International Economics

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Lecture No. # 30

Good afternoon today we are going to discuss how absorption approach can be complimented with the elasticity approach. We will work on the earlier equations on the changes in incomes (no audio 00:37 to 02:11).

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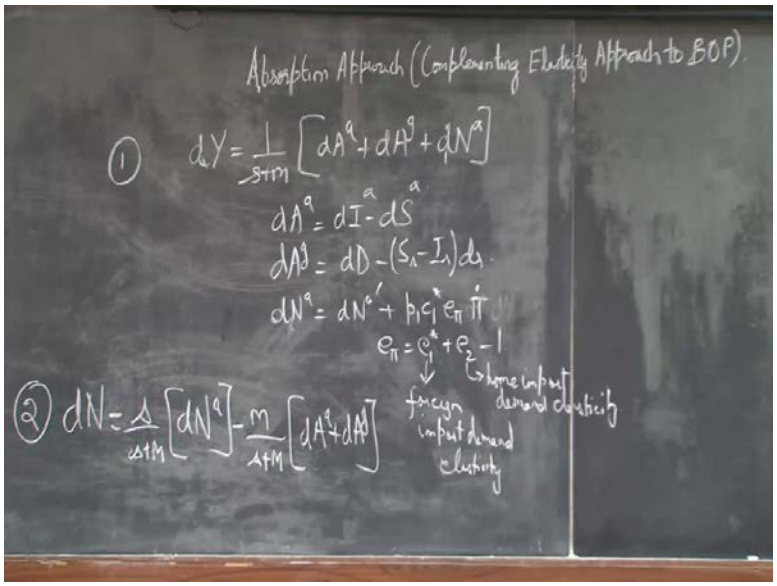

So, how absorption approach can complement the elasticity approach, this can be done by working on these two equations. Please recall that the first equation is the changes in income as a function of the autonomous change in expenditures, the policy induced change in expenditures and autonomous change in net exports. Now the only difference that we do now is that we divide this into two components one is purely autonomous and the other is the one which relates to the elasticities. So, if you had recalled d N was p 1 c 1 star e pi pi dot e pi is e 1 star plus e 2 minus 1 this is foreign import demand elasticity, home import demand elasticity. It will be proper to write this as foreign import demand elasticity, because you may get confused and like whatever is your exports, the demand I yesterday called it as export demand elasticity, but when I went back I thought that probably for your understanding it will be better that you write foreign export demand

elasticity is foreign import demand elasticity. So, this is what we have been maintaining, this is what you have been writing there was some confusion yesterday. So, keep writing this as foreign import demand elasticity. So, either you call it this or you can call this as home exports demand.

Sir (( )) different meanings (( )) is not the import (( ))

Yeah. So, it is always better to call it foreign import demand elasticity. And in this model we are only considering only two trading partners that is you and the foreign country. As I said if you have to extend it beyond two trading partners, then the first thing that you need to do is work on this exchange rates, it will not be a bilateral exchange rate it will be a weighted average of the bilateral exchange rates. And then you need to work out the total imports, so import demand elasticity. To add to this yesterday I said that you can fit an econometric model to workout elasticitys. So, if you have import data you can take that as yourimports as your dependent variable as a function of the price of imports, you can have other set of variables which have an impact on imports.

For example, your incomes then prices, price of imports, price of the other goods and incomes. So, you can build econometric model and then take the logs on both sides, so that the coefficients that you get are the elasticities. So, that will be a one simple way of measuring the import demand elasticities. You can do it for different products you can work out the elasticities for different products disaggregated, you can get figures for the different products for example, petroleum product. Your import demand elasticity it is highpoxize that it will lie anywhere between 0 to say 1, the reason being even if the price of petroleum increases, such is the energy demand in India and china that not much change will be there in the demand even if the prices go up. So, that is a matter of testing and you test it using the appropriate data and workout the elasticitys.

So, the only change that I have done here is now d N a is d N a dash autonomous change in net exports and something which is induced because the elasticity is come into picture, this is the MLR term Marshall Lerner Robinson term which is e 1 star plus e 2 minus 1.

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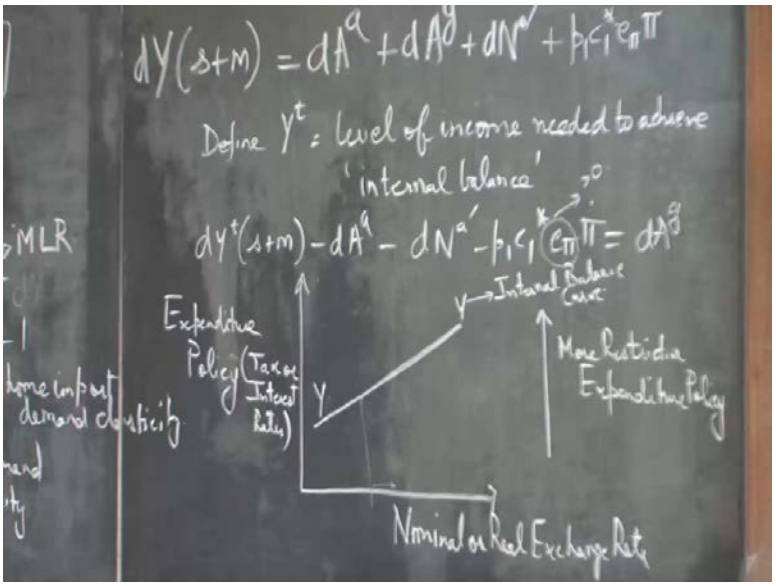

So, then d Y into s plus m is d A a plus d A g plus d N dash plus p 1 c 1 star e phi phi dot (no audio 07:54 to 09:32).So, working on this income and defining Y t to be the level of income needed to achieve the internal balance, you can work out a relationship between the policy induced expenditures and the other terms. So, if you are plotting expenditure policy on the y axis that is taxes or interest rates and nominal or real exchange rates on the x axis, then you will get a curve align which shows different combinations of expenditure policy and nominal exchange rate which will give you internal balance. So, please have a look at the relationship between policy induced expenditures and the exchange rates. Given that e phi is greater than 0; that means, M L R condition holds and increase in the exchange rates, here shows a reduction in the policy induced expenditures.

Reduction in the policy induced expenditures means more restrictive expenditure policies; that means, you can reduce expenditures only by increasing the tax rates or the interest rates. So, it is not that we are plotting d A g and nominal we are plotting expenditure policies taxes or interest rates. So, if phi goes up this policy induced expenditure comes down, this can only come down if the tax rates or interest rates go up. So, therefore, it is an upward sloping curve it shows all combinations of expenditure policy and nominal or real exchange rate which will give you internal balance. What is the economic interpretation? If there is devaluation there will be a switch in expenditure from foreign to home goods, as soon as it is done it leads to an increase in incomes

If the incomes go up the only way to bring back your income back to equilibrium or to have an internal balance is to increase the tax rates or the interest rates or adopt more restrictive expenditure policies. So, therefore, you see an upward sloping y curve which shows different combinations of expenditure policy and exchange rate which will give you the internal balance. So, this is the internal balance curve.

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Now please have a look at this each point shows combinations of expenditure policy and nominal exchange rate which will give you internal balance how? Say you are here you depreciate your currency, so there will be a switch in expenditure from foreign to domestic goods right and you know what happens here see here if the d N a term increases. What does it mean? It leads to an increase in incomes, the only way the incomes can come down is to have increase the interest rates, which will decrease the investments and which will decrease the incomes through the keynesianmultiplier or increase the tax rates which will reduce the consumption expenditure ,which will reduce aggregate demand, which will reduce incomes. So, that is why it is upward sloping.

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Remember d A g this d A g is d D minus S r minus I r, d r and this d is G minus T, this is policy induced expenditures. So, the tax rates, the interest rates, they are the tax r ate is part of the fiscal policy, interest rate is part of the monetary policy. So, this is the internal balance curve.

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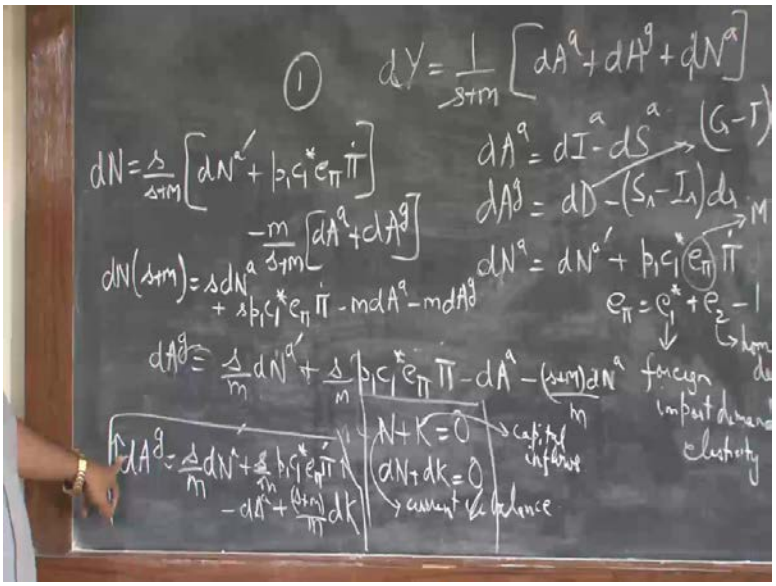

Lets get the external balance curve. How do you get the external balance curve? From the second equation you work on this, so d N is equal to s, s plus m, the autonomous component, the induced component and then the expenditures. So, again if you have to relate expenditure policy with nominal or real exchange rates (no audio 15:13 to 16:38). Look at this equation it is policy induced expenditure, it is related to autonomous change in net exports, the induced change in the net exports because of the changes in the elasticitys and the exchange rate. Autonomous changes in expenditures d A a plus s plus m by m, d k, now if N is the current account balance K is the capital inflows. This is the current account balance this is the capital inflows, the sum should be equal to zero, so d N plus d K is equal to zero.

So, you get d A g to be equal to this, now see the relationship between phi dot and d A g if there is depreciation of the currency it would lead to an increase in expenditures.

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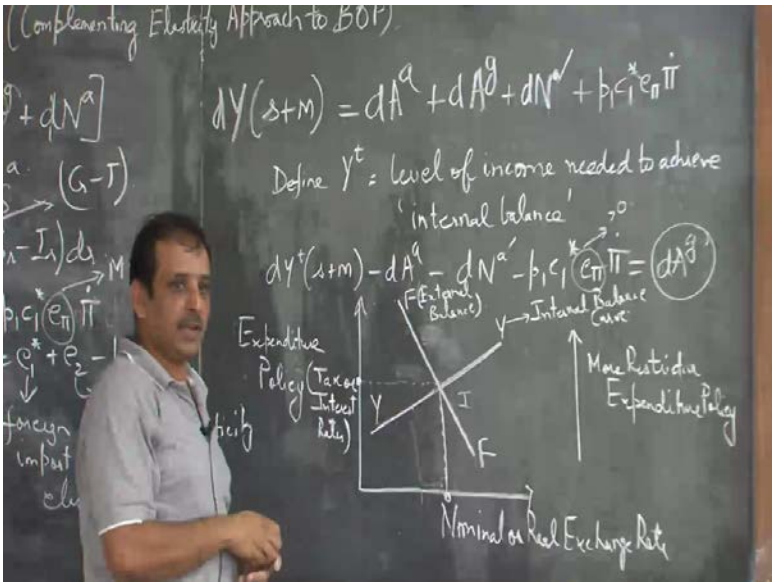

So, then you should have less restrictive expenditure policies for maintaining the external balance, this equation shows different combinations of the expenditure policy and nominal exchange rate which will give you the external balance. And it will not be upward sloping it will be downward sloping, this is the F F curve this is the Y Y curve.

Now, see the economic reasoning if there is a depreciation of the exchange rate, it would lead to an improvement in the current account balance provided M L R condition holds. So, you would see a surplus in the balance of payment the only way that this surplus can be curved is to have a less restrictive expenditure policies, reduced taxes reduced interest rates, increase the expenditures, increase the incomes, incomes would increase the imports, so that surplus which was created can be curved to 0. So, as you increase the exchange rate you need to reduce the tax rates or interest rates or in other words you should have less restrictive expenditure policy to maintain the external balance.

So, F F is the external balance curve it shows all points of the expenditure policy and nominal or real exchange rate, where in you will have an external balance remember external balance is whenever you have a balance of payment equilibrium. So, then the optimal levels of expenditure policy and nominal exchange rate which will give you internal and external balance is this much and this is the exchange rate which will give you both external and internal balance.

Now, let us think of a situation where there are shifts taking place in the Y Y and the F F curves. Now, what I want to ask you is that if all points on the Y Y curve shows internal balance, what if some point is above Y Y curve. Will you have unemployment in the economy or will you have inflation in the economy, remember as you move up you adopt more restrictive expenditure policies. So, any point above the yY Y curve will show you unemployment, because it is more restrictive expenditure policy any point below would show inflation, any point above the yY Y curve will show a balance of payment surplus, any point below the F F curve will show a balance of payment deficit.

Why because if you are above F F curve more restrictive expenditure policies, higher taxes, higher interest rates, reduces income, reduces imports, so you have a balance of payment surplus. So, if the economy is somewhere here right you have an unemployment in the economy and you have a balance of payment surplus.

So, we will come back to this point that if your economy is out of this equilibrium is there a way to reach back to a point where you will have both internal and external balance. For that to happen someone should be assigned a job, someone should be assigned a job of maintaining expenditure policy, someone should be assigned a job of maintaining the nominal exchange rate or changing the nominal exchange rate.

So, there are two instruments one is the exchange rate, the other is the expenditure policy and you have two policy targets you have internal balance and you have external balance. The assignment rule is that the number of instruments should be at least as large as the number of policy targets.

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Which one.

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This one.

This was autonomous change in net exports, now there is a purely autonomous net export term and there is another term which is induced, because of the changes in the exchange rate because yesterday we saw that d N is a function of this p 1 c 1 star e phi phi dot. So,

you have one component which is purely autonomous now, and there another component which is a function of e phi phi dot.

Sir(( )) e 1 star (( ))

Absolutely. So, all this is with the assumption that M L R holds all this will hold if M L R holds. So, the number of instruments should be as large as the number of policy targets.

Now, let us go back to what we are discussed earlier remember when we discussed interdependent model then we came across two shocks which happened in the economy. One was an increase in autonomous expenditures right, which led to increase in incomes, which moved beyond your full equilibrium income. So, you were out of the internal balance and then when you increase expenditures it also led to deficit in the economy, because increases in expenditure leads to increase in incomes, increase in incomes leads to increase in imports, so it led to deficit in the economy. We resolved it by saying that whenever you increase expenditures the only way to bring back the economy back to equilibrium, that is by having both internal and external is to bring back, cutback on the expenditures.

So, expenditure changing policy is led to the changes in expenditures, which brought back our economy back to equilibrium, because if you reduce expenditures incomes will come down, your deficit which was earlier there it would be curved and by changing one instrument you were able to bring back your economy back to equilibrium, you could focus on two targets. This is what we did earlier and this I did by showing you two equations one was this the other was d N which was s plus d N a minus m by s plus m, d A a plus d A g, this was not the interdependent model this was what happens if this goes up, so this goes up this goes down the only way to bring it back is to reduce expenditures. So, that this comes down and if this comes down this will go up and you are back to equilibrium. By changing one instrument you could focus on two targets what I am going to show was that this is an exception.

The general rule is that the number of policy instrument should be as large as the number of policy targets. This question was there in the mind of Professor Mendel who looked at this question, which he called it as an assignment problem. The assignment problem was to work out an instrument which has the most or the greatest impact on the targets. So,

you choose those instruments which have the greatest impact on the targets. So, let us see how we can resolve the questions that he may had in mind the assignment problem, assignment problem the first thing is you have to decide about the appropriate instruments for the targets. So, the assignment problem is deciding about the appropriate instruments for the policy targets.

Now given this diagram let us bring back that shock that we discussed earlier, and we say that there is an increase in autonomous expenditures, if there is an increase in autonomous expenditure, please have a look at this equation d A a changes this goes up this will go down . So, what do you think will happen to the Y Y curve and what is the economic interpretation? So, we are bringing back the earlier days, we are bringing in the shock, the shock is increase in autonomous expenditures .What do you think will happen to the Y Y curve? What will happen to the F F curve what will happen to the expenditure policy? What will happen to the nominal or real exchange rate? So, think for a moment and then you will get an answer.

So, when d A g goes, you can see that there is a negative relationship between autonomous expenditures and policy induced so, then if this policy induced expenditures have to go down, the only way it can go down is to adopt more restrictive expenditure policies right. So, you would see an upward shift of the Y Y curve, what about the F F curve, the equation for the F F curve is this, d A a changes, d A g is there. So, if this goes up d A g goes down, if d A g has to go down you have to adopt more restrictive expenditure policy, so the F F curve also shifts up. So, then this is the new equilibrium point where you will have both internal and external balance. If there is an autonomous change in the expenditures, the only way to bring back the economy back to equilibrium, that is having both internal external balance is to adopt more restrictive expenditure policies or increase taxes or interest rates.

If you do this you will bring back your economy back to internal and external equilibrium, this is the earlier result that we showed, that if you increase expenditures, your incomes go up, you have a deficit, if you have to bring back deficit to 0, if you have to bring back your incomes back to the full employment level of output, then you need to reduce expenditures. How you can reduce expenditures? By increasing tax rates or interest rates. So, this particular thing which you can see from here shows that only by changing one policy instrument, you are able to achieve two targets this is an exception

that we discussed, that time I did not say that this is an exception, but now you can see that this is an exception because you have two targets just by changing the expenditure policy you were able to achieve both internal and external balance.

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Absolutely, because you can see that this expenditures they are part of this equation, as well as the change in trade balances. And remember when you change expenditures it tends to have an impact on incomes, but it also has an impact on balance of payments. So, that is the reason. Now, what I want to you to understand is that, what is the economic interpretation that as the autonomous change in expenditures goes up; you need to reduce the policy induced expenditures why? This happens because if you increase expenditures incomes go up and if you have to maintain internal balance the only way you can do it is to reduce expenditures, policy induced expenditures because that will bring back the income back to equilibrium. So, that is the reason that you see an upward shift of the Y Y curve. So, this term, this term, this term. these are like terms which will shift the curves while if you change the exchange rate you move along the Y Y curve right. Here if you see this equation, if you increase expenditures, it will increase incomes when incomes go up, imports go up, you have a balance of payment deficit.

The only way that you can bring down your deficit is to reduce the expenditures policy induced expenditures. So, that your incomes go down, your imports go down and you are back to equilibrium. And therefore, you see an upward shift of the F F curve. So, the new equilibrium point where you have both internal external balance is this, at the end you see you have to adopt more restrictive expenditure policy, to curve the increase in expenditures which took place initially. Any questions on this, because if you are clear on this then I will go to the second shock, which happens in the economy and you can think of the second shock. The first shock that we discussed was an increase in expenditure. The second shock is the switch in expenditure from foreign to domestic goods or you can think of switch in expenditure from domestic to foreign goods.

~~Sir~~

~~Yes~~

~~(( ))~~ ~~Autonomous~~ ~~(( ))~~

Increase in expenditures, if the only way to have both internal external balances is to cutback your expenditure and this is an exception, because by changing one instruments you are achieving two policy targets. Generally the rule is that the number of policy instruments should be equal to the number of policy targets and then this Mundell in the sixties was thinking about, which instrument should be aligned with which target. And the answer that he found was that, you find that instrument which has the greatest relative effect on the target, as an appropriate instrument. So, this is what we are discussing.

Now, think of the second shock, the second shock a switch in expenditure from domestic to foreign goods. Please write down switch in expenditures from domestic to foreign goods.

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Absolutely d N a prime, can you think when there is a switch in expenditure from domestic to foreign goods. What was the appropriate response? So, what will happen in the economy can you think of when you switch your expenditure from domestic to foreign goods. What happens to that d N a dash term.

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It decreases. So, remember what happens in the economy, two effects incomes goes down and then.

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What happens to the current account?

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Current account balance goes down right why? Because remember the two equations one was this, other was this. So, if this term goes down there is a deficit and the incomes also go down. So, you have a problem in the economy you are out of internal balance, you are out of external balance. What should be the appropriate policy. So, that you bring back your economy back to equilibrium? You switch back your expenditures from foreign to

domestic goods, that was because if you do that than your incomes go up, your current account balance improves right.

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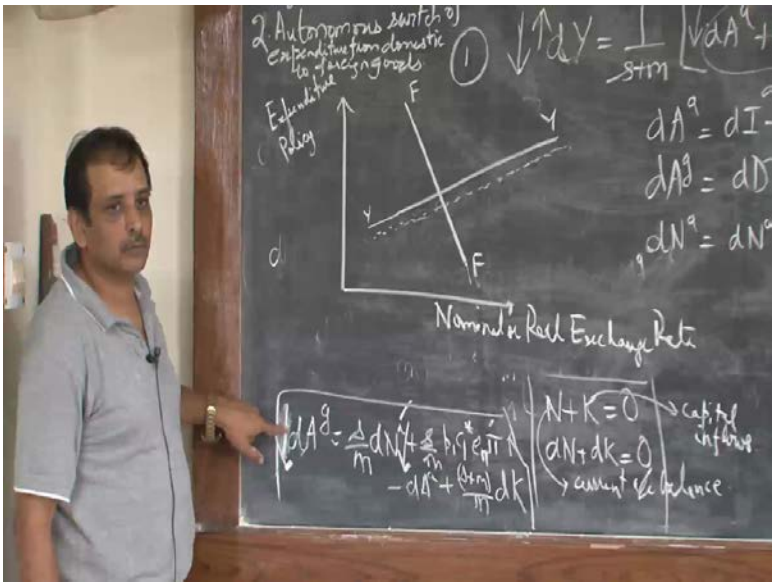

How would you show this here in the diagram? So, let us make another diagram. So, that thing become clear, (no audio 40:18 to 41:08) there is an autonomous switch of domestic, of expenditures from domestic to foreign goods. So, look at first equation this goes down. So, this has to go up, if this has to go up, what do you think will happen to the Y Ycurve expenditures have to go up? What do you think will happen to the tax rates or interest rates they have to go down? So, the Y Y curve will shift down. What will happen to the F F curve? I will come to the economic interpretation of why when d N a dash goes down, why do you increase d A g? But now we are only looking at one aspect that is shifting of the curves and these are all shift factors. Now look at this equation which is the equation for the F F curve which shows different combinations of expenditure policy and nominal or real exchange rate. Look at this equation d N a dash So, d N a dash has gone down, please have a look at this equations. What do you think will happen to the F F curve? this goes down, now how can this go down.

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More restrictive expenditure policies or increasing tax rates or interest rates. So, what do you think will happen to the F F curve?

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Right ward shift. So, look at this what is happened the expenditure policy remains as it is, but you depreciate your currency to bring back your economy back to equilibrium right. So, by changing one policy instruments you are you are able to bring back your economy back to equilibrium, this is the case that we discussed earlier. You can see when there is an autonomous switch of expenditure from domestic to foreign good. The response to this is that you switch back your expenditures to bring back your economy back to equilibrium; that means, you depreciate your currency; that means, you switch your expenditure from foreign to domestic goods and this can be seen here right. Please go back home and try this.

The third shock is an increase in labor force like India you have now skilled manpower which has gone up, so increase in labor force. The fourth shock is that there is an increase in capital inflows, India is growing, so people are eager to invest in India, so the fourth shock is that there is an increase in capital flows. Now you need to work out, what impact will it have on the F F and the Y Y curves. And what changes need to happen, so that your economy is back to equilibrium. so that you achieve both internal and external balance. So, this is what we are going to discuss in our next class. Thank you so much.