchange rate. Now, what is a purchasing power parity exchange rate? Now, the purchasing power parity exchange rate is that, for the same basket of goods, how much do you pay in your country? And how much do you pay in the other countries? So, for example, if a good in India costs rupees 60, and for the same good, if this Swiss price is Swiss francs 1.50, then this would mean that one Swiss franc would be equal to rupees 60 by 1.50. This is the purchasing power parity exchange rates.

So, for the same basket of goods, how much do you pay in India? How much do you pay in the other countries? In that way, if you relate the currencies, you will get the purchasing power parity exchange rate. Related to this is the purchasing power parity theory of exchange rate, which says that you are real exchange rate; it is denoted by R.

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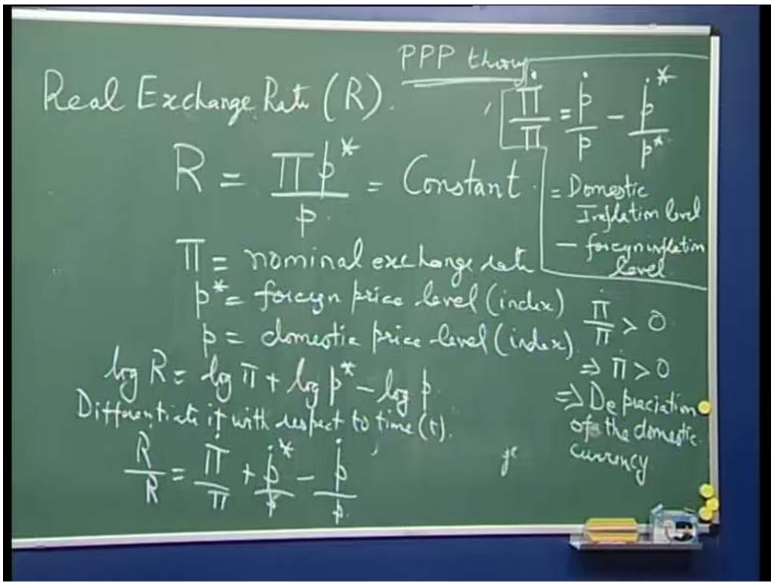

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So the PPP theory, purchasing power parity theory says that, the real exchange rate which is defined as R is nominal exchange rate multiplied by the foreign price levels divided by domestic price levels; this is a constant; now, if you take the logs on both side, you'll get log R is equal to log pi plus log p star minus log p; now, if you differentiate this with respect to time, we get R dot by R which which is change in the real exchange rate pi dot by pi plus p dot star by p dot by p minus p dot by p; these are all rate of change.

So, this means, this is the rate of change of the real exchange rate; this is the rate of change of the nominal exchange rate; this is rate of change of the foreign price levels which is called the inflation in the foreign country; this is the rate of change of the price in the domestic country. So, this is the domestic inflation levels. Now, what the purchasing power parity theory is saying that this real exchange rate is a constant; if this is a constant, so the left hand side would become 0. As a result, the purchasing power parity that you'll get would be, pi dot by pi will be equal to…

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So, according to the purchasing power parity theory, because R is a Constant, so, the rate of change of the real exchange rate this is 0. So, you would get the rate of change of the nominal exchange rate to be equal to the differential inflation levels. Now, why I discussed about this theory? Because I wanted to explain the adjustable peg; now, most of the countries which followed the adjustable peg; they would change their nominal exchange rate according to this theory; that means that, if the if a country has a differential inflation levels, then the exchange rate would change. So, if the domestic inflation level was greater than the foreign inflation level, then pi dot by pi would be greater than 0; this would mean pi dot would be greater than 0; this would mean that, you would have a depreciation in your in the domestic - Depreciation of the domestic Currency.

So, this adjustable peg countries use, to or are there are still some countries which follow the adjustable peg, wherein they change their exchange rate according to different parameters of the economy. In this case, it is the inflation level. India from 1973 onwards, till 1993 followed the adjustable peg; here, the peg was in terms of the multiple currencies. So, the reserve bank of India use to decide, which are those countries, which whose currencies will form the basket of currencies?

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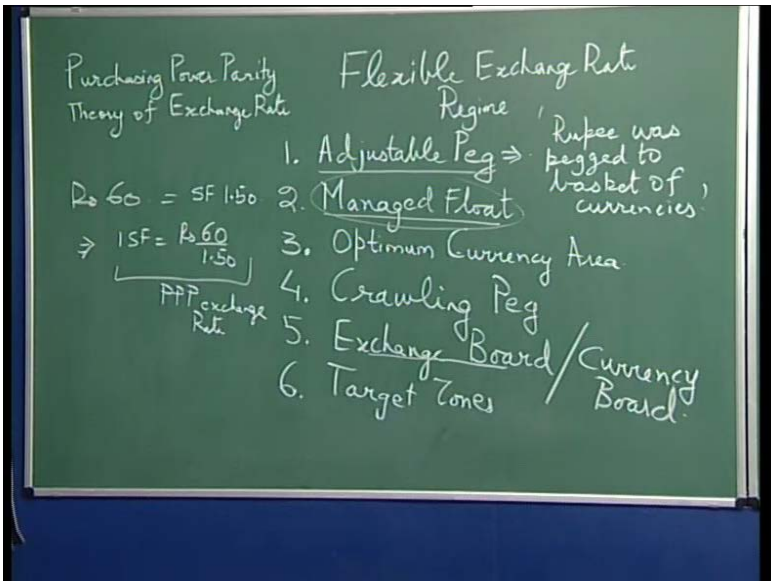

So, our R Rupee was pegged to basket of currencies. And, whenever there was a change in these currencies, say for example, in U.S dollars, U.K pounds, Swiss francs, French francs, German marks, Japanese yen, the Rupee use to change accordingly. So it was a weighted average of the host of currencies. So, this came under the flexible exchange rate regime, but it was not purely a flexible exchange rate regime, where the Rupee was changed due to changes in the different values of the foreign currencies. So, India followed the adjustable peg system from 1973, till 1993, and after that we had the Floating exchange Rates

Now, the second exchange rate regime; that most of the countries follow is the managed float; India follows the managed float system, which is also called dirty float. And you can in the managed float the reserve bank of India intervenes for various reasons to reduce speculation, to reduce volatility to have an orderly system, and to follow the the the fundamentals in the economy; there is no pre-announced path in case of the managed float. So, this is how managed float defers from the adjustable peg. In the adjustable peg, you change your currency according to different parameters of the of the economy; so there is a pre-announced path that you follow.

In the managed float, the government intervenes or the reserve bank of India intervenes, for various reasons that I spelt out. But there is no pre-announced path; it would it would intervene to reduce speculation; it would intervene to reduce volatility; it would intervene, when the foreign investors suddenly take out money from India. So to maintain stability in the economy, the the government intervenes from time to time, but there is no preannounced path that it will follow a path as in case of the adjustable peg. So, when India started following the floating exchange rate regime, the regime is called the managed float. Why managed? Because the government intervenes to provide stability in the exchange rate, but there is no preannounced path

I will come back to optimum currency area. But let me discuss the crawling peg; in the crawling peg also, you see that the currency is the currency changes, according due to changes in various parameters of the economy. It is crawling, because there are very few instances where the government intervenes or there is central bank intervenes. And the reasons are similar as the adjustable peg; they may be due to changes in the growth rates; they may be due to changes in the domestic and foreign interest rates; they may be changes in the domestic and foreign inflation rates. So crawling peg are like the adjustable pegs, but there are few interventions.

Then you have the exchange board. Now, exchange board is more tilted exchange board or I would say that, it is called the currency board. The currency board is tilted more towards the fixed exchange rate regime; it is like a fixed exchange rate regime, but here the domestic money supply is totally bagged up by the foreign exchange reserves. The reason that you have this is, because you want to ensure that, the market players have confidence in your currency. Generally at the time of the crisis, the the the market players tend to sell domestic currency and buy foreign currency. And if some country does not have enough of foreign exchange, then you suddenly see that the the there is so much volatility in the exchange rates.

Now, to ensure that the countries have enough foreign exchange, currency board works like a fixed exchange rate regime, where the domestic money supply, domestic currency is 100 percent bagged up by the foreign currency. For example, Argentina, till 2001, followed the currency board. Now, we have the optimum currency area and the target zones. What is an optimum currency area? Optimum currency area is like having a common currency for a set of countries; now, under the optimum currency area, the participating countries tend to have a fixed exchange rate regime among themselves.

Now, there are certain set of conditions which need to be satisfied for optimum currency area. The closest region which follows the optimum currency area is the European union; the European Union which has in the which is defined as a group of 27 countries, follows a common currency called or uses a common currency which is called the Euro. So the closest region which comes which follows the optimum currency area is the European Union. Now, since the mid-fifties the European countries have move towards attaining the optimum currency area.

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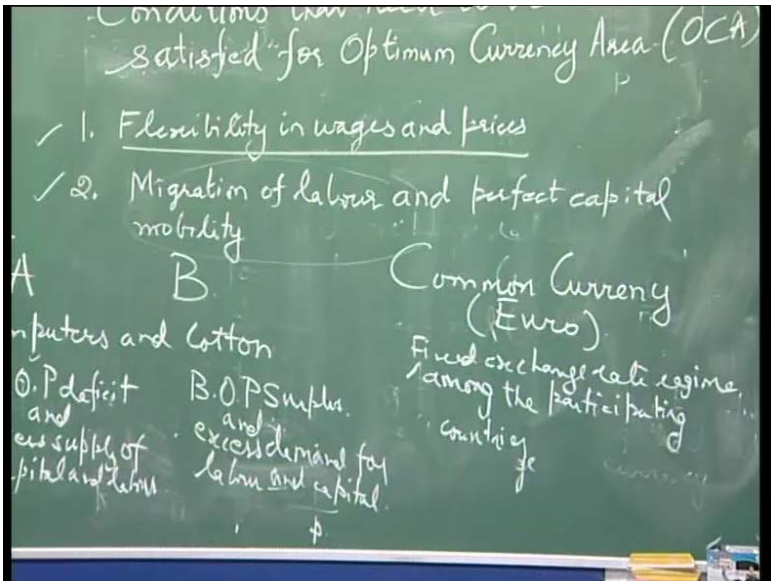

Now, let me define, what are the conditions under which you have an optimum currency area? (No audio from: 30:05 to 31:20) Now, in the optimum currency area, there are certain conditions that need to be satisfied. As I explained in the optimum currency area, you would have a common currency for a group of participating countries. In case, you have flexibility in wages and prices, and you have migration of labor and perfect capital mobility then only this optimum currency area will be successful.

Let me give you an example; they'll think of two countries, A and B; there are two countries A and B; both producing computers and cotton. Now you find that, in both the countries, the demand for computers come down and the demand for cotton goes up; now in country A, you would have a balance of payment deficit, and excess supply Supply of capital and labor; while in the other country, you would have a balance of payment surplus, and excess demand for labor and capital. So, both countries were initially producing computers and cotton; then, kindly the demand for computers went down, and demand for cotton went up; as a result in country A, you would have a balance of payment deficit, and an excess supply of capital and labor; while in country B, you would have a balance of payment surplus, and an excess demand for labor and capital.

Now, in case of the optimum currency area every participating country has a fixed exchange rate regime; now, if this situation had to be countered, then the exchange rate would move ah would move, would change. But that is not possible in case of the optimum currency area, because you have a fixed exchange rate regime which you have to maintain. So, then how do we tackle a situation where you have a balance of payment deficit, and an excess supply of capital and labor? Now this is possible, if you have flexibility in wages and prices; if there is an excess supply of capital and labor, then the rate of return on capital and wages would go down in country A, and they would go up in country B.

The second possibility is that, given that the wages and prices have to be maintained at certain level; if there is an excess supply of capital and labor, capital and labor would move from country A to country B; for that, there should be a free flow of labor and capital. So, in the case of European Union, it is nearest to the optimum currency area when I say nearest, because they do not follow the entire set of conditions; in case of the European Union, they want they wish to have price stability. So, the they they cannot have very high changes in wages and prices, but what they do have in the European Union is free flow of labor and capital; so the optimum currency area or you can have a common currency, say Euro.

If by definition, you have a fixed exchange rate regime among the participating countries. And you have these set of conditions which would be satisfied for having an optimum currency area when I say a fixed exchange rate regime… So, in the European Union you have 27 countries which are a related with each other through this fixed exchange rate regime. For all nonparticipating countries the Euro floats. So, Euro would float against the U.S dollars, but you for any country which is a part of the European Union, you have will have fixed exchange rate regime within those participating countries. So you see that, in the optimum currency area…

So, we are discussing the different exchange rate regimes under the flexible exchange rate regime; So, we are discussing the different exchange rate regime under the flexible exchange rate regime, which many countries have been following since 1973, and we are discussed about the adjustable peg, managed float, optimum currency area, the crawling peg, the currency board. And last is the target zones where which works like the optimum currency area, where the countries have certain flexibility in changing their exchange rates. So, the exchange rate can vary within a band. So these are this is called the target zones

So, we see that these different exchange rate regime; they are not exactly floating exchange rate; if it were floating exchange rates, then most of the countries would not have the foreign exchange reserves. But the fact that most of the countries have foreign exchange rate, foreign exchange reserves, and the fact that most of the central banks intervene, you find that most of the countries follows follow these different exchange rate regimes. Now, I was talking of the optimum currency area. I want to discuss more about the European union; now, European Union is the highest form of economic integration; there are different forms of economic integration; one is the free trade area; the other is the customs union; the third is the common Market; and the fourth is the economic union; economic union is the highest form of Integration.

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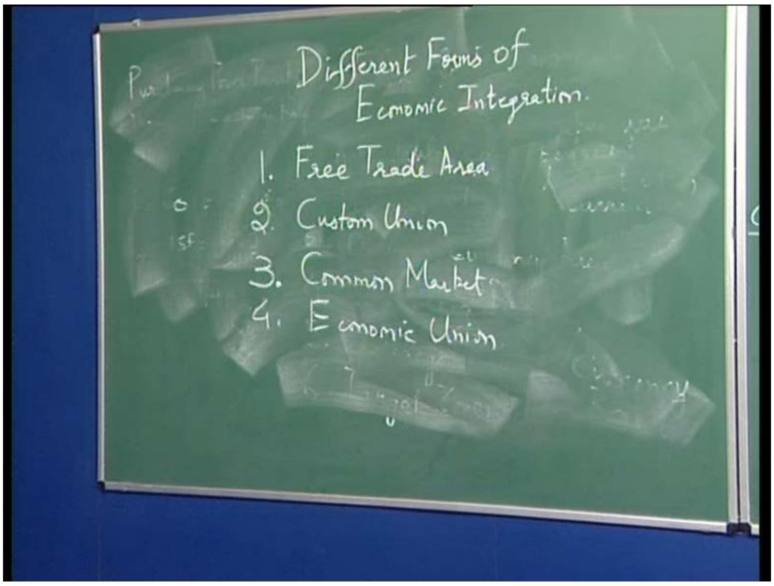

What Europeans have achieved is the economic union? I am going to write these different forms of economic Integration. Now, these are different forms of economic Integration; the first is a free trade area; now, if a group of countries come together, and form a free trade area, then it would mean that, you would import each countries product at 0 tariff levels; at 0 duties; the tariff rates are duties which are imposed on the imported good. Now if you come together, if a group of countries come together, and decide that you will have 0 tariffs among each other countries products, then that is called a free trade area. In the free trade area, you can maintain or each participating country can have different tariff rates for non-participating countries. Countries in south Asia, for example, India, Sri Lanka, Pakistan, Nepal, Bhutan, and Maldives have formed a south Asian free trade area, since 2004.

The next is the Customs union; in the Customs common external tariff for all non-participating countries. That is Customs union. common Market; you not only have 0 union, you not only have 0 tariff for each countries products, but you maintain a tariffs for each countries goods; you not only have a common external tariff, but there is a free flow of goods and services. In the economic union, you not only have a common Market, but you have common economic policies among countries. What Europeans have achieved, it is a it is a 27 member countries; most of the countries or are in the in the Europe they have achieved economic union.

So, they have common set of economic policies among themselves. In the economic union itself, you can reach some higher forms. For example, in the European Union, you'll not only have common economic policies, but you have one central bank which is called the European central bank. Then, you have one parliament which is called the European parliament which is which is at present is in Brazils. So you not only have a common economic policies, but you have one institution for the entire 27 countries; you have one parliament for the entire 27 countries; now, what Europeans have achieved is the highest form of economic Integration; and in this you they have also achieved monetary union which is a common currency which is which we have already discussed is Euro. So, they have a common economic policy; they have a common currency; they have one central bank; they have one parliament among themselves.

So, what we could learn from this exercises, because most of us are the developing countries; we have we are only at the first form of economic integration. So, what we could achieve in future is the customs union; we could have a common market among the south Asian countries; and we could reach the the higher stage of economic union among ourselves. The second option is that, we form or we try to be a member of the European union; now to be a member of the European Union, there are certain criteria; that criteria is defined by the Maastricht Treaty. Now, I am going to write down the criteria under which a country can be a part of the European Union.

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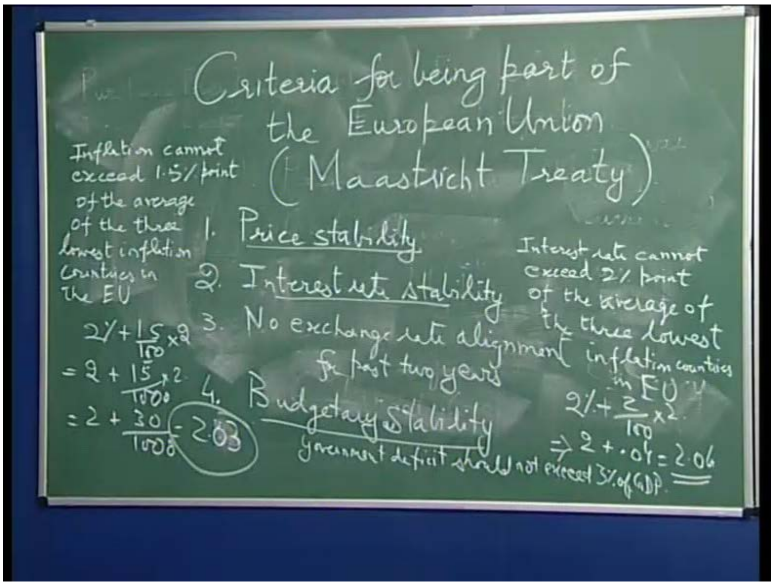

Now, there are certain criteria for being part of the European Union. So, if Indians want to be part of the European Union, then these set of criteria have to be followed; the first is price stability price stability would mean that, the country should have low inflation. Now they have defined a number for it, and that number is that, your inflation cannot exceed 1.5 percentage point of the average of the 3 lowest inflation countries in the European Union. So, when I talk of price stability the inflation cannot exceed 1.5 percent, of the average of the 3 lowest inflation countries in the European Union. So, for example, the average of the three lowest inflation countries is say 2 percent, they you add another 1.5 percent of this 2, which is… So, your inflation level should not be more than 2.30; beyond 2.30. So, if India has an inflation of, say 4 percent, it has to be brought down below this number, 2.30.

The second is about the Interest Rates Stability; that means, countries who have to be part of the European Union should have low Interest rates. Again there is a number; the condition is that, the Interest rate cannot exceed 2 percent point. Now, when I talk of Interest rate stability, Interest rate cannot exceed 2 percentage point of the average of the 3 lowest inflation countries in European Union. Again if the average of the 3 lowest inflation countries is, say 2 percent this is the average inflation levels a of the 3 lowest inflation countries; you add another two percent of this, which is 2 plus 0.4. A small correction here; this should be 15 by 1000. So, it will be 30 by 1000. It will be point 2.03; and this would be 2.04. So, your Interest rates cannot exceed 2 percent point of the average of the 3 lowest inflation Country in European Union. So, your Interest rates on long term bonds cannot exceed 2.04; this is about the Interest rate stability.

Then, you have the countries which are, which have to be or are trying to be part of the European Union. There should not be any exchange rate alignment for the past two years; there should not be much changes in the exchange rate for the past two years; and the fourth is about the budgetary stability. This talking about the government deficit, and the government debt; government deficit should not exceed 3 percent of the GDP. So, the government deficit should not exceed 3 percent of the GDP, and government debt should not exceed 60 percent of the GDP. So, according to the Maastricht Treaty, that would be bringing budgetary stability.

So, these are the set of conditions which need to be satisfied, if some country wants to be part of the European Union. Now, for example, Turkey, who already follows all the criteria under the Maastricht treaty, is still not part of the European Union. Because besides this, there are certain other conditions which have also been put by the European Union countries; that is you should have more democratic institutions in your country. So turkey, which follows all the economic criteria, falls short of the political criteria; that means you should have free democracy or you should have more democratic institutions in your country. So, the European Union which is a set of 27 countries, have reached the highest form of economic integration

What is so surprising is that, when most of the countries followed the flexible exchange rate system, it was thought that it would bring orderly arrangements in the entire world. But that was not to be. You see, throughout the 20th century, you have a balance of payment crisis; you have currency crisis; you have banking crisis; you have balance of payment crisis. So, even when the the Europeans were thinking of having one currency, at that time they faced a crisis currency crisis. So, in the next Lecture, we will be talking about, why do these crisis occur. Be it the currency crisis or the balance of payment crisis, and the banking crisis, and we would define it. And we would also gives we will also give models of different currency crisis and banking crisis. And then finally, we will discuss what reforms are needed in the international financial architecture. So, that, one can reduce vulnerabilities of each country, and we have an orderly arrangement among countries, thank you.