Money and Banking
Prof. Dr. Surajit Sinha
Department of Humanities and Social Sciences
Indian Institute of Technology, Kanpur

Lecture - 6

We are with second topic here, I am going to talk about definitions of money supply first, you heard about a variable m in that first macro course, but it is not very clearly defined what m is and how m changes. So, I am going to go in to the details of this m, m changes when you go to another country. Now, in any country one thing is very common across all countries is that, whatever be the definition of m, which is money supply. They all have a base, which is called the money monetary base or reserve money, they all have a base called monetary reserved money or monetary base or high powered money, whatever it is called.

In the previous class, I gave you the description of monetary base, how it is defined, it has 3 components; one currency in circulation, which has 2 parts, currency with the public and I define public plus cash with banks, whatever cash lies. Then you have bankers deposits with the central bank in our case it is the RBI, why do banks deposit cash, there are number of reasons; one the most important reason is we have in India something called CRR cash reserve ratio. So, when banks at the end of a week says this is the amount of deposit money that has come through various savings account fix deposit account, etcetera. The central bank tells the bank that now counts that and leave a percentage of that cash with us this is called cash reserve ratio.

In case your bank mismanages funds, because they give out loans and suppose, they create too much of bad loans and how do they create loans, they create loans out of these deposit money government does not give money to create loans. So, banks use the deposit money, your money, my money to give out loans to somebody else. So, suppose their bad loans and the money is not returned then your money and my money is stuck with the bank, I do not get it.

So, in order to avoid what is called a bank failure central banks created, this norm after the great depression; that they will be a CRR all banks have to listen to that commercial banks. I am talking about they are called commercial banks, these banks where, you open

accounts a various kinds of banks. There are commercial banks, there are cooperative banks, there are non banks. So, I am going to talk about, I am talking about commercial banks. So, that is 1 second banks do keep cash with the central bank with the central bank in India like RBI operates a centralized clearing facility.

So, I have an account in this bank, but I receive cheque from a bank b, but I deposit in my bank a and bank a has to send the cheque back to bank b for endorsement. The money need to come from there, you know all sorts of complications, so centralized clearing facility like one person sitting there with a joint board with all the banks accounts. So, he just keeps on debiting and credit crediting the amounts account and account (( )), these are various kinds of things they do.

Finally, other deposits this is not very clear in the literature, other deposits with the RBI is a very small number, I have seen less than 1 percent. So, if you plot them, it does not come, they are down on the x axis the numbers, even the absolute numbers not the percentage absolute numbers are down there. They do not come properly, but I have to mention them these other deposits what, I have gathered are the deposits of various kinds of demand and time deposit that reserve bank holds of accounts. Reserve bank operating as a commercial bank for somebody, who are the somebody, reserve bank does not operate as a commercial bank, the central bank for us, we cannot go and open an account in central bank in our country,

We go to a commercial bank, they may be governments of other countries our government, you know and the international organizations like, I m f world bank are the central banks keeping money, you know there can be all sorts of things well, that is a very small amount in India alright. Now having said that the connection between this base money and the monetary aggregates, which is the definitions of money will come a little bit later. But let me define the other money, there are traditionally in India four types of monetary aggregates.

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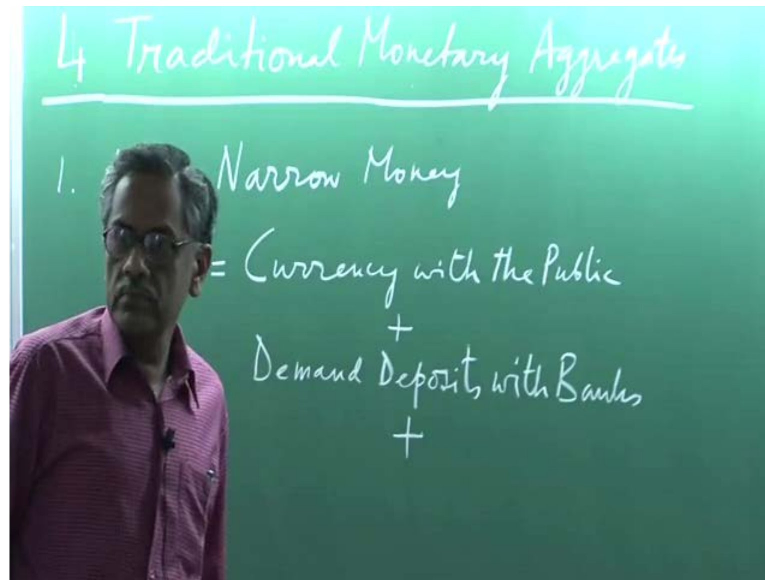

Four traditional monetary aggregates, four traditional monetary aggregates why are they aggregates, because it is a sum total of items 4 traditional monetary aggregates, 1 is famous called M 1, M 1 has another name also it is called narrow money that means, it is definition is narrow. Narrow in the sense, there are only few items in M 1, what are the items, there are 3 items again currency with the public. So, it is not currency in circulation, currency with the public.

Not Currency in circulation, currency with the public plus demand deposits with the banks. Demand deposits with banks are as I told you, there are 2 types of deposits conceptually speaking demand and time, example of demand deposits is that, I demand my money any time and I get it, which is our savings accounts. And there's another demand deposit account, which is which is very popular with these commercial banks in India called current account.

And time deposit accounts are the fixed deposit accounts, they are of various durations 3 year fixed deposit, 5 year fixed deposit and all that. There is another type of fixed deposit account that, I have seen are called recurring deposits, where the money is held with the bank for a long period. But, you do not put that entire money, initially into the fixed deposit, you keep on putting money every month every year, it recurs and it piles up accumulates continuous kind of an investment. And finally, after 5 years or 4 years, you get the principal back with interest recurring deposits.

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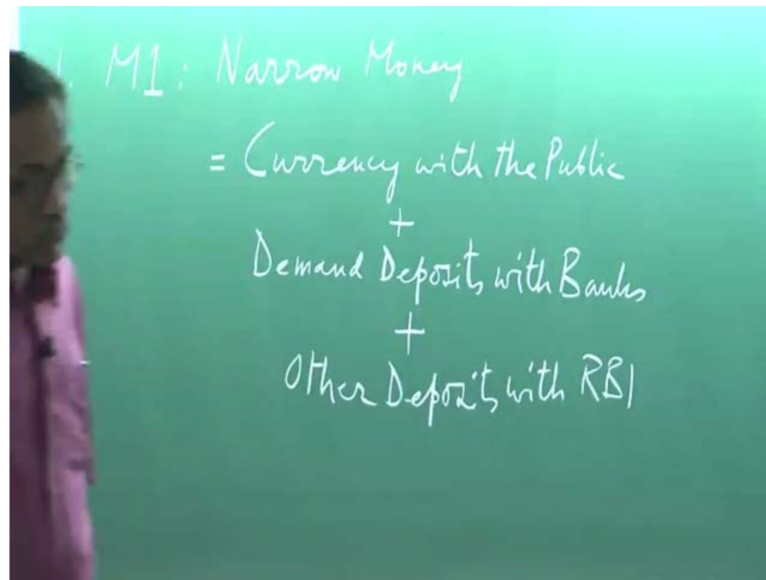

So, the demand deposits with bank last item are the deposits with banks, why because these are like the demand deposit and time deposits of probably, these are only demand deposits of the RBI holding accounts of various institutions. So, it has the other deposits again the number does not show even in M 1, it is such a small percentage even narrow money (( )), I have seen the other deposits with RBI.

Now this is the narrow money, nothing to be explained public etcetera are the words, I have explained already to you, what I would do is I will jump not M 2 first M 1 (( )). But I will go to the most important money in India in US, it may be very different, they have various others. They have M 1 M 1a M 2 M 2 a various aggregates they have I have seen in literature in general articles etcetera, but in our country.

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I will go into M 3, I will skip M 2, I will tell you what M 2 is very simple, I will go to M 3 and this is the most important money in India is called the broad money. The definitions, which is mostly used broad money is equal to M 1, whatever M 1 has been M 1 plus time deposits with banks time deposits with banks, this is M 3. This is the most important money in India that is most popular.

Now, this also is known as broad money, another word is that money stock, often this is I have I have seen this is used not often, I have seen this used money stock. Now, I come to M 2 and M 3, M 2 and M 4, which is something, which we do not use much, what M 2 does is that, it brings into the picture beside M 1, the savings deposits the demand deposits with post offices.

So, it is M 1 plus demand deposits with post offices, post office has a bank called post office savings bank or something, it is called you can have a passbook and a cheque book, even deposit money, withdraw money, one of the oldest bank in some sense. Because, in rural India, if you go there is often not a commercial bank branch, but when people do banking, they do with post offices, I have seen that many years at IIT this was all a village and when I came to IIT, I have seen, so many people having account there in post office here.

So, this is demand deposits with post office savings bank, it is called post office savings bank or post offices. And the funny thing was when, I had my account and I started this

kind of a course where, this was the topic financial system in India, one of the topics. And I went out collecting data information, I went to the bank to know, I did not know much.

Because, long time back as an undergraduate student, I may have learnt something, you know who knows when. Now I have been asked to develop a course, I went to the bank the post offices interesting thing was post office savings bank account interest rate was higher than the commercial bank interest rate. But, people still go to commercial bank, because the service quality is better probably savings interest rate was higher, it is very interesting.

So, with post office savings bank M 2, now M 4 is nothing but M 3 M 3 plus total deposits with post offices with post office savings bank. They call savings bank anyway they ha they deal with a lot of savings of the country. They have also something called saving certificate, which they sell post offices just do not do this what you call that telly is called filatalic counters, they have stamps and envelopes no and all that speed posts, they do lot of financial transactions.

They are the main agency of government saving certificates only agency in fact. National saving certificate Kisan Vikas Patra, Indira Vikas Patra nation saving certificate number 8, they have developed over the years. They do deal with a lot of savings small savings, it is called small savings individuals have 100 rupees savings 1000 rupees savings 2000 rupees savings can buy a savings certificate. Small savings for a long time post offices are an important source of revenue for the government.

They deal with a lot of just not the accounts banks, the other parts is that saving certificate and stuff they deal with. So, when you earn start earning, I mean when you will become a salaried person then you would learn more about these things, because they offer tax breaks. Government offer tax breaks to income earners, if you buy saving certificates then you get a exemption from some amount of taxes 20 percent or something, I do not know, post office the total deposits with and as look at the numbers they do not change much.

So, when I will show you numbers, I will have slides here, you would know how the variables are behaving over time may be 10 year period, 20 year period slides some of them some cases, what you will notice is that, I do not have data on M 2 M 4, if you

want the source, I can give you the source, they do not differ much. The post office amount compare to the bank amount is not very significant. So, the lumb lines do not change much. But, remember the savings bank, I am taking account, I am not talking about the saving certificates money here, do not think Kisan Vikas Patra NFC, etcetera have money here, it is only the bank part banking part a post office also has that other kinds of savings activities is not there.

So, broad money narrow money, the definitions are M 1 M 2 M 3 good, now having said this, I have found discovered that the late nineties, the reform started processing, you know from Indian economics course around 91 92. Late nineties reserve bank under the probably the chairmanship of the then governor Dr Y V reddy, very active man he was, he is still active.

Dr Y V Reddy, they have a tradition of very interesting, they are like I I T in, they have departments Reserve Bank like, we have department of mechanical engineering department of electrical engineering department of human resource social science, they have also banking department, issue department (( )). And also they have a convention of forming, what is known as a working group, that is eminence scholars, they may invite to be part of it, under the chairmanship of some big person RBI people are there, they form working group to study a very specific issue, which has come to light and is an important one. So, they do a research work then they suggest recommendations it is like a various institutions in India has various ways and names associated with this kind of committees in parliament, I heard about something called standing committees on TVI hear. In RBI, they have something called working group.

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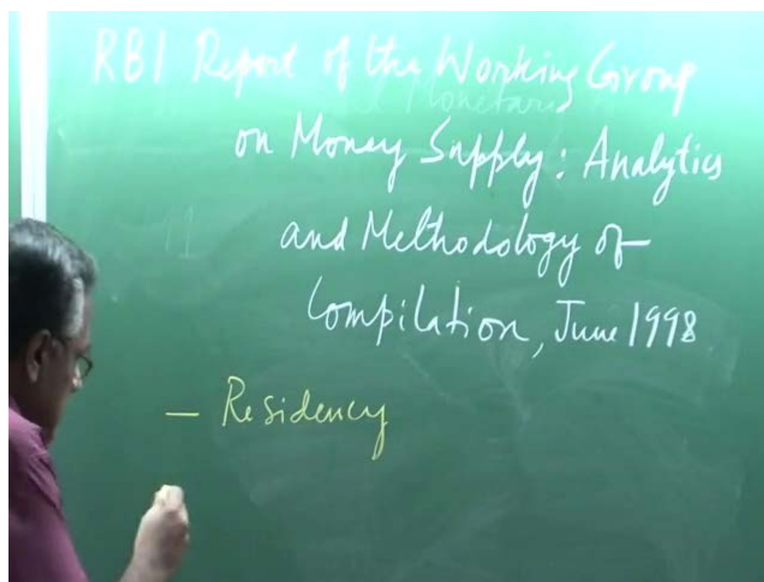

Now, there was a famous working group, it has come to be known as W G M S and let me talk about that, what it did RBI working group, a report RBI report of the working group of the working group on money supply and colon. Then it says analytics and methodology of compilation, analytics and methodology of compilation 19 June 1998, there is a date June report came out 1998 late 90, I was talking about the late 90, it came June 1998.

It went into re visited the monetary aggregates that are we use, now the RBI has much more important duties than, we have with respect to monetary aggregates, you know from the macro models money supply is part of the demand function. So, often the demand function is controlled by money supply by the central bank to control prices to improve the output of the economy monetary policies, which are known as monetary policies is very ram pad throughout the world.

So, they have more business with monetary aggregates than, we as scholars or academicians and students have to do, just know the definition. They actually have to check the numbers, every time like checking the pulse of the economy or pulse of a person who is not well particularly, when not well, how is the fever, how high is the fever that kind of a thing.

Now this monetary policy issue, that the central bank has in any country in India RBI has let RBI to re think about the definition of monetary aggregates. The traditional

aggregates is very common, everybody knows and the rethinking whet along this line, this report says and the chairman of this committee was Dr Y V Reddy ex governor. I may still have a note Y V Reddy signature, you may have a note, because notes are not issued just after Y V Reddy left notes have been issuing, since then previous to that.

Y V Reddy governor (( )) note signature, he was the governor signature note. They came up with 3 new three new monetary aggregates and the reason is these aggregates, they issued the issue was one residency very important. Let me use a colored chalk one of the issue, they came up with in the new Indian economy after the reforms is that you have to distinguish between residency, Assam problem children with residency like R, who is a resident, who is a non resident problem (( )).

Assam main now this is monetary economics problem residency, one of the issues that, they were dealing with is residency is the money Indian or is the money a non resident Indians money or a non resident. It may be Indian settled abroad or a foreigner, white skin foreigner or an African or a South East Asian residency. They are the one of the issues, but the character is changing.

So, they have to have new monetary aggregates the traditional ones may not be good enough. And the non residency component will be volatile also, which you know it comes in goes out god knows when residency amount is with in India it remains, not a lot of people leave India overnight money (( )). But, the non residents component, if you study that it will be quiet volatile they coming through the stock market, they are coming through direct investment, they are coming through simple accounts a student has gone abroad sending money home, they are settling there.

Residency that basically, talks about the non residence repatriable, repatriable means, which can be transferred between countries, I can repatriate money from India to England any time. Nonresident repactriable, foreign currency deposits, which are the if you go to state bank, you will see there are special accounts for a non resident Indians, which are not meant for account names are like F C N R, foreign currency nonresident Indian accounts .They carry a different interest rate often the money is there held in foreign currency not Indian rupee either. They give the option how would you like to open the account sir, will it be in dollar account pound account or Indian rupee account various interesting things have happened with the banks.

So, the money character monetary aggregate characters are changing, it is just not Indians money, there in banks the foreign money that and foreign banks are also here. So, things like that and then the India government certain bonds where, the transactions where, in foreign currency etcetera, were also there. And the second issue, they were dealing with is very interesting one is the residence issue, they found is an important issue, now in Indian economy.

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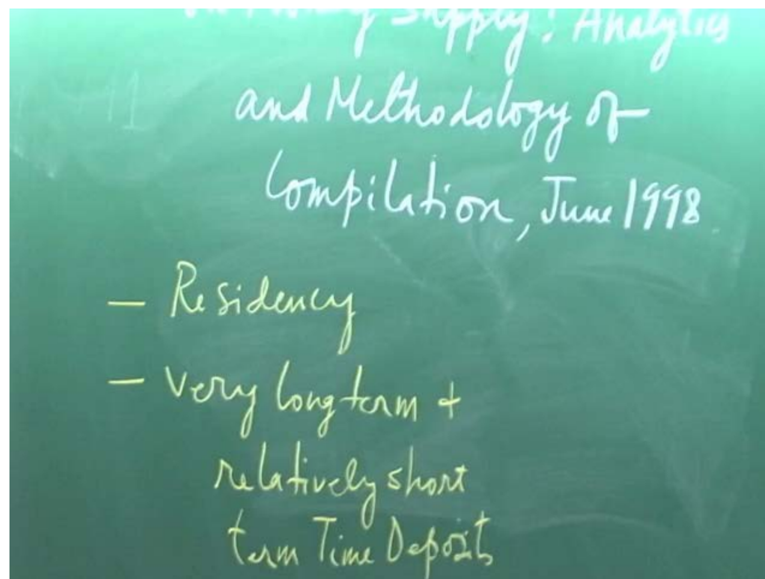

Second one, they were dealing with is a distinction between very long term and relatively shorter term time deposits very long term and relatively short term time deposits very long term and relatively short term time deposits. Time, deposits are long term at least 1 year, long term is if you define it, at least 1 year, now there are some time deposits, which are 1 year old 2 year old and 3 are time deposit, which are 10 year 15 year,

Let us take the case of provident fund, I start working here and now 24 years nearly completed at IIT, I have been depositing money in the continuity provident fund. If I had an account in the bank or this continuity provident fund is kept by the government with these banks, suppose in fixed deposit account or something. This money is not going to be withdrawn even after 5 years, which is a normal length of maximum fixed deposits.

So, there are some fixed deposits, which are short duration, fixed deposits time, deposits lekin shorter duration in relative terms and also therefore, there are in relative terms, there are fixed deposits, which are very long term.

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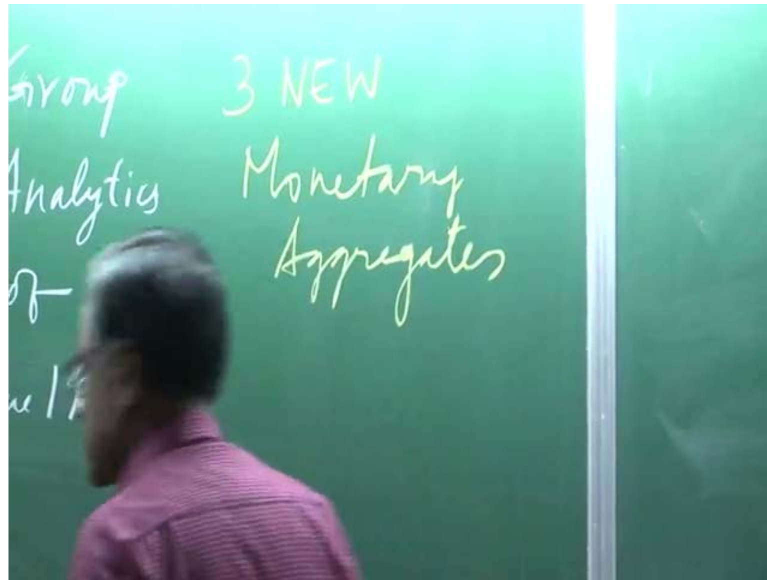

So, they are trying to make the distinction, having done that, they came up with 3 new monetary aggregates 3 new monetary aggregates.

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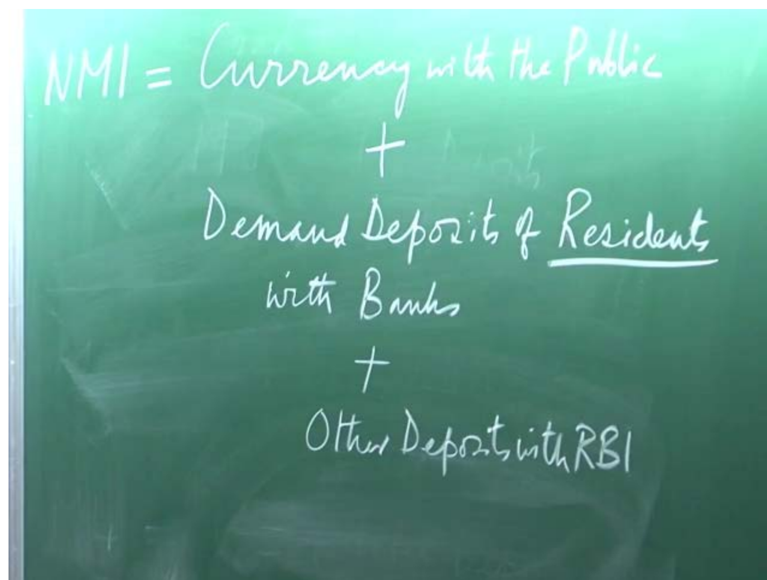

And let me see, if they, if I can define them one is called now N M 1, which contains currency with the public, which is within India who ever holds, it currency with public plus demand deposits of residents with banks. This is very interesting demand deposits of residents with banks, not the non resident money. That is why, they segregated the accounts also and this is done with the RBI's permission and instruction also. Sometimes

RBI instructs sometime, if you want to do something, you take the permission from RBI, because that is the central regulatory authority of all banks.

In fact, non banks are also coming under RBI these days, non banks are also coming under RBI and then plus are the deposits, other deposits are other deposits with the RBI. Now, I looked at the number N M 1 and M 1, how much of a difference statically not significant. So, I wont show you the data hardly any difference, but if you want to know I will give you a link and you can open RBI bulletin and is right in front of you every year my year data is there, M 1 you check the N M 1 data.

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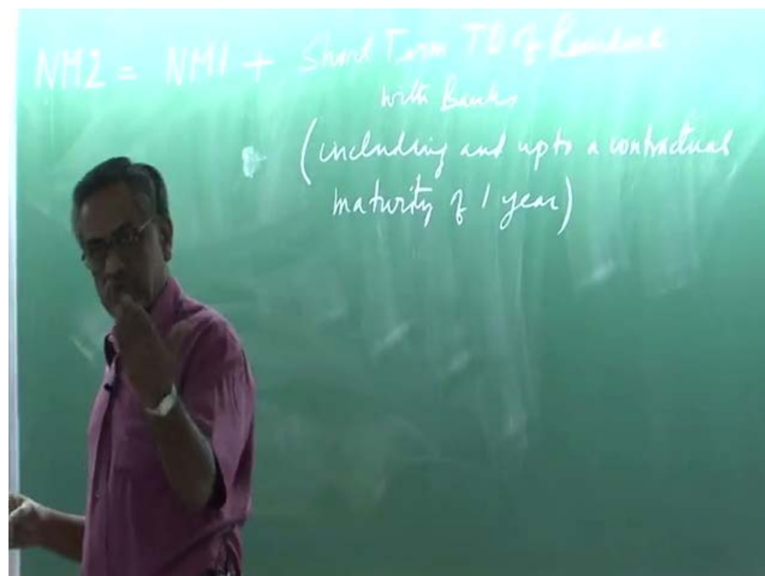

Then came up with N N M 2 another One N M 2 and you wonder sir N M 2 should be similar to the that post office part should come in, but post office nonresident Indian (( )) non interested. So, N M 2 will be very different from M 2 N M 2 is N M 1 plus plus short term time deposits of residents with banks short term time deposits, T D of residents this is very interesting with banks plus no not plus that is it. Including an up to the contractual maturity of 1 year, bracket including and up to a contractual maturity of 1 year (( )) time deposit very short term.

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Then comes N M 3 and you would think sir, N M 3 should be same or parallel to M 3, the broad money, let us see what N M 3 was N M 3 is N M 2 plus long term time deposits of residents with banks long term time deposits of residents with banks plus, which I do not understand call slash term funding from financial institutions. Now slowly you will see, I am losing out on certain definitions, when you say financial institutions and do not specify banks, it can also be non banks.

So, I D B I, I C I C I state financial corporation, state industry development bank, C I D B (( )). And they talking about call, which I do not understand, because call money, I would explain in the next topic topic 3 is a very short term money. Call money is used by banks when, they are in need of cash for 24 hours 2 weeks something like that, they are short of cash, they can go to the call market and borrow money alright.

They can go to the, they can go to the market and borrow money from another bank or whatever non banks, whatever I will talk about call money. This is what I did not understand why a very short term thing is there and it writes calls slash term funding term means, long term funding loans that banks and non banks give out, this is very interesting a little bit confusing for me. Because, it was going into very short term maturity of time deposits, long term maturity of time deposits, now suddenly an item call is also there.

Call slash term funding from financial institutions for whatever reason RBI thought, this is something, which is important for them, for various policy issues, they are concerned with to the straight forward M 1 M 2 M 3 M 4 were not sufficient. So, they have, they had to go into this new monetary definitions N M 1 N M 2, N M 3 number is quiet different N M 3, I have seen that, if I find time, I will collect some data for 10 year period or something and send them to you N M 3 is different from M 3.

They are N M 1 and M 1, they are not M 2 not much of a difference N M 3 (( )) number, because you are talking about the bank finance also now. The money they give out funding alright. Now, I am not going to go into the details, because I got into trouble whenever, I went into this committee also came up then they, which they did not call monetary aggregates.

But, they came up with some variable, which they called liquidity aggregates and when they came up with the liquidity aggregates, another set of 3 liquidity aggregates, l 1 l 2 l 3. I am not going to go into the details of this, when they came up with this liquidity aggregates what, we found is that what I found is that. The post office came into the picture, non banks came into the pictures, something called certificate of deposit, which came into the picture.

So, they have reasons, which is not very clear to me, I did not read the report, why these items were included, I did not complicate the picture here. So, far it has been straight forward easy to understand and learn liquidity aggregates, I am not going to get into the picture, you may not come across many very important things in life right now where, you would be required use liquidity aggregates in your study or whatever.

That is much more complex, they did not call that monetary aggregates, they call that liquidity aggregates. And they have various money market things included, there and I will teach you about those money market things, that is my responsibility. But, I do not want to bring liquidity aggregates, because most of the things you have not heard, you do not know and you would just stare at the definitions.

The monetary aggregates definitions are at least intuitive, you know fixed deposits, you know savings accounts and things like that currency is easy to understand. But, liquidity aggregates items are very complex and there will be money market within topic 3. So,

after topic 3, if you feel like then I can try and give you a definition of liquidity aggregates alright.

Any question any question I am going through a very important part of the course, now I would start developing a concept, which is introduced in a macro economics. And this concept in macro economics comes up particularly in the context of the classical macro model where, do you have the quantity theory equation where you, which you write m v is equal to P T or something P Y quantity theory equation and you come across a term called V M V is equal to P Y.

M is some definition of money supply may be M 1 or M 3 or something V is called velocity of money is equal to P Y P is price average price in India say and y is the total output. So, what do you essentially, you say is that the money supply into velocity of money is equal to nominal income. This is what do you say in quantity theory and this velocity is the concept, which is classical not (( )).

But, the development of that concept is very interesting, it started at 2 continents separately, but more or the less at the same time very interesting. The velocity developed, because of some reasons in north America in US and the concept of velocity was also developing in England around the same time beginning of the 20th century, in the classical this is part of classical macroeconomic. So, what I would do, I would have something here all though, you know you heard of velocity of money, I would have something here, which will now take you back to your classical manqué economic theory that you have learnt, I need that for some reason. So, I will have a section now a discussion on velocity of money.

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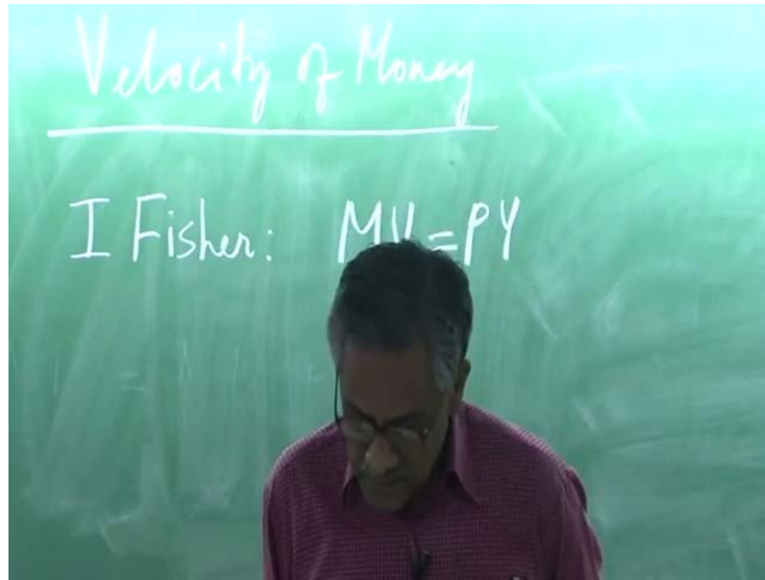

So, I would talk about velocity of money. So, let me talk about the quantity theory of money, which is a part part of the classical model. Quantity theory of money was developed, this velocity notion by one particular economist, who also had that nominal interest rate and real interest rate definition given famous Irvin fisher. And the quantity theory of money essentially said M V is equal to P Y M is some definition of a monetary aggregate same one, M 3 V is called velocity of money P Y P is price say C P I G D P F. Letter whole sale price in x value or whatever and y is output real g d p or something like that. Now, Irvin fisher the book name is you may not get the book in the library here, the purchasing power of money 1900 and 11, you are wondering sir (( )) 1911 2012 is important, because it is still renewal, this is the problem certain things are still relevant.

In the context of the quantity theory of money and algebraic expression of the concept can be derived from the fisher's equation of exchange. What fisher was interested was not in velocity of money, what fisher was interested is very different. Fisher was interested that what is the link connection between money, what we see US dollar and the total amount that the economist spends on goods and services, if I equate that with total income roughly.

If I consider savings somewhere being going into banks and going out as bank expenses or something into firms investment. So, the total income basically, that is the total expenditure on goods or in some ways some are consumers goods and some are capital

goods where, firms our savings go to the banks and banks give them out as loans to firms, firms take them out and spend on some other good called capital goods or investment goods machines etcetera. (( )) factory rave goods.

The total is kind of the same total income is the total spending, what is the link he was looking for, because he can see whatever data he has that the money is a small component of that total spending in the country in an year. (( ))money spend my money is equal to my spending maximum pass maximum spend, you can go into borrowing forget about borrowing now. I borrow from you, I borrow from her or whatever.

He was deeply interested in this is the origin of economics in some sense these are the stall words. Basic fundamental question he was asking now it is everybody may know this there was no concept of velocity. So, he was looking into P Y and M and you can see that M is less than P Y (( )) M is less than P Y (( )), the total money they are spending how is it then he landed upon this concept of velocity.

He says money, If you take the cash it just does not used only once, I I buy goods and give it to you to your canteen manager. Suppose I go and have a cup of tea after class today and I give it to your canteen manager canteen manager (( )) does not go and burn it, canteen manager in the evening takes it to the (( )) buy for his wife, otherwise the wife would not allow him to enter house. So, he is under compulsion to go to the (( )) buy the (( )) and he takes out the same 20 note, which you gave, which I gave him in the afternoon.

So, currency travels and this is what came to be known as velocity and you can calculate average velocity simply by taking the total G M P value or G D P value at current price and the total money supply from RBI side. And you divide one by the other and you know what the velocity number is average velocity in India, this is how he landed upon the concept of velocity first time Irvin fisher 1911 book. And this equation in Irvin fisher was not known as quantity theory of money, this is a coin term later.

This is his equation of exchange, he called you can write it down. This one he called equation of exchange, what is the equation, which determines exchange of goods and service in a country and its relationship to money supply and he landed up with the concept of V.

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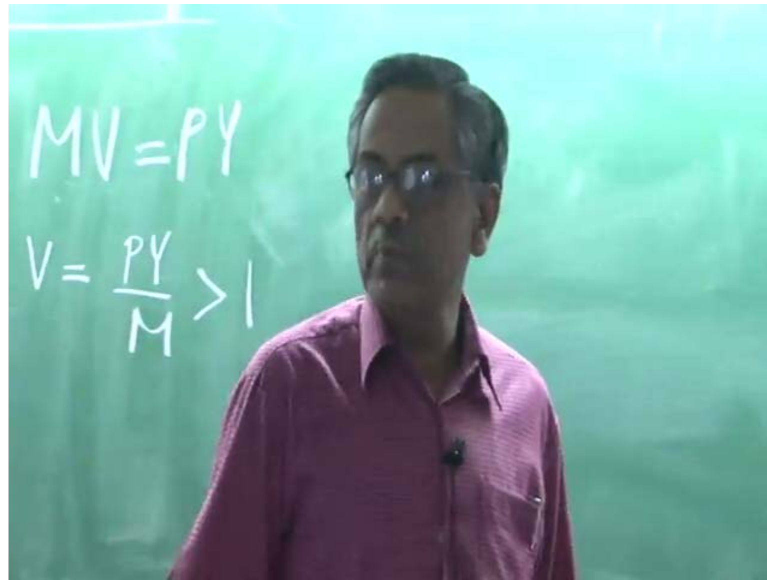

And what he found is that very simple thing, he is found that V is equal to P Y over M greater than one. And I hope you know M V, what it is called money supply into velocity money supply is there, but M V (( )) M V is called total effective supply of money. Money supply is M and total effective supply of money is M V (( )) clear. So, he got a relationship called total effective supply of money is equal to total nominal income not money supply is equal to total nominal. And this came to be known as quantity theory became a corner stone of the classical model, which I need not talk about in this course, because this is a not a macro theory course.

Now, I need more discussion on V, I do not stop, he did not stop here he discovered v then he went on telling how V would change and behave in an economy fantastic stuff. This is I am going beyond your macro theory, now you heard of V, he also elaborated on why V would change and how V would change in any country. V is not permanent a fixed number, it changes on a yearly basis or something it is a fixed number you can say, but it does change. So, that will be my next part of the discussion.