

**Macroeconomic Theory and Stabilization Policy**  
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**Lecture – 3**

Usually, we will find this topic as may be national income accounting methods; they call it national income accounting methods. So, what I did yesterday was I had circular flow diagram a birds, I view of the macroeconomic in a very form in a very simple form very simplified over simplified form. There are two groups of economic agents were active one called house hold which are families. The other one called the companies the basic difference is household are offering services and you know what services they are labor services household are offering laboring services.

The farms are offering what you call that goods and also they are very important thing they provides household with income because without the income household cannot purchase the goods this nothing is free in that sense, so other circular flow. Now, I am going to take you into how we measure the activities here one important economic agent which is missing I told you is like the sun or the moon in relation to earth which is outside the economy. There is one very important economic agent called government, I lifted it out if you have the government has also a part of the diagram.

They will have the connecting lines with both households and farms because households also services to government, government offers income to them you work for government in a form of government organization. Typical workers are the MPMLS bureaucracy police service, police people, defense service people and then earn income and return the government provides services to the citizens of the country which are usually known as public goods. The main different between public goods and private goods is public goods although we call public people, but in economics public means government, so government goods cannot be owned by individual.

They cannot say it is mine, you are going to teach to me only it is a public goods we offer here, government goods, the roads GT roads, he cannot go to the GT road and suddenly this GT belongs to me, one cannot say that. So, it not be owned privately, but private goods if I go to for instance to the book store and buy a pen, it can become a private. I pay for it, I owned it and if I scribble my name on it, look my name is written

on it, you cannot own it and does not mean that the public goods are not paid or money is not spend by the citizen for a public goods.

That is not true government provided the public goods in indirect manner in the sense it collects the tax revenues not in the name of the public goods, but it collects the general things tax revenues which they spend on public goods. They have some public goods which have like impute public goods etcetera, I need not get into that, so this is something missing from the circular flow diagram I had yesterday, I just want to complicate that, but I am just telling you. Now, I will see that there are three agents groups; how we aggregate the activities measure them.

So, what I want to say tell you is the formal name for measuring or telling you how to measure or aggregate economic variables is called national income accounting methods is an accounting procedure. Here, you collect the number of data, how much they have been the expense how much in the revenue to collect the data adds them up you know. Similarly, for macro economy, we also add things up how we add up we cannot add chairs and tables 50 chairs from 90 tables, you cannot add them up. So, it has to be common unit which is called in economy mummies they have to be numerous in terms of which you can measure value of that item.

The common factor I used the market price and the market price is in rupee and in India everybody knows rupee, everything can be measured in rupee. Even services can be measure in rupee, doctor provides you with some health services you pay him a fee the doctor services measures in terms of the fee that you pay a better doctor ask the higher fee. So, it is a better quality service, the higher the market price you can conceptualize that you would be rupee or money in US, it will be dollar in England, and it will be pounds in Russia. It will be ruble depending upon the currency you have and measure the value of goods in terms of the market prices was the question is marker prices can defer.

We do not get into that this rate statically issues if there are differ market prices one can go buy which is the best charge of the market price or one can go buy the average of the number various methods they can use. We do not get into the integrity these things because I would not ask you to compute the value the GDP in Kanpur area. If I ask you to do that, then you will be running back of my offices and wherever you working every

time you realize how many problems are there which we think about it, but at the theoretical level.

Given this theoretical course, national income accounting practice suggested that three alternative approaches which follow from the circular of flow diagram the output method the income methods and the expenditure method. So, I started out with the output method and output method as the name suggest you try to find the value of output produce in a particular industry. Then, add them up by across all industries all sectors of the country, so I break up the economic sector, I need not go into either how many sectors are required how many sectors are there in India.

I need not go into that shortly speaking market price would give you valuation of the output at the end of the financial year has to total amount that you produce throughout the year what producing the end of the year. The total value that you are produce in a financial year which is 2012-13 which is begins in first of April 2012 is started a new financial year and it will end up 31st march 2013. Simply, it looks like conceptually practically it is not simple not at all imagine how many visits you have to make how many people are required to get the data.

So, you measured the value of the output, but the problem another one is that, but it says it has to be the final goods. That means a consumer goods, now what will happen to the value of the output intermediary goods which are not finished which are not final goods consumer cannot go into a steel plant and tell them give me some steel sheets. They do not ask steel sheets there see pipes, they go into supply of other company, some other factory to be converted into something called a final goods or finals which the consumer uses pants bicycles automobiles wherever they used. So, the problem becomes therefore when you collects the number you make sure if you take the intermediary goods output from the factories.

Then, when you take the final goods of another company another factory you make sure the value of the intermediary goods are converted just the market price of valuation is not going to give you that because it will be a double counting. You take a market price of steel sheets from steel plants as well as when market prices are melt as produces by the company to buying them. You and me want buy them, companies would buy them more

produce in something else these are intermediary goods semi finish goods. Then, you go to the automobiles factory gain and you count the value of auto mobile.

Now, what happen is therefore when you going to aggregate economy that you make sure that you do not double count that I am telling you. So, GDP, GNP difference I already told you GDP is essentially what everybody produces in a country, foreigners are domestic factor Indians companies and foreign companies is Indian GDP, but Indian GDP would be only Indian wherever they producing. So, there is geographical boundary India can be producing Japan, Korea, Middle East, any where they can be produced, I will tell you they construct variable called net factor income.

What happens typically, company is working some other company at the end of the year or throughout the year they remitting for income back home I remember I was a student some time. I sent some gift to my family, you can go and buy something this is called remittance, but this is not great earning that I was a student, but the company is earning the lot of money coming back. Similarly, foreign company working India remitting funds back home to another country, so back at home will be a flow of funds because of factors of production going into another a place geographically located and producing something.

So, they would construct variable by the plus and minus number they will do and they will call them net factor income net. Essentially, means the factory income coming from the Indian abroad minus the factor income that is going out of the foreigners what working in India. Then, I give you the example of Japan GNP that is machinery to see is a country which has GNP greater than GDP substantially probabilistic not all countries have that remember, but it is a very different country. It will interest you to suddenly GDP and GNP value of all country across the world somebody do a project.

We can and get a very good idea the numbers are correct which country is more into going into another country working which country more into bringing foreign capital into the country and making what happens you understand what I am saying. I reflect on that, so macroeconomic some quite some senses, then I come to the market price since to say that you do the valuation of price in the problem solved, but have many things does not have a market price as I told you doctor services. If you go to a government hospital

you buy outdated ticket and you get your examination done there is a market price fixed government hospital.

There is a fixed price, but there is no market price for private from doctor to doctor depending upon prices specialization. You looking for and automatic doctor or general physician to an eyes specialist to an ENT specialist to god knows what it will keep on vary changing. However, there is banner no sign board sometimes some doctors chamber are see consultancy fee amount is written, often you do not know the price after you have been examined. Then, the doctor assistance doctor assistants give this is the amount you have to pay, now what we do is that if there is no market price we used.

Indirectly, the value of the services measured in term of services in case of doctors lawyer a fee they asked and how you get the data is very interesting. If you are truthful, you find the income tax revenue to the government at the end of the year I will tell an income you have. So, particular doctor's total income would be done, so you have done dimensions to the definitions of output approach because you are saying output of a goods can be valued at market price and gain. Those values can be added up to the GDP value, but now there are certain items particularly in the service sector like a services, doctor services, lawyer services which does not have output sold in the market.

All doctors come on the particular day and sell their services it is not so what you doing here the value of his or her services you trying to measure in terms of the incomes that is generate for himself by asking a fee. So, in the output approach here you get into trouble because some items cannot measure in term of market prices because they are not sold like bicycle automobiles or a furniture at a market price their indirect. We have calculating value of the services using income approach, now what we see we are using a little bit of income approach also to compete my job with started in the output approach method.

So, certain items cannot be measured in market prices where income approach is required to indirectly measure value of the services. There is the contribution of GDP in the particular financial year you named a very big sector in India where the income approach is used any country as better fraction. There is no market price valuation income approach means the return factor of production there are four factor of production land labor capital and organization. You tell me a sector in India or that is

does not matter in other country where the entire thing is measured the value of the output can be either goods or services measured in term of income.

There is no market price any answer any hint any rough answer even if you have it does not matter military very good anything else. Then, education very good lawyers of course I already said that, but entire government sector some goods they produced in public company which is government owned in India. We having a public sector, but most of the government goods are what police services defense services construction of road. When it is renovated to sell the services at a price, there is some taxes in some places like Lucknow, Kanpur, there is some tolls taxes.

They ask for a tolls tax to you to the services usually, so the entire government sector output which has services the MPS even you like it, you may not e mail them even you dislike it you may not like the MPS, MLS you have. They are supposed to be providing services because they get a fee, but what is the how is the MPS, MLS services. Although, they spend time waste on the parliament of shouting at each other, but on paper they are supposed to provide services on the people elected representative. How is the services measured by the salary, they get again the income approach how is the police services output measure is in term of salary or factors of production that gone into construction of the building buying into jeeps and the car.

The ambulation graphics on the gun or like tools all together construe the police services to protect you, but in India police does services we know that, but that is a black market underground economy. If you have police services ask you how much the fee is, in fact you should ask how much your fee is. Then, you tell them what services you need may be, but the illegal activity usually police services or defense services like defense minister cannot come or the army general cannot come and tell you that they are not going you protect you if there is an attack from Bangladesh tomorrow.

It cannot be exclusive, some people section public goods means it is meant for out if the defense goods means defense. The general of a army and defense service of any job there the job is protected everybody irrespective of who you are, it cannot say you close to Bangladesh border you too much influence by the Bangladesh border I will protect you. They cannot go to Kashmir and then say you are too close to the Kashmir Pakistan

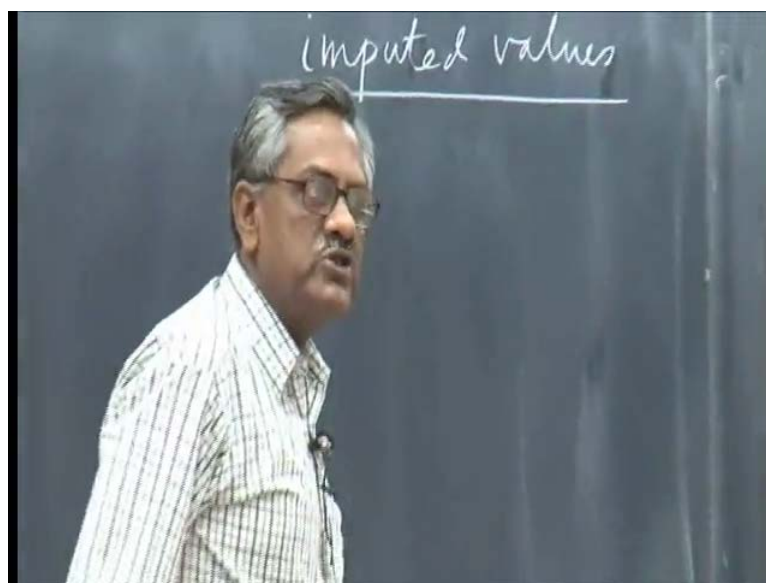
occupy by the Pakistan border you too much influence by the Pakistani, I am not going to protect you in may happen, but it does not happen on paper.

So, what I am trying to sell you is the entire government sector output which has to be counted in a year and will be part of GDP and GNP unfortunately does not have a market price. So, how did you do the valuation of the services the output contribution, it is done using the income approach. So, income to the output approach is started trying to make badge claims, stock claims about how the valuation will be output is not entirely possible for the country. You start mixing various approaches even underworld, you borrow from other methods, remember that next somebody asked me an interesting question what government services let me give you an example housing is a service remember.

So, I rent a flat tomorrow, I rent a flat somebody suppose you get a job, you going to Bangalore, you rent a flat you are enjoying the services, you buy the services at a rent. So, the service valuation is the contribution to GDP remember and that is rent you pay the land owner the land owner suppose to income government. Suppose, note it down is part of GDP income approach, but suppose I ask you the question, I will ask the examiners, I do not ask for anymore, it has very difficult from student give the answer. Suppose, you owned house cant you still enjoying the services you living somewhere.

So, what will happen to the valuation of those services excluded from GDP a part of GNP or GDP, I have to ask this question, can anybody have any answer whether they part of the GNP, GDP or excluded. One person says I am going to note down they can be some condition made and in my own house neither I am paying any rent nor am earning anything. How does GNP consider such services that is why I ask the question in examine hall is the services part of GNP, you know why is called imputed services, note the word an economic it has come, these are new word these are impute services.

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You have an imputed value you try to find out imputed value of this services, the imputed value is directly cannot measured, but indirectly it can measure, if I am living in my house. I have constructed my own house, I am living it a valuation would be done for the services that I enjoyed in term. So, if I had rented to house for somebody, how much rent I have ask which I is the average price in the neighborhood similar house or one can ask the question if I had rented this house to somebody, how much rent I would have been asked.

So, I am not paying any rent, he said there is no money flow, no cash flow here, directly other than property taxes. They can be imputed value of the services, but what is happening country like India, there is the municipality based valuation of the properties done. They charge something called property taxes, I think what government are doing, and they are not going into imputed valuation of the entire amount of services enjoyed by a person who sells the house. Instead, the property taxes indirectly measured at the value of the house at the services us enjoyed I pay the tax to the government.

That is taken into consideration may be in the GNP may be I have an last central sizes organization peoples as to highly get the self own house or flat whatever services as the part of GNP. So, here is something very important for you to understand between the stock and the flow variables, there is the flow of income that he said there is no cash flow. He used the word cash flow the flow of income in some cases like a person who



rented a house a flat he is paying rent to the land owner, so every month he pays that amount.

So, if measured roughly, the services he is enjoying which is the income to the land owner property owner, but there are some stock which produced services can house where. There is no income flow generated, but the service flow is generated every year, it lives there unless it falls down like other day was returning from Lucknow. I saw the old raja lives somewhere and the land is eliminated on the river bank of the river Ganges is very high. They see old structure in a top, I look at the big sizes, they are century old construction, they can break fall anytime.

In fact, if we were to go to Lucknow, I would see that now the amazing side, God knows and when the parts of that hill like seeing is opening up with some erosion something you can see structure is hidden inside. So, deposited on the old structure and the new structure came up still leaving the newer one like century old which are visible at top. It is an amazing side, now what I am trying to say is here, if this services is enjoyed, if I living owned house that you enjoy the services, although there is no cash flow, no income flow it is still important to know that it has to be measured part of GDP.

Then, if something is providing services no cash flow is there is like invisible thing, but still part of GDP or GNP and it has to be valued in rupee terms. I am trying to go to tell you that imputed value method indirectly measured that the other question that came up yesterday is value of food cooked at home consider in GDP. There is the value added, but it is never part of GNP, I am coming to that certain things which has typically value added, but not value added GDP economic activity adds value buying the [FL] from the gate.

Then, prepare your mother or anybody prepares the food at home is adding value to it, I hope it taste better than the raw [FL] from the gate. You buy when the scope the value is added, but it is not sold to you, often these kind of activities go unknown ignored GNP.

I am coming to that, but there is the value added of course what about the appreciation of the value of a property is it included in GNP. I am coming to that where it would I have I am coming very good point, I am very happy will have a long session here because you have just start think and asking with the right questions. Hopefully, I will have the answer for you sometimes, I do not have an answer to honest with you, now the housing

services I have told you little bit. Now, I come to typical think which she is getting into suppose there is property house I owned it in India, you do not see that much if you go abroad which many of you made if you going down the lens of cities.

There are beautiful houses, locked houses, small garden in the front along not a garden along and there is the sign board like a thing pillar and the notice and then not to owner of the houses name is the company name. So, this is the realtor company name realtor company property dealer whose mobile numbers was there. I hope they have mobile number, now landline number may be email address also their website address. It does not mention a price, it does not mentioned who owns that property that house, it only says the name of the company and is announced and announce is refer sell.

Now, this is the realtor company and the typical business pattern is when I was owner of house I sell the house I get in touch to the realtor company like a middle man. This company gets with touch with potential buyers, arranges the transaction between me and a potential buyer at a price which is agreeable by both to both. When the deal is done, he takes the commission 5 percent, 10 percent whatever he announced before what price will asked and he pockets the commissions. That is business coming to you, a question an old house is sold typically in current unless is deep recession the prices of goods are property prices excrete they keep on increasing.

So, this bottom constructed the house at the price says 20 lakhs and now selling one cores 10 years later he clearly makes a money gain this is called capital gain. This board is called capital gain often used in the stock market in the stock market, you can get capital loss this is not actually any value of output produce. So, new house has been produced and old house changing hand ownership in the process to first holder to make some money. The second holder pays the large amount compare to the first owners where the capital gain involved, you would ask sir is a part of GNP or GDP the new price of the house no nothing new has been produced.

No new services has been offered, the only services that has been render is the middle man the realtor services who negotiated the deal arrange the transaction called buying and selling of the house. He pockets in a commission that commission indirectly measure the services render which is absolutely new which respect to that house is the services regarding buying and selling of the house. So, the realtor company's income that

commission measured indirectly the value of services renders which should be part of GNP GDP not the households clear.

This is happening often economy which is based on like Kanpur, largely we are trading economy what Kanpur industrialist doing at businessmen doing I have been told etcetera few areas is there mostly buy goods somewhere come and sell that there. So, they make capital gain which we use the profits, so nothing new is produced, so Kanpur economic will not show that an output said the Lucknow, Aurangabad, Aliabad, Noida or Delhi or whatever they are buying the goods.

Their economic will show new output contributing to GDP what would the Kanpur economy show the traders making a capital gain by offering the services to local citizen. They are bringing the goods from Aurangabad Aliabad Lucknow or Noida or whatever which ever place and suddenly price them. You do not have to go there, so is an offering services called the trading service directly that will measure or is be part of GNP or GDP. So, these factors called these are factor cost valuation or income method or often clip into the output method because output method alone cannot tackle the issues.

So, you required imputation, you required factor cost valuation which is income valuations of various things particularly services not goods so much because service is the tangible goods. It can be sold in the market at a price is the services which are not tangible goods doctor services lawyers services in trader services telling tangible goods not producing them is not part of GDP only a services part of GDP.

Now, I come to the things he has been asked this man here is that many there are house hold items services which are never part of GNP like the services of the mother, my goodness mother can give various services mother can cooked food. This can be imputed value can be obtained by suppose you have a hide to maid cook, then how much fee you would pay her is measuring indirectly how mother is contributed. It is not done usually; I guess data collection is a huge problem, so it is not done, mother services.

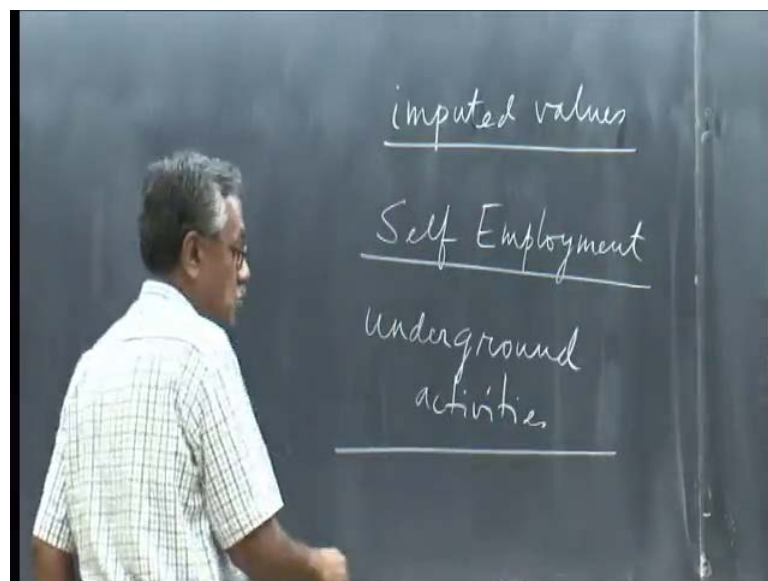
Often, there are services of the often services of the house wife in other respects in housewife like I see my wife teaching the two kids on like my generation. The school tells you that only thing you do life, now is you go back home and do you do not play do not go elsewhere all you have a home work to carry. Now, if I had high tutors, two tutors per day per kid, I would have pay them income well since my wife does it thank god I

am not doing since she does it she is contributing something to GDP, GNP which is not counted, now this is the very important item here.

So, household activities auxiliary ignored GNP and GDP means a classic case of the India is informal sector where you do not know which made earned how many hours they worked what kind of services they rendered. We typically have a colonies kind of fast countries like India which the colonial fast, we have the habit of high ring services abroad. You would not meets much all right there are cleaning ladies institutions like restaurants offices, but house hold families hiring cleaning ladies to clean the bathroom to clean the floor to do the cooking is very rare, but we having a colonial past we have the habits because the British's use used Indians for that, now Indians are using the Indians for that.

We pay a huge income a huge income is generated our money giving to them is a transfer or income may be, but the income generated because is a services every day they come and work and that is why you pay them, but is not part of GNP GDP. Now, I come to various things small issues, then I come to know the things there in this self employed people self employment very important activity in any country or these activity included in GNP, GDP I would explain self employment.

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Self employment this is very important, the self employed people self employments is a very interesting thing self employment you do the thing for yourself. I do the washing for

myself, I enjoyed carpentry work I construe I made table or a wood. I have seen abroad people I met people, in fact many years back they took me to a house under construction. He shows me that the house they construct themselves my goodness, but it is not complete building is a wood based houses. So, the entire house this family his building for themselves everything is get fixtures insulation everything there are manual available which have do that, so one can have a hobby.

It is a habit they enjoy doing it is a laser work holiday time weekend, they working and actually when he told me I just cannot believe under construction, but gadgets are available manuals are available guidelines. He just does it like a foolish person does not know and try to do something which is beyond to capability [FL].

Now, this self employment when you do that is a part of GNP, GDP usually not I grow vegetable in my back garden vegetable garden which is very is that output part of GNP GDP. The vegetable I buy from the market is part of GNP GDP the vegetable that I grow in the back garden that is not GNP GDP all. Similarly, the activity particular like India which is famous for that called underground economy activates which we call black market is it really come GDP and GNP. So, I should mention coming from India should be shine should be mentioned underground economy this is the famous thing even over ground people.

So, called I very much broad with underground activity the live over the ground above the ground, but they underground activities, but they do earned underground income you went to buy, you went to rent, tomorrow you go to Bangalore. This is typical story, you go to Bangalore, you want a flat to rented single bedroom flat, you got a job there, typically I have to come to say stories do not know anybody if you anybody you start sharing somebody. Later when you become senior you have your won flat some time you go and start beginning with renting a flat yourself or says two friends wants and looking for a two bedroom flat both are real terms which are called real estate agent in India property stealers.

They would tell you the rent they show you around the houses, but one thing they will do this is called salami in India they will take six month, two month additional rent which they will not give you received. Then, you are paying every month rent that is an x y income. So, this is the black economy, these income all right are not part of GNP or GDP

in India, at one point I was told I forgot the number, black economy is nearly 40 percent of the white economy. We do not have correct estimate from time to time a private researcher does some job estimate the black economy in India, it has grown to the somebody is 40, somebody says 50, somebody tomorrow may say 60 percent economy.

So, there is the parallel economy running in India, which is the black economy underground economy, to that white economy and you can imagine the headaches government collects the data. So, what will you understand Indian GDP, GNP numbers, if you see tomorrow is it an over estimate or believes a gross under estimate is a grossly under estimate number. So, you would ask me sir is it worth working or macroeconomic using Indians number, whether numbers do not even properly measure the actual level of activity.

I would say absolutely correct, but I cannot help it, because nobody knows the numbers, not revealing the names and BJP is asking why won't you reveal the names, why you shy to reveal the names, maybe some friend's name will come out. So, we are trying to protect the friends, so anywhere the problem is not black economy or black money start abroad. I am not trying to confuse you, but black economy in your country within the geographical boundary, so the GDP number is gross under estimated alright or labor part of that the intermediary goods I have already told you is there in my notes.

Now, I am going to tell you about trading activities, I already told you the value added approach, I told you how we measure GNP, GDP is a value added. We reach the steel plant acquires the value, because it is sold the price, so long it was under the ground it has no value to you from 0, it acquires some value, but it is a mix from various processes chemical processes and other processes become steel. Whatever combine with other metals etcetera, other rules, then acquires another value when we need the factory for some other, then it goes to steel plants, then it goes to various places convert to another place another value is added.

So, you measure the total contribution in terms of value added, then every stage a production is just not one stage, which you understand. I hope you have the furniture is it being constructed one stage not at all the things come may at all they translate all the way from the trees they were cut to Kanpur to some goods go down here wood seller. They are process little bit cut given some shapes of wood carpenter are used to it added value,

so various stage it is adding value and then furniture is sold. So, you need not take the final market price, you measure this by value added on the stage, but the data has to be collected sometimes it is easy buy.

So, we had a value added that at what vat just an extra point I mentioned, it is a value added tax, you understand the value added term what is mean value is added taxes improve that every stage as opposed to the tax imposed on the final stage. When you reaches the consumer value added is must transfer this word some of you, at least this is what it is, this is stages of accounting practices. I am talking about one more point, I would mention before I go to the income method or something else, today's lecture will be 15, 20 minutes, it will end and we have go for lunch one hour lecture is that, how are inventories treated in that man queue.

You have the section you should read how are inventory treated in GNP or GDP, you know what inventories are you produce five, you totally produce 500, but you are taking the market price of the value of the goods. So, you are taking in terms of 400 that you have shares in remain inventory which will be sold in future often company; it is the rare thing that companies producing and selling exactly the same amount a production. The sale is two different numbers. Some time is the sale number is more than production, some time the sale number is less than production, how can it be the same number more than the production.

It can happen because you have amount which was unsold in the past carried over to the present, but it cannot happen lot with the perishable goods like food items. Then, you take cold storage etcetera; apples are happen you can know apple are now in summer you think apples are producing India. Now, not all in winter they will produce, so cold storage facilities are facilitating sale of apple in summer even in months, now inventories these are called inventories what will the GNP, GDP, people do with the inventories this is what they do. I have an example, which this is entirely from man queue, let us read out he has given the example of the bread produce by the bakeries inventories.

If the bread spoils nothing is added to GNP, GDP simple thing, however factor payment which is extra have been made. This has gone into the income aggregate country bread has been produced in the factory factors, payment are been made labor, but bread have been sold. So, output approach has not been showing any value, but the income approach

will show some income generated very complicated situation. Now, this extra income composited by full amount of decline profits, how the bakery is due to spoil bread, how you will adjust the amount of bread will spoil.

Now, get the adaption of profit of the company owner or the income has to pay in the other factor, so the total income of the country I will come to that that will be all payment factor of the profit also, it will get compensated when server I could sell it. If the unsold bread is put in the inventory to be sold later cold storage, they will be consider GNP, GDP under the assumption that bakery has been purchased is the extra bread themselves. They will put the number in GNP for the financial year, the unsold bread will be shown as the owner him selves of the purchased it, he is not going to purchase that, you will show, but what is actually going to do he will show that purchase.

You do that selling actual selling next period next period means it is not enter to the GNP GDP which is an amount carried over the past. So, essentially GNP, GDP talked about the output production of services not the sale can mismatch with output for variable reasons. You cannot sale because demand is low down in recession, so you have inventories to be carried out to the next period to sell the GNP or GDP production to the output. They have to come to the inventory in the current period and if it is not being sold, you count that the something that how will entered the accounts books accounting method is suggesting.

You count it bought your own shares 500 shares, they do not be use that actually, you sell the period, when you sell them, it will not in any book anymore. So, later we going the inventory sold all though no extra wages of other factors are made, they are not considering GNP, GDP anymore. Later, next period they are consider inventory disinvestments, they are called inventory disinvestment inventory investment is increased, the inventory for not having be able to sell, inventory reduction or disinvestment. So, inventory would match each other balance amount, I am going to call inventories later the macro economy very interesting.

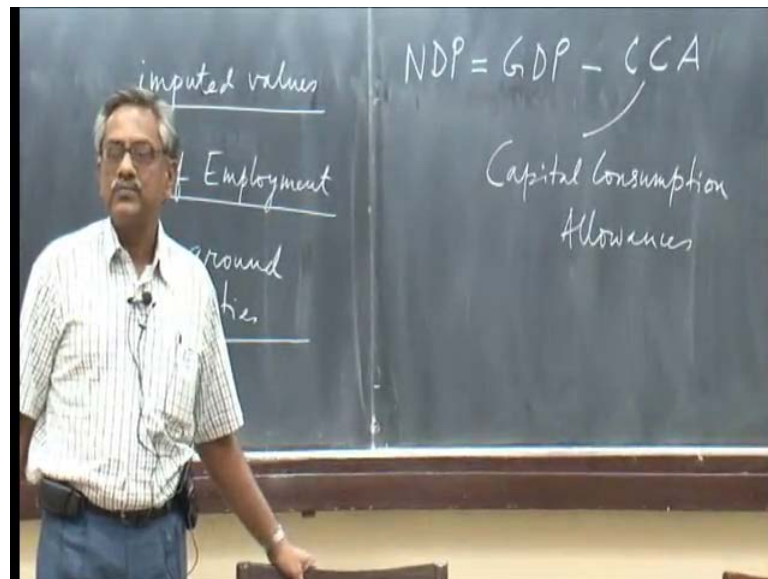
What you have understood, what I am saying is a very important item, remember in the real world the company is not produce only the amount company period company is producing those things, selling part is done by another part of the company. There is coordination, but often is happen that you more sell what you have in the current period



an often all happen, you should sell them what you are produce in the current period GDP, GNP has to do only production an output you have seen yesterday. In my listing, on the tree, on the board, the GNP, GDP has a sub variable subordinate variable called the net national product or net domestic product.

You wondered is what is that net domestic product or net national product, of course it is something, which is deducted from gross, what it deducted from gross like net domestic product must be equal to gross domestic product minus something. This minus something in macroeconomic, there is known as capital consumption allowances, GDP net domestic product is equal to GDP minus CA.

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It is known as capital allowances sales, the capital assumption allowances is very interesting in macroeconomic when we learned macro economic theory, when we talk about investment, we talk about gross investment and net investment. The gross investment includes the net investment plus we call that there replacement investment representation allowances etcetera, what is it? We look at the furniture in this room. Tomorrow, when I buy a new table and add it here, capital goods or a new machine, I buy that is an addition to the capital that is investment. Tomorrow, when I spend money and repair on this table or the chairs or the board or anything else the TV screen etcetera, fan are making investment, which are replacement investment making expenses.

These are to replacement investment that is I am replacing or servicing even a entire chair working a buy new chair to replace, it will not be a counted as new or net investment. That will be part of replace investment for this room all right and the new is absolutely that new has come we added to it.

So, the gross investment expenditure of this room, whatever we have done including replacing and entire tables entire tables entire chairs entire light point or even entire wall which got damaged is still not new investment is room existing. Then, what are you talking new the day one day one all right that is new investment, so capital consumption allowances is how many years when companies and factories are produced. There have were and tear of the capital of machines including tables, capital investment would be tables, chairs, lights, which requires replacement by the servicing wall requires services painting, which requires repairs for seepages.

So, when you use generated producing goods capital goods, it requires servicing, it requires replacement investment. So, at the end of production year or the financial year, the company is supposed to report to the government, this much of money is required now to services and find and to all my capital equipments to make them ready for the next financial year. So, this is like a money set aside, which government allows company towards replacement investment or depreciation allowances of capital, where company is gradually spent in the course of the year, but the government allows that from the gross sales value of goods.

When the income tax to be calculated government allows company to deduct CA, which they have lot spend buy, they have spend some of them have spend already, so the cost. So, the profit distance cost net profit is still gross profit their show into the government, then government allows some other contrarian something and then finally, net profit is arrived at or which the taxes imposed. So, for gross domestic product, you are looking at anything that has been produced, some of them may be replacement investment goods, you see number of fridge produced array some of the fridge replace around or some of the fans, just replace the investment, not an addition to the new fan.

So, how would you know that how much that has been produced towards replacing existing capital goods and how much has been produces as addition of new capital, which we call new investment or net investment? So, from the gross number of output

we get we deduct capital consumption as a capital consumes something, what we consumes is, it requires energy, capitals always very angry. It requires to be freed of certain parts of working replacing them and we get again it is functional for you like robust, then again produce low cost in the next financial year.

So, NDP is nothing but what is the new that you has been produce, which has been absolutely new things that I have been sold as opposed to past of it, which are primary goods that I have been invest. It is connected with the consumption of investment in macroeconomic, we teach that by the way I will have the investment topic; you will enjoy it in this course. The macroeconomic level, how investments are studied investment always has two parts gross investment net investment and the difference is same.

Essentially, this part of the expenditure of company are often not buying a machine part of the investment expenditure company are buy a machine to replace own machine by some portion parts to replace the part of the machine. That home is your own service engine, they come and service a washing machine, we are family at home, which are called consumer durables, which all requires servicing, durable goods, always required. The fun of durable goods is you use it for 5 or 10 years over time 5 years 8 years, 20 years I have noticing in my case, every time I buy within a couple of years, when the voluntary is over I nerves I buy a service contract.

So, suppose aqua guard service contract, it even breaks down washing machine has a service contract, which call it does not have computer. I should either know many things have service contract, service charges durable goods, whether it is use at home or factory requires services, they would give you service over a period of time, just one time period. It requires servicing and they are with considering replacement investment on the new investments comes very important. So, I will discuss this more, when I take a investment a couple of topics later, but for the time being for today, part of the outputs method discussion I had in mind is over.