Economics of Banking and Finance Markets
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Lecture - 57
Lags and Policy Effectiveness

Hi everyone, welcome to this session. In the previous session we have derived aggregate demand curve from IS LM model. In this session we will continue our discussion using this aggregate demand curve, and then see what is going to happen with to the aggregate demand curve, when there is increase in government expenditure (that is, fiscal policy) and due to changes in monetary policy.

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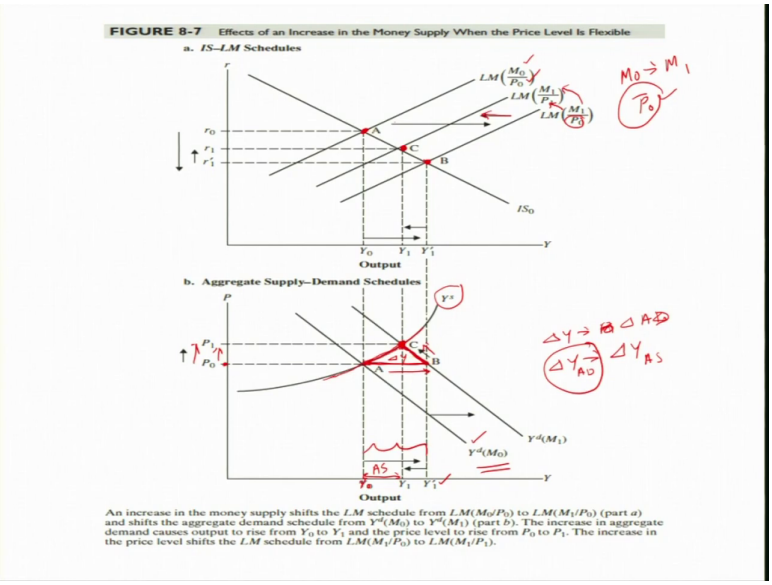

And subsequently we will also discuss some of the related concepts called lags in policy effects. So, before that let me start with the aggregate demand curve.

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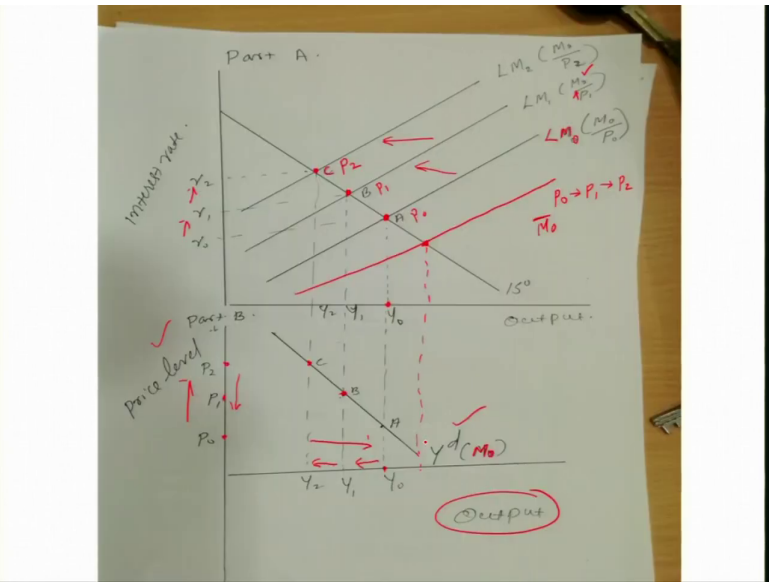

As you can see that this is the one that we have derived in the previous session; this is the downward sloping aggregate demand curve when price level changes. This is the demand curve, this Yd corresponding to M0, as we have derived in the previous session. So, in this case, to begin with this, assume that the initial equilibrium position is this one; that means, money supply is M0, and the price level is P0.

Again, you know that if we assume fixed price, when money supply increases from M0 to M1, then you can say that the curve will be shifting rightwards, and the new equilibrium position is going to be B.

So, in this case we when we assume price level is same, then actually the aggregate demand curve is going to shift from A to B. So, in this case what we have seen that due to an expansionary monetary policy, the aggregate demand curve has shifted from A to B; this position; that means, from Y0 Y^{i}_{1}. So, this is the increase in aggregate demand: ΔY.

Then the issue is that, at the given price level P0, you can see that aggregate demand is this much. This much is aggregate demand; ΔY denoted with here, the aggregate demand part this much.

But you know at this price, look at the firms they are not willing to increase output, they are not willing to supply this much output of ΔY. The ΔY is the change in aggregate demand.

But this ΔY (that is, aggregate demand) also should be matched with aggregate supply, but the producers (firms) they are not willing to increase output equivalent to this ΔY as they are already at equilibrium, but they will do only at a higher price.

So, then firms they gradually increase the price then the price level will increase from P0 to P1. They are having an upward sloping supply curve. So, when we are having fixed price level of P0, the implicit assumption of aggregate supply curve that this Ys is a horizontal curve, a flat curve.

But in the IS -LM model when we relax that assumption and when we make the price level is changing; that means, a flexible price then we are going to see that the aggregate supply curve is upward sloping. So, the Keynesian later derived an upward aggregate supply, but the early Keynesian believed in perfectly elastic (a horizontal aggregate supply curve), but later they revise this one and they agreed with an upward sloping aggregate supply curve.

Here you can see that there is increase in aggregate demand; that ΔY this much, but firms will produce the matching amount only at the higher price. When the price increase; that means, when the price increase, then you can see that this is where they are willing to produce; that means, only at a higher price they are willing to produce more.

So, when there is increase in price level, then you can see that when price increase from P0 to P1 then; that means, the real money supply further decreases; that means, the LM curve is shifting leftward.

Now, the new money supply M1, then curve is shifting from right to left; that means, the new equilibrium position is going to be this. That means, when the price is increasing then, as we have seen in the previous diagram, that the movement will be along the demand curve; that means, the new equilibrium position is going to be C.

The new level of the increase in aggregate demand was this much, the increase in aggregate demand, but when the price level increases, the new equilibrium position is going to be here, and the actual increase in aggregate output is going to be only this much. So, this is the new equilibrium position.

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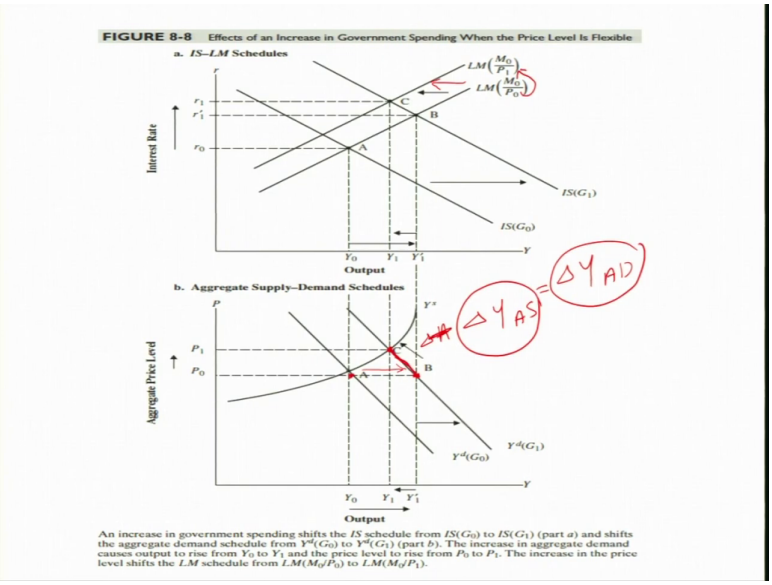

Similarly, what we have seen in this diagram here is that, when there is an increase in money supply you can see that aggregate demand increase, but when firm will respond to this increase aggregate demand only by increasing price. So, as a result you can see that when the price will increase, there will be slight decline in aggregate demand as well. And the firm will be producing output, the corresponding matching amount of output, but at not matching with the full increase in aggregate demand, but at a lower level. Overall, we can see that there is an increase in aggregate supply as well.

And similarly, when there is increase in government expenditure, here also you can assume the same relationship, that means, increase in government expenditure, that is, expansionary fiscal policy will shift the aggregate demand curve, and here the equilibrium position will be from A to B.

But if we assume and again, what we discussed in the previous slide, firms are willing to meet this additional demand only at a higher price. When the price level increase from P0 to P1, but the money supply remaining constant, then you know that LM curve will be shifting leftwards so; that means, at flexible price; that means, we are moving along the new demand curve.

So, this is going to be the new equilibrium output, at this position this new Y aggregate supply equal to finally, ΔY. So, in this diagram and previous diagram, we can see that increase an expansionary fiscal policy and an expansionary monetary policy can increase

aggregate demand as well as aggregate supply in the economy. That means, if an economy at a recessionary stage in the short run, monetary and fiscal policy can be used to increase the level of economic activity.

First, the effect will be on aggregate demand, then the subsequent effect will be on aggregate supply. That means, we can see that fiscal and monetary policy can be used to revive economy or economic activity in the short run, especially when economy is at recession.

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We have seen that the expansionary fiscal policy and expansionary monetary policy is going to benefit economy by increase in aggregate demand and aggregate supply.

But the way in graphically it looks like very simple, but in the real world, it may not be that much easy and straightforward and smooth. So, there are several lags in real macroeconomic economy. So, let us discuss that one by one, and then let us comment on the effectiveness of fiscal and monetary policy to increase aggregate demand and aggregate supply.

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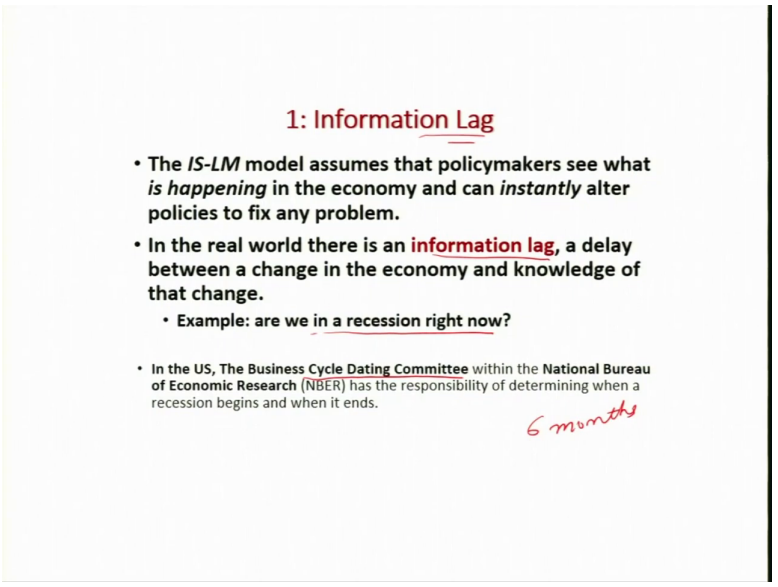

There are several lags; one of the lags is called the information lags. Because in the IS -LM model assume that policy makers see what is happening in the economy and can instantly alter policy to fix any problem. It was so easy for us to use the IS -LM framework; an increase in government expenditure is going to increase aggregate demand, and, as a result, aggregate supply is also going to increase.

So that means, assume we can see policy makers can see what is happening in the economy, but in the real world this is not true; there is information lag; for example, a delay between a change in the economy and knowledge of that change. The monetary policy and fiscal policies have been used to revive the economy, to restore equilibrium in the macro economy especially when the economy is at recession. When the economy is at a recessionary stage, to revive the economy, these policy tools are used in the short run.

Then the question is how do we know that are we in a recession now, whether we are at present in a recession or not? For example, in the US, it is the Business Cycle Dating Committee within the National Bureau of Economic Research has the responsibility of determine when a recession begins and when it ends, they make the formal announcement about the recession business cycle.

They also do research based on the data and research information, and they announce that whether at present economy is going through recession or not. But by the time when we come to know that, maybe there can be a lag, maybe recession might have started almost 6 months

back; that means, already the time laps so; that means, the information lag about the current stage/situation of the economy.

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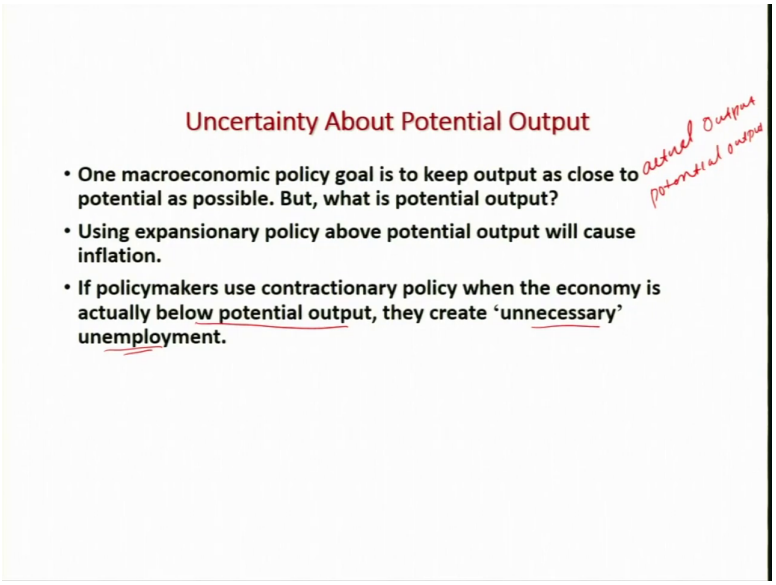

So, that means, again how we determine whether the economy is at a recession or at a boom. One of the two variables that we use: one is actual output; that is the GDP, another one is the potential GDP (potential output). So, the macroeconomic goal is to keep the actual output as close to potential output as possible, but the question here is what potential output is; potential output we identify using macroeconomic model using the trend information.

So, if we are not so clear what is the potential output in tan economy. If we are not so clear, then using an expansionary monetary policy above potential output will cause inflation. Suppose when the economy is below the potential output, if the policy makers use contractionary policy, it would create unnecessary shock in the economy.

For example, without knowing that the potential output is below the actual output and if they use contractionary monetary policy, then it will create unnecessary unemployment. Already economies moving towards unemployment and recession, then a contractionary monetary policy would further lead to unnecessary unemployment.

Some of the debate in macroeconomics was that, in 1930s during great depression, that the Central Bank had used contractionary monetary policy instead of an expansionary monetary policy.

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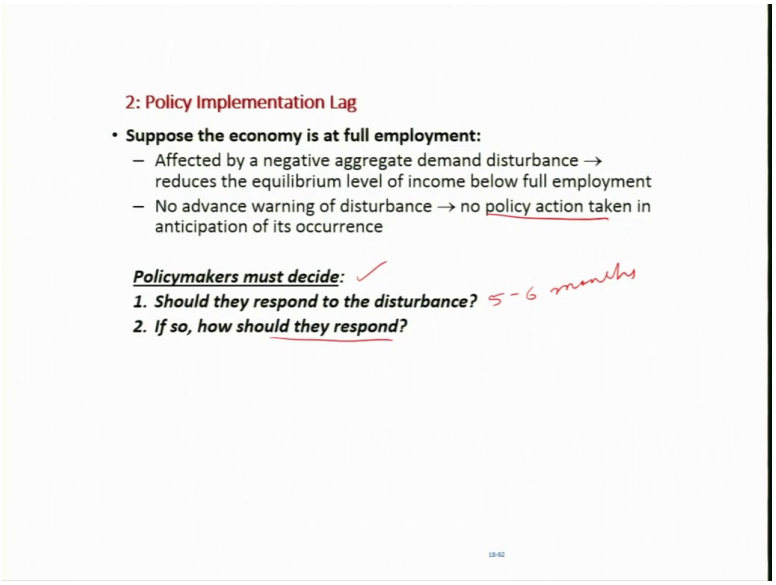

Another lag is policy implementation lag. Suppose the economy is at full employment, and now suppose it is affected by a negative aggregate demand disturbance; obviously, it reduces equilibrium level of income below full employment. So, there is no advance warning of disturbance. So, no policy action taken in anticipation of its occurrence.

So, in this case, suppose there is policy implementation a lag if there is a delay from the policy makers to respond; that means, no policy action is taken in anticipation of its occurrence, that also can affect the monetary and fiscal policy effectiveness.

So, policy makers must decide whether they should respond to the disturbance, and if they take suppose 5 to 6 months for example. So, in that case 5 to 6 months lags are going to affect the effectiveness of fiscal and monetary policy. And if so, if they respond how should they respond, whether with monetary policy or fiscal policy, and what is the magnitude of fiscal policy or monetary policy. The magnitude of the intervention also matters.

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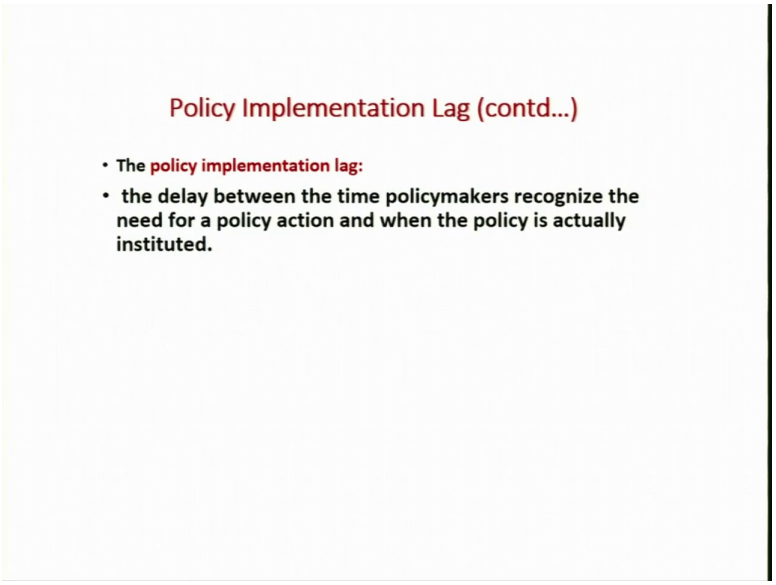

So, to the policy implementation lag, that the delay between the time policy makers recognize the need for policy action, and when the policy is instituted. We can classify the policy implementation lag into two broad categories: one is called inside lags and other one is outside lags.

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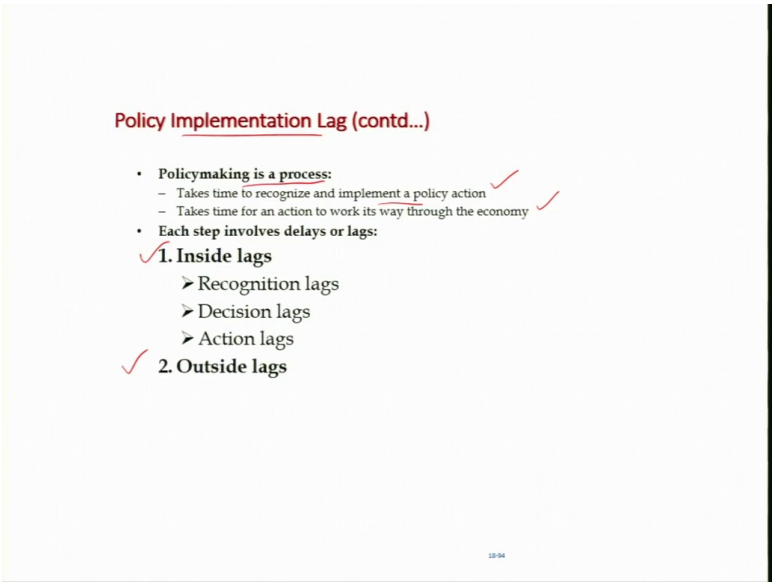

So, policy making is a process that takes time to recognize and implement policy action and takes time for an action to work its way through the economy. So, each step involves delay or lags, one is inside lags and the other one is outside lags.

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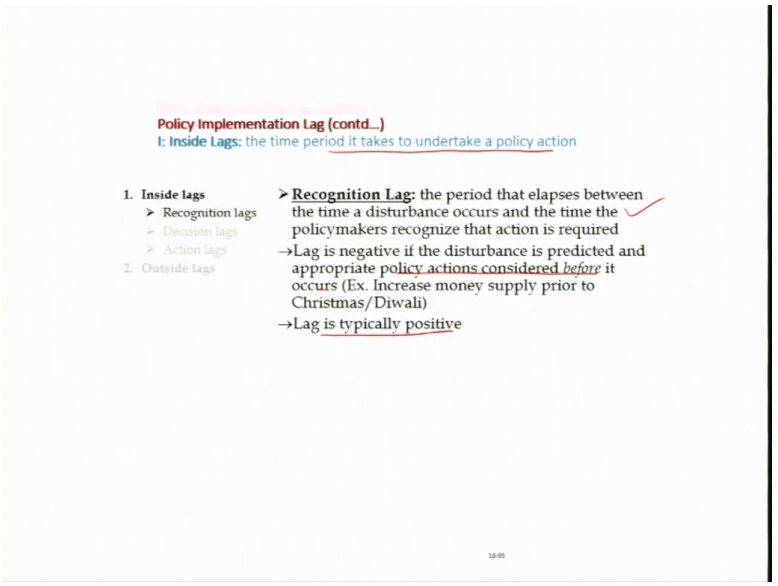

So, let us discuss one by one these lags. So, coming to the inside lags, one is called recognition lags; that means, the time it takes to undertake a policy action right. So, the time, suppose if there is negative lag, that is the disturbance is predicted and appropriate action is considered before it occurs, then its fine.

But mostly there is positive lag, that means, period that elapses between the time and disturbance occurs and time the policy makers recognize that action is required. So, lags typically are positive. By that time, the economy will be already at a recessionary stage then the policy will not make much impact.

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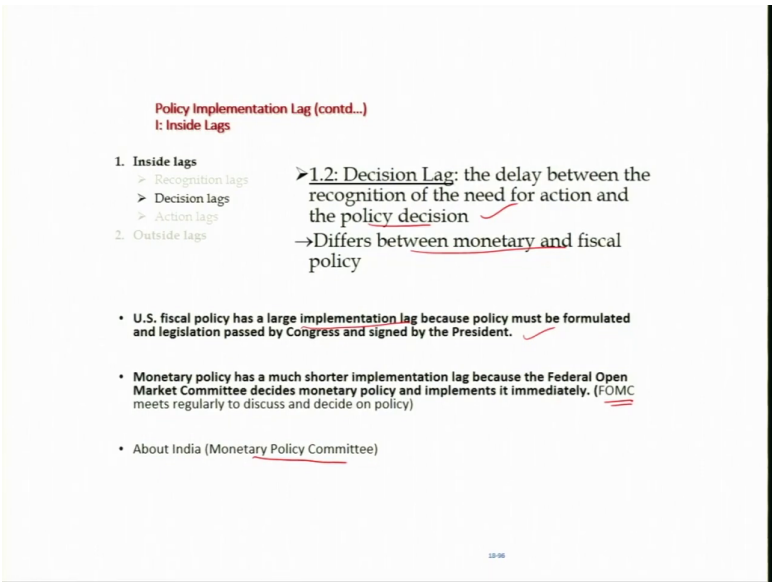

And second inside lag is called decision lag, once they recognize the problem then the delay between the recognition of the need for action and the policy decision. This is another lag called the inside lag, that is called decision lag. It differs between monetary and fiscal policy.

For example, in the US fiscal policy it has several implementation lags, because policy must be formulated, and legislation passed by congress and signed by the president. In contrast to this, you know monetary policy is mainly done by the FOMC they meet 8 times in a year. In emergency, they meet immediately.

So, that they have much shorter implementation lag because FOMC decides monetary policy and implements it immediately; similarly in India the RBI, the monetary policy committee decide the monetary policy. So, the decision lag is much less when it comes to monetary policy as compared to fiscal policy.

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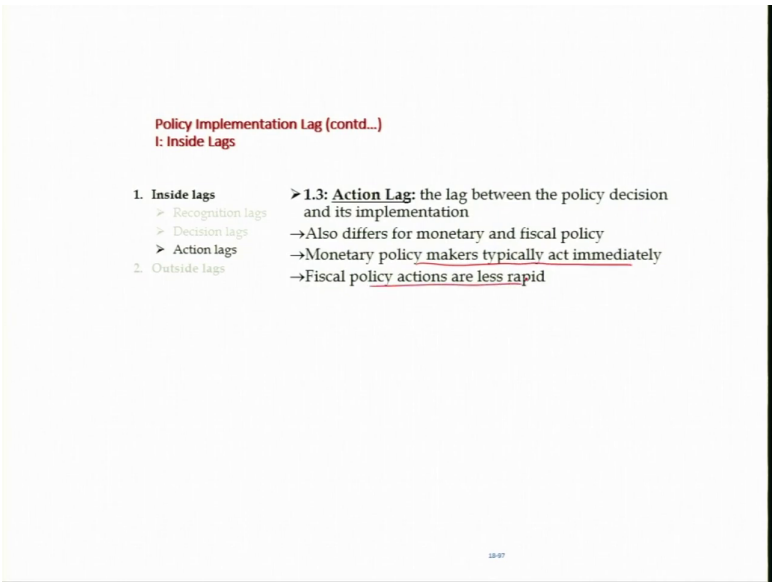

Then comes action lag, the lag between policy decision and its implementation; also differs between monetary and fiscal policy because monetary policy makes typically act immediately, but fiscal policy actions are less rapid.

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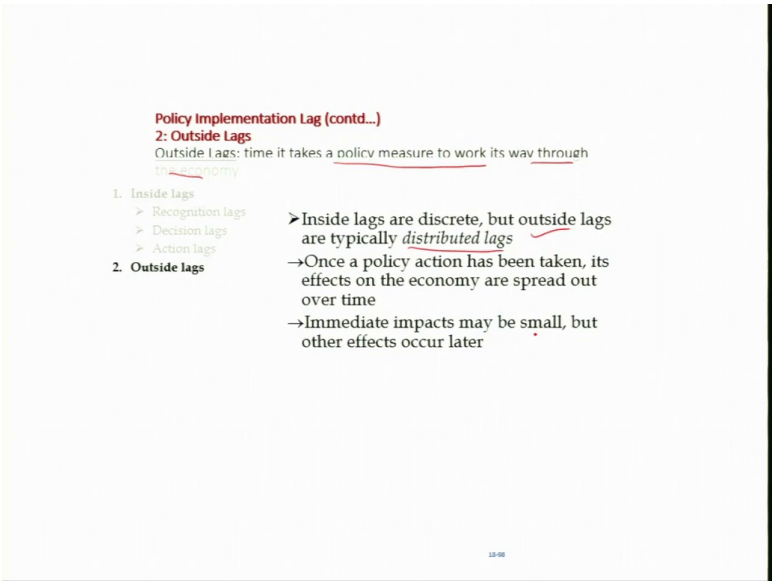

Then comes, the after this inside lag, another lag is called outside lag, outside lag is more theoretical. In fact, because the thing is that the time it takes a policy measure to work its way through the economy; that means, inside lags are discrete, but outside lags are typically distributed lags. For example, once a policy action has been taken its effects on the economy

are spread out over time. So, the immediate impacts may be small, but other effects occur later.

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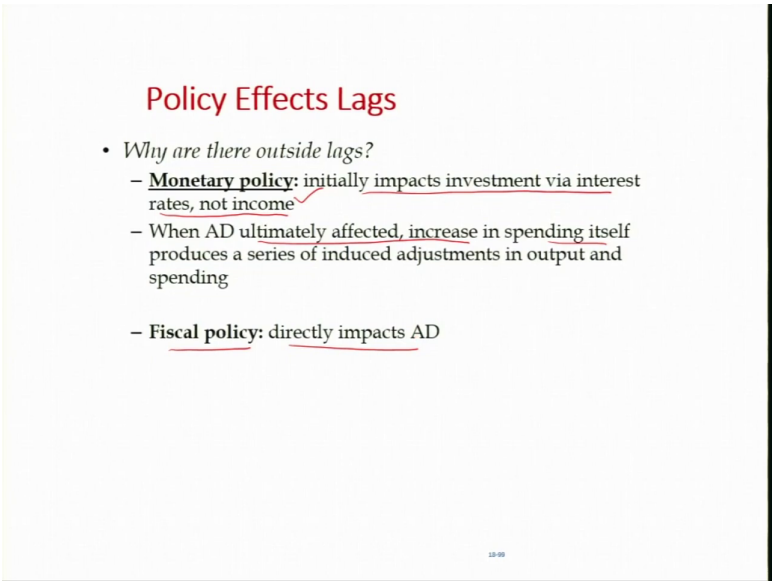

So, let us look at the case of monetary and fiscal policy, in the case of monetary policy the outside lag initially impacts investment via interest rate, not directly on income. So, you we have seen when there is an expansionary monetary policy, it would create a portfolio disequilibrium in its among the households.

And as a result, there will be decrease in the rate of interest and as a result there is increase in investment; then finally, it's going to impact aggregate demand. So, that means, aggregate demand ultimately affected through changes in interest rate and changes in investment.

So, that means, there is a delay, but when it comes to fiscal policy there are lots of inside lags, but the outside lag is very less; because we have seen that fiscal policy directly impact aggregate demand.

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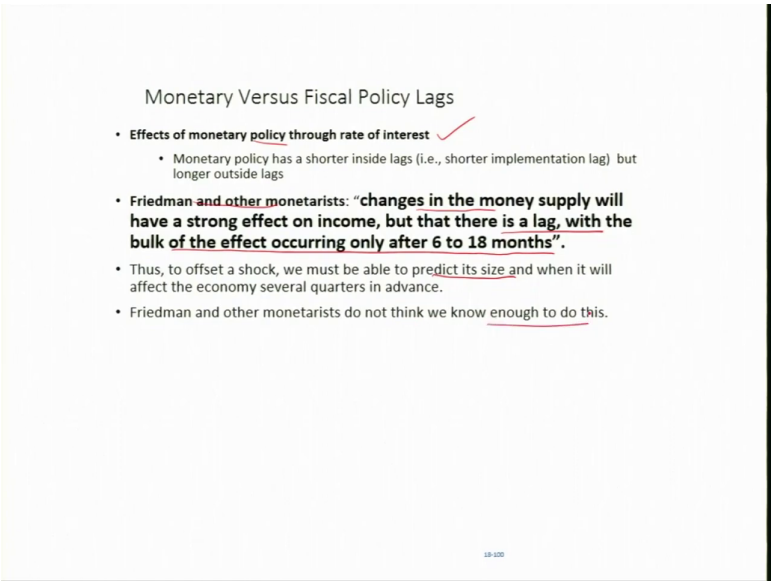

So, outside lag is less when it comes to fiscal policy. So, we have seen that monetary policy, there are more outside lag. Because the channel the transmission mechanism through which it affects takes longer time. For example, Friedman, the Nobel Prize winner and the well-known monetarist economists, his statement I am quoting here: that changes in money supply will have a strong effect on income, but there is a lag with the bulk of the effect occurring only after 6 to 18 months.

So, at the same time, it is very difficult to predict the effects; because Friedman and other monetarists believe that we do not know enough about the economy.

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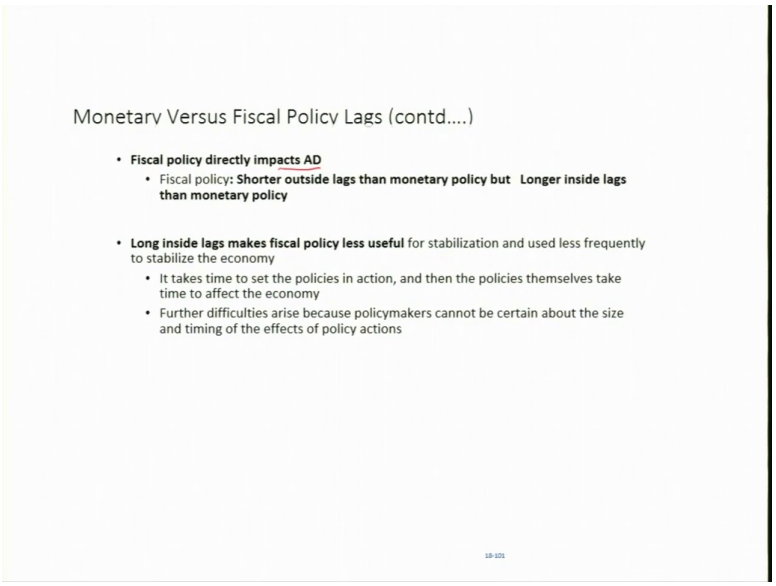

So, about the fiscal policy its impact is direct; that means, its directly affect. So, there is shorter outside lags than monetary policy.

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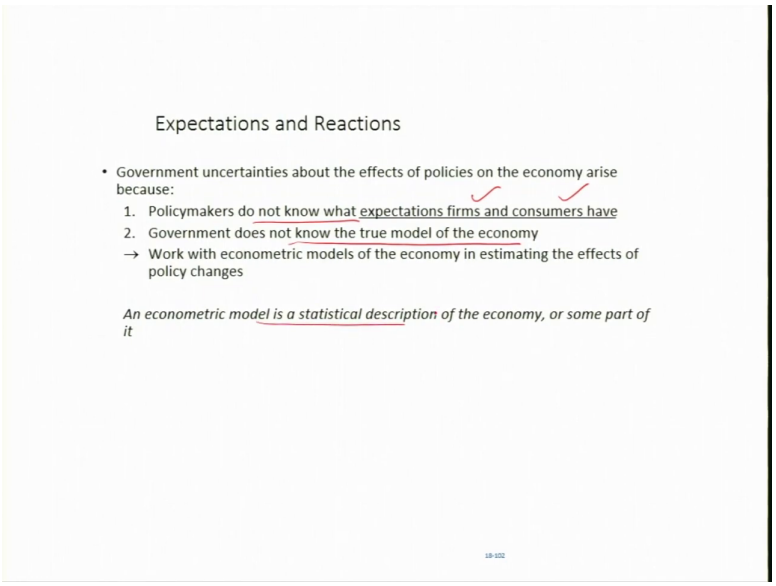

Similarly, there is a expectations and reactions in the economy. So, that not only that the policy makers address the inside lags and come up with the fiscal or monetary policy, in addition, policy makers do not know what expectation firms and consumers have.

Maybe if they come up with an expansionary monetary policy, by the time, suppose what if firms and consumers already anticipated that there is a expansionary monetary policy is coming. So, the using the rational expectation we have seen that economy might have already adjusted to that, then this policy effect is not going to make any impact.

And clearly government does not know the true model of the economy. So, they most often work with the econometric models of the economy in estimating the effects of policy changes. So, econometric model is a statistical description of the economy; that means, only some part of it.

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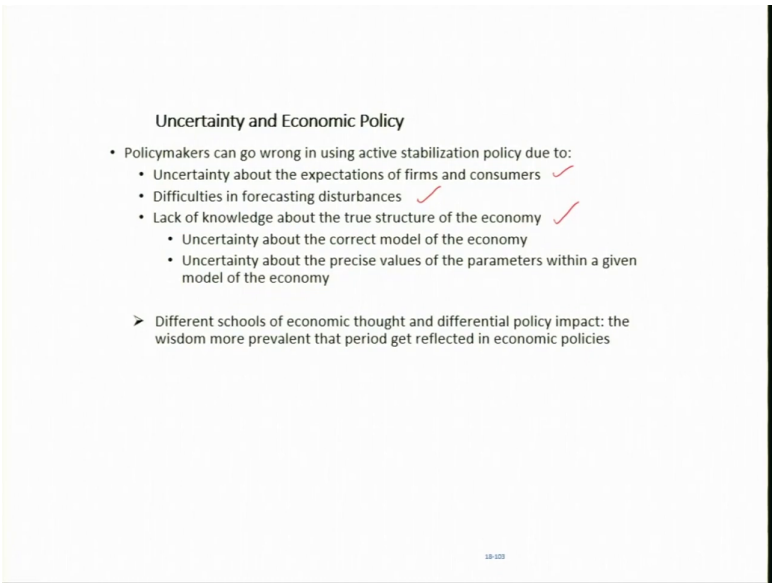

And similarly, there is uncertainty; policy makers can go wrong in using active stabilization policy due to uncertainty about the expectation of firms and consumers, difficulty in forecasting disturbance, and lack of knowledge of the true nature of economy.

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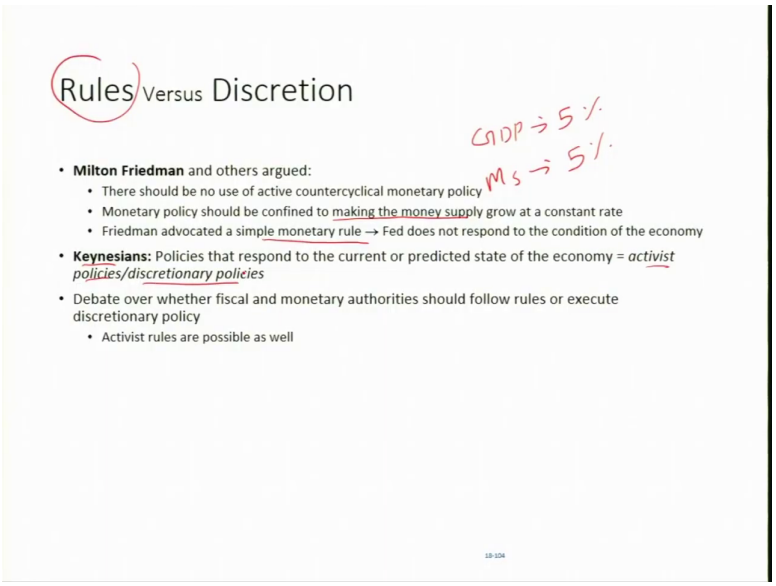

So, in this way, the group led by Milton Friedman, the monetarists believe that there should be a rule based monetary policy, not responding as according to the crisis. For example, Friedman advocated for a simple monetary rule that the constant rate rule; that means, money supply should be increased in proportion to the economic growth. For example, when GDP is growing at 5 percentage rates, then the money supply also should be growing 5 percent; that means, constant rate rule.

But the Keynesians suggest monetary and fiscal policy as a short run policy to revive the economy, they suggest it to use it as an activist policy or discretionary policy.

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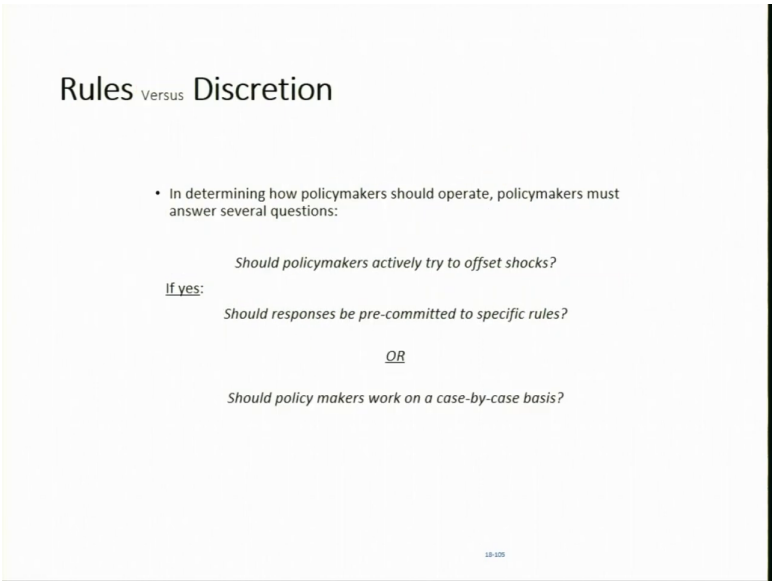

So, in determining how policymakers should operate, policymakers must answer several questions; should policy makers actively try to offset shock; if yes, should the responses be pre-committed to specific rules. That means, rule based or discretionary or activist based or should policy makers work on a case-by-case basis.

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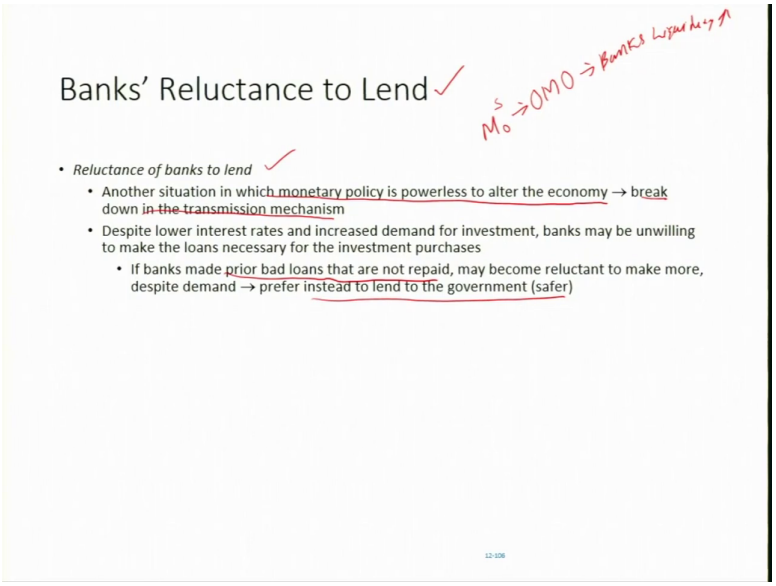

So, in addition to the factors that we discussed, there are some other factors also affect the effectiveness of monetary and fiscal policy. One of it is, for example, the banks reluctant to lend. So, we have seen that if there is an expansionary monetary policy. Suppose central bank

come up with an open market operation and thereby increasing liquidity with the banking system.

So, what we can see that, as a result when the banks liquidity increases and then the expected further transmission is that banks will be lending this money in the economy. Banks are the channel who is injecting this money into the economy, but what happen because we have seen we have discussed in the previous sessions that there is default risk, an issue with the most banks.

Because of the riskiness of the borrowers, even their liquidity has increased or even they are getting cheap credit from the central bank, it's not necessary that they will lend to the economy. That means, another situation in which monetary policy is powerless to alter the economy is the reluctance of the banks to lend to the public and to the firms so; that means, it will break down the monetary transmission mechanism.

So, despites lower interest rates and increased demand for investment, the banks may be unwilling to make loans necessary for the investment purchases. So, because if they have lots of non-performing assets, for example, if banks made prior bad loans that are not repaid, so, they may become reluctant to make more and more loans despite the increase in demand. So, if the risk level is very high in the economy, if they anticipate high default risk in the economy, banks prefer not to lend the additional money.

So, then they will be putting their money in the investing their money in the government security etcetera; they will not be lending in the economy.

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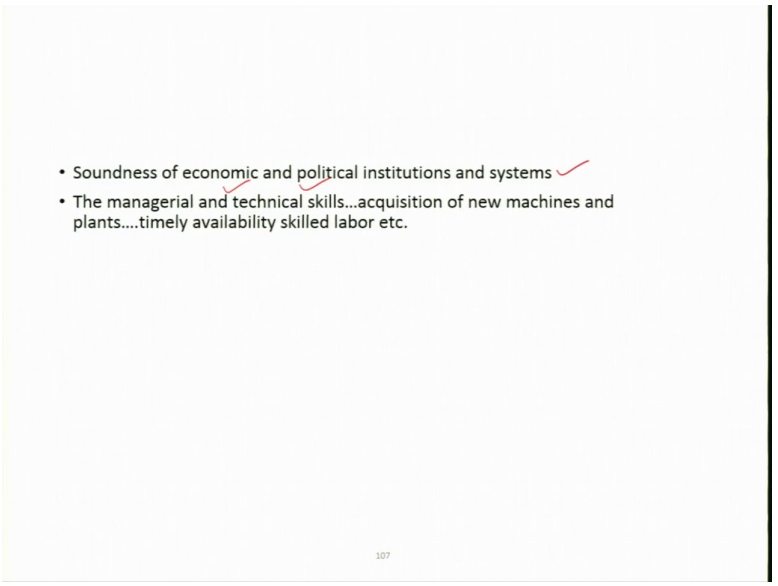

So, in addition to that, there are some other factors; the soundness of economic and political institutions and systems in the economy also affects the policy effectiveness ah.

Finally, for example, expansionary monetary policy we have seen that when there is increase in money supply, the rate of interest decreases then the cost of production for the firms decreases. Rate of interest decrease means nothing but a decrease in the cost of borrowing fund.

So, that because of the decrease in cost of borrowing, cost of production decrease, but it's not necessary that the firms will be able to respond adequately. It also depends upon their managerial and technical skill as well as other support that they are getting from the other economic and political institutions. That means, the support from policy makers, from economic institutions, political institution, and legal institutions in the country.

It also depends on the overall economic systems soundness as well as managerial and technical skills of the firm because they need to acquire new machines and plants. There should be timely availability of skilled labor as well if they want to expand their production process.

So, in short, what we have discussed in this session was that there are several lags in the economy Then we related these with the monetary and fiscal policy. Then we saw that there

is a variation when it comes to inside and outside lag in the case of fiscal and monetary policy.

Thank you so much, see you in the next session.

Keywords: aggregate demand, aggregate supply, lags, information lag, decision lag, action lag, monetary policy lag, fiscal policy lag, inside lags, outside lags, rules, discretion, policy effectiveness