Microfoundations of Macroeconomics

Prof. Wasim Ahmed
Department of Economic Science
Indian Institute of Technology - Kanpur

Module No # 07
Lecture No # 31
Monetary Policy I

Welcome back we are going to going to start a new topic today and we will be talking about the formulation of monetary policy that what all indicators are required where we can think about stabilization of output employment. So it will be interesting to see that how in real life you have different type of monetary policies implemented and what are the approaches through which central banks always try to minimize the risk of higher inflation.

In the last to last session if you remember we discussed about taylor rule that you have a central bank is having target to minimize the inflation gap and the output gap and based on that they decide about the nominal increase rate. So in the monetary economic literature you have 2 types of individual talking about different approaches of monetary policy. So one approach is about the non-activist so which is linked with the classical school of economic thought.

Classical school of economic thought believes that there should not be any interference from the government or it should only be decided by the market. So all indicators related whether it is the monetary policy or fiscal policy it will be only related to the market and market should decide. They should not be any interference coming from different sources but activists believe that that is not the right approach to bring stability to the economy.

The right approach would be that if you have intervention either in the form of increasing the money supply or increase in the rate of interest. Whenever you see a rise in inflation more than expected. So if you have an inflationary trend going up then in that scenario it may happen that the households living in the economy may also formulate some kind of expectation that will further boost the inflationary scenario. Which; means that the individuals or the firm producers they are expecting that prices will rise further.

So they will be increasing the prices of the product so in the monetary economics literature whenever we talk about and it is also part of the macroeconomics. So in macro economics we will deviate ourselves for some time and will be focusing on how we can accommodate certain approaches and how we can stabilize the economy when you are facing demand supply shocks.

So, if you have a demand supply stock then how we can stabilize. Then what should be the approach of the monetary policy, when we are talking about so here you will have different set of indicators. Most of the countries in the world they have gone for inflation targeting framework under that they try to identify the major factors that we call as the anchor. So if you are going to identify the nominal anchor.

Then what happens, that how with the change in the behaviour of this nominal anchor which could be your rate of interest, which could be your inflation rate, which could be your exchange rate, upon the orientation of the economy. If the economy is more oriented towards external outlook, if it is export oriented economy, then your nominal anchor would of course be either the exchange rate or the trade deficit so you have different approaches to mention.

Second important aspect that will be dealing today is about the credibility, how credible is the stand of the monetary policy the central banker. Now there you we will be understanding that if the policy stand of the monetary policy or the central bank is not credible, then people will go on forming different expectations and these expectations will further deviate the economy permanently. Then we have something called time inconsistency approach.

In time inconsistency approach you have to keep in mind that whatever is the long-term objective of the economy. So long term objective of most of the economies are to have the stable outlook, or which means that you should have moderate inflation, you should have higher output. So in short term whatever policies are taken or undertake what I stand the central bank takes, what are the implications of this on the long term.

So sometime in order to target the short-term economic indicator central bank sometime target the long-term indicators which means that they will try to take decisions for short-term stabilization. But this will have far reaching impact and ultimately the economy deviates permanently from the long-term equilibrium so long-range equilibrium. So here the time inconsistency approach plays very important role.

And we will be trying to see that how certain dimensions of aggregate demand, and aggregate supply, will help us understand that whether we are taking the right decision or we are going in a wrong direction so I think these dynamics will help. Then we will be moving towards what we call it as the new Keynesian school, under that will be trying to see that new Keynesian

school is also created to bring Phillips curve into mainstream economics back again. Because it was during nineteen fifties, sixties the idea was very popular.

But later with the inconsistency with data and the frameworks in certain economies the idea was almost dissolved. But then the new Keynesian school of economics took it and explained their price rigidity, and they try to explain that under Calvo pricing model. How we can or sticky prices how we can think about establishing the inverse relationship between the nominal wages and unemployment and also. We can think about the positive relationship between the expected inflation and the output gap.

Now here you have to understand that when we are talking about these dimensions then it makes sense to argue on the point that, what should be the optimal level of I would say interest rate scenario in the economy. So then you have the new schools of economic thought emerging, so what are the new schools of economic thought you have new fisherian's who are talking about the rate of interest increase.

Because they argue that because of the low interest even if your economy is in the zero lower bound, so idea or the basic premise is very clear. That; in most of the macroeconomic setup or if you have done your basic macroeconomics**.** So if you have done your basic macroeconomics then we understand that under ISLM framework what we try to do is that we go for increasing the money supply. So if you are increasing the money supply it means that you are cutting down rate of interest.

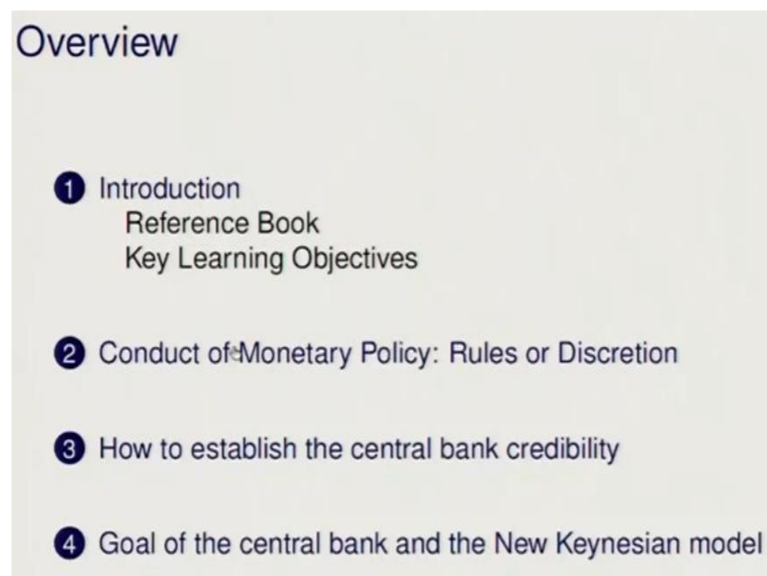
Now if you are cutting down rate of interest then what typically happens that this will increase the price right so that is what we have? In case of India, we can consider foreign stand for instance we can consider the rate of interest right. So if you have an inflation rising rate of interest also rising. But in typical circumstances it happens that when you have a rate of interest decreasing the inflation expected increase.

But in most of the economies what has happened that even after 2007 at global financial crisis. When countries implemented or almost had zero lower bound scenario inflation has not picked up and this argument is very strong. And it shows that somewhere there is an inconsistency with the policy of the interest rate which means that in order to increase the inflation because inflation is also important.

But it should not be so high 200% or 300% because then you have the borrower and lender having a different, I would say valuation for their exposure right. So we will not get into that. Here the idea is that the inflation should be somewhat stable but it should not be so low. That the farms and the producers are not incentivized enough, and even the households are not caring about work and leisure. So prices should not be sold. So in most of the economies what we have found.

That especially in the advance economies what it has been reported that, even the zero lower bound has not increased the rate of inflation. Which; means that if the central bank is going to really care about the economy, then it should either increase the nominal interest rate, so that the inflation will also set up. So fisherian idea neo fisherian idea who are around this argument and will be trying to see with different set of variables that how this particular idea plays important and will try to understand.

(Refer Slide Time: 09:22)



The so let us go one by one so here we have the conduct of monetary policy so we will be talking about.

(Refer Slide Time: 09:26)

Reference Book

- Williamson, D.S. (2018), Macroeconomics (6th Edition). Pearson International Edition, Boston, USA
- Mishkin, S.F. (2012), Macroeconomics: Policy and Practice. Addison-Wesley
- Bank for International Settlements (2019): Unconventional monetary policy tools: a cross-country analysis, CGFS Papers No. 63, October.
- Unconventional Monetary Policy in Times of COVID-19 https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=20141

So here we have the reference, so I have referred the Williamson and the Mishkin. So here you have Frederick Mishkin book, macroeconomics policy and practice. Then I have also gone through some of the reports available on the RBI website so what is called unconventional monetary policy in times of COVID-19. So if you want to read about how central bank of India which is reserve bank of India has undertaken the unconventional monetary policy stand to counter the COVID-19 impact.

Then you have unconventional policy monetary policy tools it also mentions about the different types of the monetary policy decisions approaches. So BIS 2019 paper is really interesting and I would request all of you to please pay attention on the unconventional monetary policy in times of COVID-19. This particular write-up is really good and Mishkin book is considered as one of the most referred books in the field of macroeconomics.

So I think I you should not at least should know if you are student of economics or if you are doing economics for the first time. So the idea is that we will be talking about the conduct of monetary policy rules or discretion, how to establish the central bank credibility. Then we will be talking about goals of the central bank, so what are the goals of the central bank? And we will be also trying to see the new Keynesian model.

(Refer Slide Time: 11:03)

Key Learning Objectives

- Understanding the conduct of monetary policy
- Different rules of monetary policy
- Central bank credibility and inflation targeting
- Neo-Fisherian school of thought
- Construct the New Keynesian model under rational expectations, and show what happens in the model in response to changes in the nominal interest rate.

So this is underlying so as I mentioned, we will first understand the conductor monetary policy, different rules of monetary policy, central bank credibility and inflation targeting that how the inflation can be targeted. Then we will be talking about neo-fisherian school of thought school of economic thought macroeconomic thought. And then we will be trying to see that how rational expectation help us understand the new Keynesian model in a much better way.

(Refer Slide Time: 11:38)

Rules or Discretion

- Should conduct of monetary policy have some rules or should it adapt to changing economic conditions?
- Discretion is used when policymakers do not commit anything about future and do whatever they could in the present situation.
- Often "time-inconsistency problem" is cited one of the formidable reasons.
- The time-inconsistency problem refers to deviations from long-run objectives when making short-run decisions.

So these are the, I would say the major points that will be covering. Now, let us start with the monetary policy. Here we have 2 types of monetary policies, one is based on rules. So; you have a specified rules targets and then the central bank test takes this decision on that. If you have economy facing unprecedented situation, where you have economic shocks arising from different sources and it is most likely that your economy will be impacted.

If it is the case then, how we can think about moderating the impact of these shocks. Now here we have rules or discretion, so discretion in the sense that you take certain decision based on the choice. So here should conduct a monetary policy have some rules or should it adopt to changing economic situations conditions? So these 2 arguments are quite valid in most of the cases. Whether it is advance economy or whether it is the developing economy.

If we are talking about advance economies then there also the concern remains same that what should be the conduct. Then discretion is a term which is often used when the central bank operates with non-targeting goals, which means that they do not have any target. The target only is that how quickly we can recover the economy from the shock that the economy is facing. So in most of the cases we found that even if the rule is that the central bank should not deviate from suppose inflation mean target of 4%.

Economy is already above 4% but it is facing some kind of shock and to counter that shock the discretion can be applied over there. And further money required to pump the economy or some kind of counter cyclical measures can also be introduced. So in most of the cases we find that whenever we have the economic uncertainty in the economy, most of the central banks with the help of the or with the consultation of the government they always try to come up with some kind of (()) (13:42).

Even in most of the countries the governments also announce a fiscal stimulus plan, some proportion will go to the go through the central bank so central bank will be taking care. Some will come through the government channels so fiscal policy will be operational in that context. So here discretion is used when policymaker do not commit anything about future and do whatever they could do in the present situations.

As I told that you have a demand shock or supply shock arising instantaneously in the economy. Then how to counter that? If you are taking decisions to counter that without caring about future so that we call it as discretion. Now here one of the reasons why discretion is always a major challenges for most of the policy makers. And it is not a very high highly regarded stand; it is also dealing with what we call it as the time-inconsistency problem.

What do you mean by time-inconsistency problem? It refers to deviations from long run objectives. So whatever if the economy objective is that the economy should achieve the growth rate of 10% and inflation of 4% or 5%, these are the long term objectives. May be over

the period of 2 to 3 years, this particular economy wants to achieve this goal. But you have applied certain discretion to counter certain shocks then this may not be possible.

So here the time-inconsistency problem talks about this. Refers to deviations from long run objectives when making short run decisions, when you are taking short term decisions how it is impacting your long term. So a good example would be that if you are if you have a new year around, everyone goes for New Year resolution that during this year will not be having enough sugar, or we will be having some control over food, and I will have proper diet.

But it becomes after a few days it becomes really difficult to have a control on the fooding behaviour, and ultimately you deviate. So after 1 or 2 weeks if you are controlling yourself it has become really difficult and you are you have started eating again with the same rate. Then whatever is your resolution for the year end or throughout the year it is going to have the permanent deviation.

So in most of the cases New Year resolutions are a big fun, because of these reasons that with certain small decisions that you take over a period of time, or maybe within a month after taking in taking resolution. So maybe in January itself you had a measured deviation so forget about the completing or keeping a control for rest of the year, you are deviating in the beginning of the month itself.

So that shows that there is some kind of time inconsistency problem, so this also happens with the macroeconomist. Whenever; they plan a long-term objective that in the long term the economic growth will be of this much percentage with this inflation rate with this unemployment rate. But because of the shortened decision that they undertake it has a wide implication on the long-term implications long term goals.

(Refer Slide Time: 17:09)

Time-inconsistency problem

- The short-run decisions often attract trouble for long-run policy design and implementation.
- An expansionary monetary policy (either through rules of discretion) leads to higher inflation in the future. Labour expects higher inflation, driving wages and prices up.
- The rise in wages further pushes the inflationary trend-up. The aggregate output may or may not increase.
- **Learning**: In order to achieve price stability, policymakers should not surprise people with unexpectedly expansionary and instead keep the inflation under control.

So let us focus on the time-inconsistency problem, the short-run decisions often attract trouble for long-run policy design and implementation. For example, if you have the expansionary monetary policy suppose the central bank has gone for taking expansionary monetary policy stance. So during COVID-19 we find that most of the central bankers have gone for decreasing the nominal interest rate. And this has resulted in higher speed of monetary transmission resulting in higher inflation in most of the cases.

But this is also backed by the shortage in the supply of the items that are required so maybe the supply of goods and services are not up to the mark, because of the COVID-19 impact. But in most of the cases it happens that if you have expansionary monetary policy taking place your borrowing becomes cheaper. Once your borrowing becomes cheaper than this creates this creates additional demand in the market.

And if this additional demand is not made by the initial this excess demand is not made by the excess supply. And if it is not being mapped accordingly, then this will create imbalance and you will have the inflationary pressure arising in the economy. So if you think about the role of expectation, so here one good example would be that. Each and every individual in the economy form some expectations about the future stand of the policy.

So here in the later slides we will be also talking about the credibility that, how credibly the central bank to convey this to everyone that the central bank is really and seriously looking for adjustment in the inflation. But if you if the individuals are forming the expectation and if the central bank takes the stand, or expansion in monetary policy, then this will lead to excess supply of the labour.

Because if labour expect that prices are going to be higher in future the rate at which he or she is supplying the labour they would always like to supply more, because they have to meet the standard of living or the consumption in future also. So they will be working more in the current to have some amount of saving for future. So this will lead to either both driving the wages and prices up so this is one of the implications of the time inconsistency problem.

The rise in wages further pushes the inflationary trend up the aggregate output may or may not increase. Because this will be like if inflation is eating a large portion of and if the inflation is genuine, which means that it is really linked with the demand scenario. So if inflation is eating more of aggregate output then there will not be any increase in I would say the aggregate output as such.

But if or I would say if the inflation is eating more of output then this will create the more of consumption and you are output will go up so your total income will go up. If it is opposite then you will have this saving I would say or I would also say that this will create some kind of imbalance with regard to the excess supply. So there will be excess supply of goods so price will come down after some time or you may have the glut kind of scenario.

So what are the learning's? In order to achieve I would say price stability, policymakers should not surprise people with unexpectedly expansionary policy. Instead they will they should always try to put control on inflation. So what is the idea behind? Idea behind is that if the central bank wants that the rational agent in the economy should target or should go for a rational expectation. Which; means that they should not be forming the expectation based on the previous period itself.

They should take into account whole lot of macroeconomic factors to form the expectation. And if they have a lot of faith on the decision of the central bank then it is most likely that you will be able to solve the time-inconsistency problem. Here the idea is also linked with some other examples in real life scenario where you can think about the parent's relationship with the kid.

That how the tantrum of the kid if the parents are going to obey, or going to knowledge, or going to accept the tantrum of the kid, then the kids knows that if kids know that if it is going to be the same in future. So they will create more tantrums, so that they get more gifts, and as a result you will have the permanent deviation. So if you are going for immediate reaction to

every shock then this will create a long term implications on the functioning of the economy, so this is what we always try to understand.

(Refer Slide Time: 22:25)

Monetary Policy Rule: Constant-money-growth-rate

- The **Constant-money-growth-rate** rule was given by Milton Friedman in which the money supply is kept growing at a constant rate regardless of the state of the economy.
- The above rule is often called as non-activist type because they do not react to economic activity.
- Activist rule works on the Taylor rule and suggests the adjustment in monetary policy stand to the output gap and inflation.
- The Taylor rule or the constant-money-growth-rate rule solves the time-inconsistency problem because policymakers react to economic situation within a set plan and ensure short-run equilibrium between inflation and employment.

Let us talk about the rule, what should be the rule? So monetarists in the field of macroeconomics have always emphasized on the rule of monetary policy. And what they say that if you are operating in a in an economy that has lot of that has lot to deal with inflation. Then in that case the first rule that they suggest is called the constant money growth rate, which means that irrespective of the conditions of the economy.

Whatever is the economic outlook the central bank should always have the constant money growth rate. So you have to supply in a constant amount in the economy you should not be taking any kind of discretionary measures. So constant money growth rate has been challenged by many economies and it has often been linked to ah link to the classical state of the economy. So it is also linked with what we call it the non-activist type.

Because in among the economist also some are in favour of the constant money growth rate rule or some are against. Those who are against they feel that there should be a role of different set of macroeconomic indicators, and based on the monitoring of those indicators the central bank should decide about the monetary policy stand. Not by the simple constant money growth rate which means that.

Whatever happens in the economy you do not have to react you will be keep on supplying the same amount, but in real life that is not the case. The activist rule works on the Taylor rule and suggests the adjustment in monetary policy stand on the output gap and the inflation gap.

Which means that the output gap if your aggregate output is higher than the equilibrium level full equilibrium level of, or full employment level of output, then of course you see more of the employment generation.

And if it is or if even if you have the higher inflation in the in the scenario then if higher inflation is eaten by the most of the aggregate demand. Then you see increase in your employment your unemployment comes down. But if your actual output is less than the full employment level of output then this is just, inverse. Your unemployment is going to increase because you will have deficiency in demand firms may not be incentivizing so much to higher labour and this will create problem for the employment.

So this is what they always mentioned about. Second thing that they mention about the natural rate of interest and Taylor rule this is what we have and then you have the target rate of interest. If the natural rate of interest is equivalent to target rate of interest you are having the very good scenario, so this will be zero your output gap is also zero and your nominal interest rate is equal to what we have the ideal rate that we always try to achieve. So this is what we try to understand here.

The Taylor rule or the constant money growth rule solves the inconsistency problem because policy makers react to economic situation. Within a set plan and ensure that shortened equilibrium between inflation and output employment is insured. So constant money rule I would say here it is end and the rule it tries to give some perspective on how to control the monetary policy? How to conduct the monetary policy? Given; the situation that the economy is facing.

So in that context it becomes really interesting to see that the non-activist and activist stand play very important role and this is what we try to mention here. But these 2 rules whether it is a constant money growth or with this Taylor rule both have a positive implication on time inconsistency approach. As the studies have found that the constant money growth which is which is of course is going to be the going to solve the time inconsistency problem because you are not reacting to abnormal situations instantaneously.

But Taylor rule it also gives a sufficient dimension at sufficient dimension and through which we try to see adjustment in the monetary policy right. So these 2 rules are quite important.

(Refer Slide Time: 26:47)

Monetary Policy Rule: Discretion

- Difficult to work in a tight policy corridor and rigid rules often create troubles and often may not be effective in foreseeing the contingency.
- The case of 2008-US financial crisis and how an infection in the small segment of the financial system had the contagion effect on all other sectors and even global markets.
- Lack of timely judgement is another cause of concern. The policymakers should focus on a wide range of economic indicators and some may not be interpret-able. And therefore discretion becomes an obvious choice

Then, here what happens that in case of monetary policy rule when we talk about discretion. So here why it is so important? So here it should be that if you are going more by this particular type of policy then what typically happens that? If you; are going to have the constant money growth scenario? Then you will be working in a very tight environment and that tight environment or rigid rules may not be enough to tackle with the contingencies and as a result your economy may fall in the recessionary trap so that is what.

In case of 2008-US financial crisis it was found that because of this small segment of the financial system had a strong contagion effect on other sectors. Lack of timely judgment also matters that how we are addressing the situation. So with this particular background I am going to stop here and now I will be further taking it to the to the next level where we will talking about the credibility, will be talking about certain policy design that are prevalent in the in the recent era. And we will be focusing on those things I am stopping it here thank you so much for your attention.