

**Macroeconomic Theory and Stabilization Policy**  
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**Lecture – 4**

We have been going through something called national income accounting methods, these methods guide you as to how aggregate variables like output can be measured. We discussed so far only one approach, which is the output method; however you are seen that the output method is not sufficient to compute the value of the contribution of a number of sectors are number economic agents, output national output. For instance there is a large sector which is not consider to part of the economy, but it is very important for the economy which is the government sector the government sector.

The economy I mean the private economy, the government sector which is like a satellite has does makes image contribution to a country over a time period, in a given time period. What we found is that that the governments output which is primarily in the form of services cannot be measured using the output methods. We suggest that there will be market price of goods which can be use to value the contribution, this is the total value of output can be measured. Services usually cannot be measured just not government expenditure, the government services, other services as well cannot be measured using a market price method which is suggested by the output method.

So, what we found is that they are using a factor, cost values relation or what we also call the income method. The income method has another name which is called the factor valuation of a good or a factor valuation method reason is factors of production in economics which are required to produce anything a good or a service namely labor capital and organization, receive income when they are used to produce something. So, the factor cost valuation is essential looking at from the point of view or somebody producing goods, using the factor services and therefore, he or she is incurring cost which is income to the factors of production and goods is produced, and then of course that helps to determine the market price at which you will sell the goods.

I want to produce table, I require factors, products I require capital, I require labor, I require raw material, I require land, I pay them that is my cost that in curve to produce the goods. This cost from the point of the view factor of production is income that is received when I work for IIT, Kanpur I receive any income from IIT's point of view

government want to increase the cost. So, factor cost valuation is essentially the income method because it measures the income that is generated.

In a given time period when there are goods and services produced, so what we found is that whenever market prices are not available, there is a factor cost valuation there is done from the income method is used for those items. Although, broadly speaking we are under the output method, but output method cannot be used as everywhere like government services like lawyers services, medical services etcetera. Now, if I ask you a simple question that I would now start talking about the income method I have discussed the output method extensively in the previous class.

If I have to do an income method or use the income approach to measure the total contribution in terms of economic activities in a country, in a given time period. There is an indirect an easy way to get the income counterpart or what we obtain as GDP or GNP, how is it? You can take a simple case where goods are valued as factor cost, they are already in income terms factor cost means income. Like government expenditure already in income terms, how is government expenditure measured government output, well how much government spends on teachers on MP, MLA, IAS officers, IPS officers, Indian economy service people defense expenditures police force, they are already valued in income terms.

So, that part of GDP is already in income term, the question is part of GDP using the output methods, which has been valued using market price output is not income term. There is the simple logic that when the producer evaluates the total cost of production of good. It is essential looking at the factor income it has generated, but that would be sufficient for him he would then add his income to it.

So, that it now the total income generated, then brings the product to market, it will realize these taxes like sales tax, VAT excise duties which are called indirect taxes. Now, these indirect taxes will be added and then the good arises at a market price to you and me. So, when you see product in this day in India there something is written maximum price, maximum written price is nothing but it covers all the cost all the incomes that have been generated when the good has been produced plus the taxes has been added.

Now, it is up to the retailer when he sells it where the maximum written price because the retailer is giving you service is buying the good from the producer. Sometimes not even from the producer, from the wholesaler, from the producer goes to the wholesaler, who keeps the cut gives it to the retailer and retailers want to keep something. For

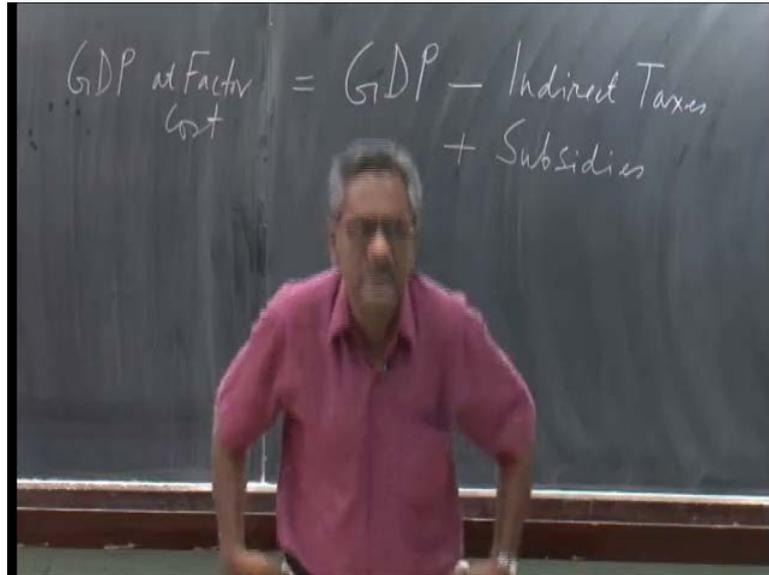
instance, he has to decide what price is brought, it is less than maximum written price whether it you give to a maximum written price. Typically, I have a fight when I go to the shop, I tell the shopkeeper why you charge the maximum retail price is not a retail price. So, you are charging the maximum, so you want to make the maximum profit or the maximum margin, you want to keep for yourself.

So, I tell why you want to give the maximum margin some producer some retailers shopkeepers retailers are shopkeepers, [FL] some shopkeepers are very are adamant. I would only sell at maximum written price, if you do not want to buy, do not buy. So, the maximum written price is essentially covers all the cost that I have gone to it including the producer income, which is also the cost for economics point of view is a producer organizer is the organizer is the factor production.

Then you have this intermediates whole seller retailers their profit margins, they are giving the service you do not go have to India to produce buy the goods. The goods have arrived that you do not step may be gates may be at shopping center where you have to work, but now that part of way where the retailer sells retailer most be keeping a return from himself for the services is giving you. If you ask the retailer he would say I buy from the whole seller, so the factory is in Chennai, he has set up various whole sellers contacts throughout the country, where he shifts, the goods he shifts arrive to the whole seller from the whole sellers, then it gets distributed to the retailers and every stage there is a profit margin for a return.

So, now at the maximum written price or word less than maximum price, when a good is pardon is sold to you and I ask you from this value of good which is a market you tell me how much is the factor of cost, you would basically deduct one of item. You know which item you would deduct taxes because minus taxes the rest is income to somebody. Either the original factors of production include the producer plus the wholesalers plus the retailers. Then, market price that is only the indirect taxes it is a VAT or sell tax whatever. So, if I now tell you I have a quick way to getting a income counter part of the GDP which is the output variable all I have to do is I take GDP which is valid at market price. When it is not written, it means that is value that market price when simply written GDP.

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So, I can say GDP which is the market price if I subtract that indirect taxes, I must be getting the income counter part of GDP, which includes only the income that has generated. That is not called any income, it is the variable has very interesting name, it is called GDP at factor cost, which is essentially income factor cost is nothing but income. So, all services and cost have been curved to produce essentially an income to those factor or production. He may be a retailer, he may be a whole seller, he may be the producer, he may be the land owner, he may be the capital owner, he may be the raw material supplier, he may be anything, the labor that works and earns some wage.

So, the income counter part of GDP is called GDP at factor cost and the simple simplest way to find it out is simply from GDP few deduct indirect taxes and indirect taxes. I told you what indirect taxes, there are two kinds of taxes in the world one is called indirect taxes one are the direct taxes. Direct taxes are directly collected from you and me like income tax property tax wealth tax etcetera. Indirect taxes, we do not pay to the government, so when you buy a shop, also go to the government counter and pay the tax. Now, you see include in the price, so indirectly we are paying to the government, so it becomes a responsibility of the retailer and the wholesaler to pass on the tax due to the government and then there cheatings goes on. If they do not give a cash memo, there is no proof that he had sold it, although he is asking you a price inclusive of the taxes. So, essentially pocket tax revenue does not give it to the government there were the cheating occurs which is called tax evasion.

You evade taxes you avoid payment of taxes, but we as consumer always paying always indirect taxes. Remember, we cannot deviate it because market price includes it is up to

the seller either it is retailer or the whole seller or the producer increase itself whom they sell. When he went, he sells the product and charging the taxes already in it including it should be responsible to keep aside tax revenue and it pass it on to the government, but they do not, but if you go the western country, more develop country systems are much more clean. Every time you buy something, you get a received; there is no exchange without receiving. I had single instincts of any change there when I was a student where it was repose. It was without a receipt a cash memo, but here arrive everywhere, he do not even if you go and buy say which we usually do a cold drink.

You buy a cold drink, there is also a receipt everything has tax and the taxes passed out does received immediately records the transitions, so that is why government is [FL] government. Now, having said that I had I am not dumping with it, now I tell you am much more difficult story, suppose like which is happening in same a renewable energy products like solar energy and other things. It may be happening infrastructural related industries. Government in order to encourage and industry to grow to become from very young to ((Refer Time: 15:11)) or whatever provides various kinds of subsidies.

Now, what are subsidies, this is the opposite of tax instead of taxing a good, it provides subsidies means the producer who incurs 100 rupees suppose as cost to produce something. If he or she receives subsidies from the government, the cost becomes 80 rupees or 70 rupees. That means part of the cost is burn by the government, the government bears the cost which is called subsidizing subsidy say India famous subsidies, fertilizer subsidy for farmers is there been for long time.

So, when farmers buy fertilizers, since they are poor government provides subsidies means it is sold if part of the cost is brought by the government what happens to the market price? Immediately, the market price is down because the cost adopt to the market price along with other things, if the entire cost is not burned by the producer part is given by the government the natural price will be down. So, fertilizer produce goods self producer to farmers at low price.

Now, if you want a good which is you have evaluate and that market price, but it has a subsidizing it what will you do when you go form factor cost to a when you go from a market price value would go to a cost factor cost value good. You will have to add the subsidies to get the true picture of the cost because the true picture of the cost is reflection true factor income that has been generated. That factor income has been generated, but the market price does not show it because part on factor income is paid by the government. So, one more item I need to add here is if you want a GDP cost from

GDP and market price. This GDP when nothing written is essentially GDP in market price the one I discussed in the previous class.

So, from there, if you deduct indirect taxes is fine, but you need to also add the subsidies to get the GDP at factor cost because subsidies are also part of the income that has been generated it does not show in the private market price the goods price. So, you have to add the subsidies now after this point, I am going throughout loudly and slowly and repeatedly because many of peoples hearing this first time. Also, it a new course new subject for many of few and I want to do well, so you should understand at least what I am trying today. We will have discussion calluses there can be millions of questions we will take up in discussion classes.

Student: ((Refer Time: 18:24))

Producer level so that producer can produce the goods at the lower amount of the cost that he will have to bear from his pocket. It is given as insensitive to specific cases depending upon whom you want to sometimes to benefit the producers. So, the producer produces like solar energy very expensive, so there are subsidies available from Indian government agencies. There is organization called IDIDA, IDIDA provides give you incentives. Sometime in order to keep the market price down and the market price is down because the group which purchase that products should be given the benefits subsidies are given.

So, if the cost are down, automatically market price will be down or often the subsidy may be the cost are not down, but when it comes to market price the producer is told by the government. You sell at this price, the price that you charge  $x$ , I want to you sell it  $y$  and  $x$  minus  $y$  the amount that you cannot recover from selling good in the market we will give it to you that kind of subsidy also there.

Student: ((Refer Time: 19:52))

Taxes can still be there that often is the case, subsidies when they are here, often is the tax holiday. Also, there called tax holiday government tax of the taxes burden, but income tax still be there, the producer make an income and income tax still be there the indirect tax may not be there. So, again depends upon the situation what the policy of the government is and what the objective that they have

Student: ((Refer Time: 20:30))

That is not considered to subsidies are taxes are not there, subsidies are direct benefit, even it is at subsidized prices, it is subsidized at the levels of government's price because ration shop prices are government prices. Government may have purchase that would 50

rupees per kg and sell you at 25 rupees. Essentially it is giving a 25 rupees, but subsidies are not giving to any third party, subsidy is itself it purchase some farmers output some point at some price.

Now, sells it a lower price, so it is bearing the cost it is in incurring a loss it is deliberately incurring a loss which is in the form of the subsidy. Subsidizing essentially means artificially lowering something the prices. One more thing I want to tell you when I learn this national income methods are particularly factor cost valuation products, variables from GDP at market price, how can you get to GDP at attractive cost. I was then in error and tax book also I had, I just wanted to mention this there were socialism most socialist economist where rampant, the east Europeans countries, Soviet block which we be use to call including USSR and the part of countries Czechoslovakia, Hungary, Poland etcetera. East Germany and you also had India under socialist influence we have five years plan here, we are the public sector producing just not services publish the producing most of the goods, many goods. Even I told you there is to be something called scooter in India, there is the manufacture scooters allow India does not manufacture scooter India. I was told manufactures not manufactures provides the some retail output details are services are petroleum or something.

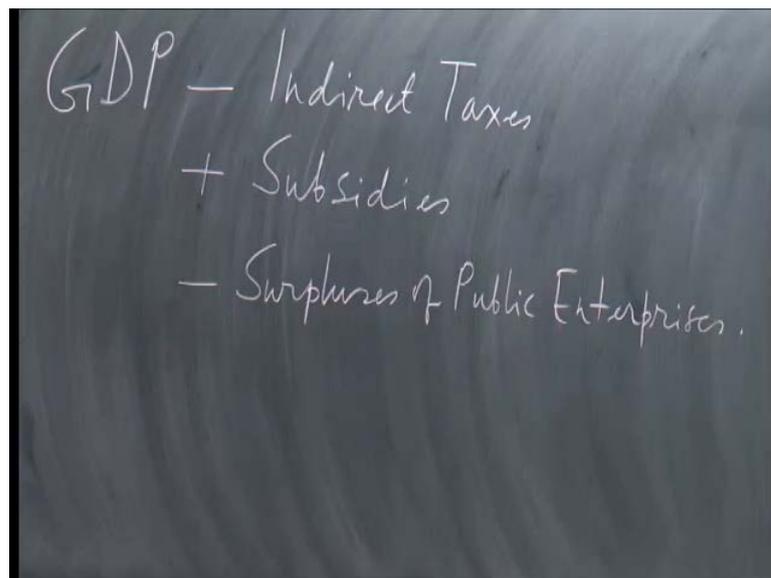
So in India you had also good produce in the public sector, now the concepts of public sector producing goods or public sectors selling something. There can be factor cost involved, but there is a public sector does not make the very common variable called profit, this is the philosophical understanding of it. Government cannot make profit, you and me, if we open a company can make profit, now the problem is profit is a return to the organization is factor of production. So, the return to the organization is a factor income because organization is the factor of production.

Now, [FL] sold some goods or services whatever may be they are collecting fee from a say a park or a zoo, which is government control, and then make a surplus more than what the cost we saw. I am trying to say now would you call that profit of the public sector you cannot. Now expression for that was surplus of the public enterprises not called profit surplus or public enterprises. The problem is in national income or a factor cost valuation will that surplus part of the factor income, government is not part of the economy government is the satellite. So, any surplus it earns can be part of the factor cost of the country, government is like moon, there is a profit on moon is not part of the profit on earth. Profit are not concern, so moon earn some surpluses, may be it has earn

some surpluses we do not call it profit either we call it surpluses and cannot be part of income generated on earth.

So, one more item there is to deduct from all this because government sector is to produce goods those days still does in India. Well, sell, Indian oil, Bharat petroleum, what are they government companies, sometimes producing goods, sometimes, just operating as the traders buying from somebody Middle East and selling the goods to you. So, one item as to be also deducted from GDP at market price valuation because all government output goods have been vaulted market price now, governments goods are market. They are sold in the market like petroleum products still etcetera producing government companies. Suppose, there is surplus, so ideally speaking from GDP at factor cost, which should include only GDP version of GDP which includes only the factor incomes surplus and enterprise or not factor incomes, so they have to deducted also.

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A photograph of a chalkboard with a handwritten formula for calculating NDP at factor cost. The formula is written in white chalk on a dark background. It consists of three lines: 'GDP - Indirect Taxes', '+ Subsidies', and '- Surpluses of Public Enterprises.'

$$\begin{aligned} & \text{GDP} - \text{Indirect Taxes} \\ & + \text{Subsidies} \\ & - \text{Surpluses of Public Enterprises.} \end{aligned}$$

Surpluses of public enterprises, this is another thing that has to be deducted GDP at factor cost. Now, can I ask you simple question in a exam find out NDP at factor cost how you get it. In exam suppose, I ask you a question what is factor NDP at cost, I give you some numbers what will be NDP at factor cost high, I ask you what will be a very simple question any prefer at factor cost, what will it be this? Is very simple we can use this formula NDP factor cost will be NDP minus plus item has been written that is all NDP are factor cost.

Suppose, I ask you GNP at factor cost, the same thing you have to do that best way to arrive the GNP factor cost. Similarly, NNP are factor cost if I want you can get it NNP

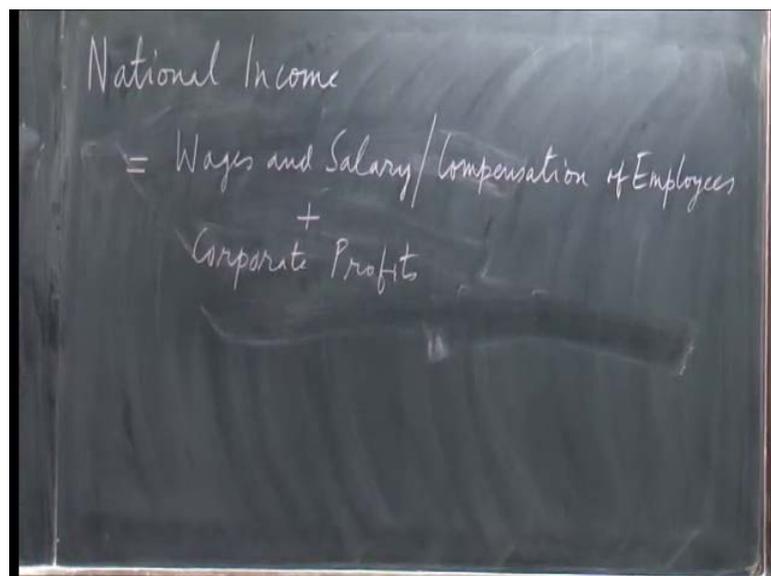
factor cost. So, this is one simple way out roughly speaking getting the factor cost valuation, which is the income method variable, but there is the direct way to measure the total income generated in the economy.

Student: ((Refer Time: 27:36))

Revenue includes all the cost, also I am talking about the cost incurred by the government produce something like steel would have higher people on resources on the private economy. So, that part of the income is already there, problem is then income to the organizer, in this case it is not a private company, but the organizer is the public company or a government sector. They cannot be earning profit and profits are only part of the factor income, so there income is surplus and that has to be deducted. Now, there is a direct way of measuring national income, we called national income using the income methods. This is the indirect way from the output method how can you go to the income variable.

Now, this is direct way, the major the income variable, and this is called the famous that the name is also national income accountings methods, what is called national income is not called GDP, GNP, etcetera. Some people associate NDP at factor cost to be national income NDP at factor cost is closest to national income. That I will show you now I haven't shown that to you yet, but there is direct way to measure the income generated in the country in a given time period. The variable we get is not GDP not NDP, we do not call them, NNP or GNP, we call it national income, so let us go into the direct method.

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$$\begin{aligned} \text{National Income} \\ = & \text{Wages and Salary/Compensation of Employees} \\ & + \\ & \text{Corporate Profits} \end{aligned}$$

The direct method, which is called national income essentially, it adds up arithmetically on number of things, number one, there are two expressions that you will find in the

literature in the text books. One is wages and salary, there is another expression that I found available for instance, for instance in Indian documents if you go to CSO documents central statistical organization documents when national income members are there. Often, this expression, I also found called compensation of employee's. Compensation of employees is another expression also exists.

Essentially, it is the return the factor income of labor, there is the factor or production called labor, labors return or income is called wages and salary. I am a labor, I offer labor services called teaching services, I get a salary here or whatever. A carpenter is hired by somebody is offering from services then anywhere, sweeper, gardener offer services is a wage and salary that is determined. Wage and salary the two words are same, but they are often use together like this. There is no difference between wage and the salary is a same thing, in macroeconomics you will hear wage only sometimes, only the words salary sometimes together in national income.

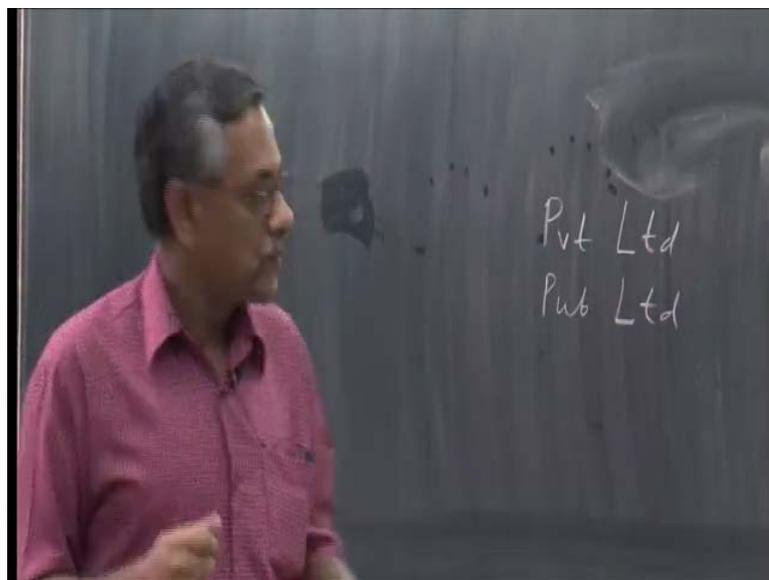
For instance, what I have in my list here is very important area coming because here from here, we get the macroeconomics variables for the models. The models that you will have start getting variables from here, not the previous ones, so much wages and salary compensation of employs. Then, you have corporate profits, plus corporate profits. Now in the world today corporate profits in the world, today what we have is two types of organization set ups before the corporate world was discovered or invented. It was hiding somewhere before it was invented; you need to have single ownership companies, partnership companies, sometimes two brother two friends, sometimes three peoples partnership companies. That kind of organization set up we have whatever is produced, is produced by an owner, there is an owner you will still find that in small shops etcetera owners [FL]. The modern world even Bombay films are made they have the fascination for model organization set up the corporate world, what is the corporate world?

The corporate world has very different organization set up for companies, usually the corporate world in a corporate company, they are called share holders who own the company. So, the corporate world has companies where shares are sold to collect the money to produce the goods to produce the company. The company once to do has oppose to the older world ownership companies and part of ownership companies. There, the owners them self put in money and it was go to a moneylender like a bank or a private moneylender to borrow some money and run the company or the producing units. But in a corporate world, it is very different, in the corporate world companies can sell shares collect the funds can also go to the bank or non banks collect funds, and its own

money, it can invest by buying share of its own company. So, I own some shares, but the problem is in a corporate world in a corporate company if all share holders are owners of the company, there is no single owner or a partnership form.

Then, how can you say this is Ambani's company and this is Tata's companies, this are Birla's companies you are talking about one family to three people. This is not an ownership company, then how you call the reliance belong to the Ambani and tesco belongs to the Tata's, you say that is corporate companies and how do you know why they are corporate companies. You will see typically after corporate companies, some name Tata consultancy services.

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Then PVT ltd or Reliance energy pub ltd, typical corporate companies at this suffix at tell attach to the name private limited or public limited. This are corporate companies, in a owner ship company you want find this titles Rahul Mina and company [FL] what your name the orange shirt Arnav [FL]. So, if a public private limited company which are corporate companies sell share to collect money and also goes to the bank to borrow money to running this company or to a non bank also, like this IDBI, ICICI to borrow some money or the world bank to get some money, how come they belong, we commonly say Ambani and Tata and the Birla's reason is the main majority share holder are the Ambani's [FL].

All holders shares of the company, but only the majority share holders decide the dissections, take the decisions decide the fate of the company. Therefore, has the indirect real ownership of the company by becoming majority share holders. Then, you have thousand of millions of other share holders, somebody earning 10,000 rupees of the

share, somebody rupees one lakh worth of share does not matter. So, the majority share holders, if you look at these companies you see is one or two or few people.

Suppose, you take a public limited company which essentially means when the company shares it public announces news papers that we are going to shares come and buy our shares. Face book recently have public book in US, billions of dollars, following day he got married that is nice to get married, you have Face book, you float millions of dollars are the share. Following day, you can get married, you can get married to anybody, you do not need a wife the night before. They are in line, queue you know more than two course, but you play for me.

So, you what happens is majority share holders become the real owners of the company because they have the maximum voting power in the board of directors. In the board of directors that were it is decided who owns the company who rules the company answer. Sometimes, they are take over very interesting game, goes on like just the way the political parties change the government, majority votes that a political party, group of party received have the UPA and NDA. Tomorrow, if somebody else comes, now what I want to tell you, therefore in corporate world, all share holders are owners are company the effective owners are only view.

So, that flavor or ownership company partnership company still remains, but in the different set up number one point remembers that public limited. Basically, you sell the shares to everybody, so they can millions of share holders private limited companies means you sell share to a few 16, 17, 18, 19 people. They own entire company and they are also can be a majority share holder's, private limited company, only few share holders. So, tomorrow you open you are a small consultancy firm; you may have decided that you and your friend are going to and your family going to own it only it is not going to a public issue, you can make it a private limited company.

Private affair we called a private affair private limited company is restricted to my friends only. So, private limited and public limited company are there for the designation, this is the corporate world, so what I have written is corporate profit, not a profit or all companies. So, you would ask me if that is corporate, where goes the profit of this retailer wholesalers which are not corporate companies, some small owner ship companies, partnership companies that is called there are two names.

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The image shows a chalkboard with the following handwritten text:

$$\begin{aligned} &\text{National Income} \\ &= \text{Wages and Salary/Compensation of Employees} \\ &\quad + \\ &\quad \text{Corporate Profits} \\ &\quad + \\ &\quad \text{Proprietors' Income/Income from Unincorporated} \\ &\quad \quad \text{Enterprises} \\ &\quad + \\ &\quad \text{Rental Income} \\ &\quad + \\ &\quad \text{Net Interest Income} \end{aligned}$$

One is called proprietors income and some time another expression I found income from unincorporated enterprises, income from unincorporated enterprises. Various expression are used, proprietors incomes essentially means proprietors means Malik. So, proprietor's firms are like single owner ship firm partnership forms etcetera. Now, there is more factor production, there is a land and there is capital interest of production, there are many factors of production.

Next is there is two more things we need to add, one is called rental income you will understand all the rent income that you collect as owner of properties land etcetera, rental income that you can collect. And then you have the net interest income the final thing, can you read this part, net interest income is such a get essentially looked upon as the income of the factor called capital. So, capital earns interesting income, land earns rental income organization owns proprietors earn income and corporate profits and labors earns wages and salary.

This is the basic of the basis of economy and the national income group is also connected to the same thing. Rental income however, includes just not house rent of property income rental income, also includes. Suppose royalty payments, you are talking about royalty payments. Royalty payments are like you write a book, you are a author, the publisher gives you some income from the sale proceeds of the books. After the book is sold, the publisher owns certain revenue on a percentage of profit that they give to you, just similar to dividends, dividends are a part of corporate profit that are given to the share holders.

So, what are the other two parts of the corporate profits, if one part is dividends what are the two parts of corporate profits, anybody has an answer? When corporate profits are earned one part. Let me give you a hint, one part goes to the government as taxes called corporate profit tax, one part is given as distributor as dividends to you which is you term as the share holders. The incentive to buy share is to make a dividend income also, what is the other part a part which remains with the company like savings corporate savings called retained earnings.

So, there are three parts corporate profits taxes, dividends, retain earnings, retain means holding it back. So, retain earnings I am retaining a part of the profit which can be used later for the expansion for the company like private savings. Now, they have something else, so these are the three parts of corporate profits. Now, rental income is very interesting, rental income may be rent like you have rented a flat you will be give rent tomorrow, you will get a job, let us know when you have a job and how much rent you are paying. I have to tell the people this is rent that you have to pay Bangalore and Bombay that goes is income is suppose to after deduct some cost is suppose to report that as rental income.

But rental income also includes and the macroeconomic sense the royalty payments at rental income are also another kind of income that is earned in the modern world. When you say company rent technologies from another company, very big thing there also some kind of royalty payments or rental earnings are there. Fees, which is also part of that, suppose Tata are developed a technology, it has rent to another company maximum amount of money is earned by Tata by renting it out this other company does not have the technology, it can also be a renting the machine and earning income.

So, rental earnings can come from various other things, when you rent out something, it can just not be a flat or a house. You can rent a technology to somebody who borrows it, for one year period, two year period and gives you an earning pays your fee. It also can be a royalty payment from books; it can also be renting machines or camera, why not I can rent my camera which I have to rent to somebody.

Often, poor film directors, I was told poor film directors from my part of the country not Bombay, it was Calcutta had to rent even the camera for the film. They did not have the camera, then they hire the cameraman for the film and the film was shot not like our IIT Kanpur any man walks with the camera into a lecture room. Those days were different, even the film director or a producer does not have money to buy a camera, I am not joking, and these are true stories I am talking about from East India, where they are

condition intellectual directors who want to make a great film like greatest film ever. Probably, this is a dream, they do not have the money to even buy a camera, does not have money to pay the salary and wage of an actor, but they want big actress to participate in this film. I am not joking at all its true.

So, I heard a story about films being finally, made which was to be supposed to be finished one year entire shooting everything may be editing two months. Finally took three years to complete because it works for hours whenever money was available to stop. Absolutely, quotic how film is done, but Bombay was different anyway. So, rental income has all such of things included, rental income from various sources, you can have.

There are rental car outlets even this written cost available on rent I have seen that many kinds of thing is rented, just got house or property. Now, the net interest income, of course the interest that the business is a when they take a loan. The net is because the business is also invested in government securities like burns or national savings certificate or something, you may have heard may not have heard because you have started to bring earning life, we know that call kisan vikas patra available at post offices. National saving certificate, ask your father, he would know where did you put your savings middle class.

A middle income family father, if you ask many of you are from how do you save, I save in provident funds, keep them in kisan vikas patra, national saving certificate, they give you an interest, but interest is given by the government. So, net interest income is the interest that is earned by the private economy minus the interest that you earn from the government because that is not a factor income generated from within the economy. It is a factor income generated from outside the economy because this is the government who is saying it government.

Remember it is not part of the economy and the economy is the private economy. I am talking about the word economy and private economy are synonymous, I am using their interchangeably, the government is always like the moon or the sun, outside. Earth is the economy remember that, so this is the kind of consolation that goes. The next part is the most crucial part to build a macro models from the point of view of macro models, macro economics models that we want to discuss. I guess some of you are waiting to see the models is a variable that can be deducted, that can be obtain after deducting a number of things and can be obtained from the variable called national income. That you see on the board, by the way.

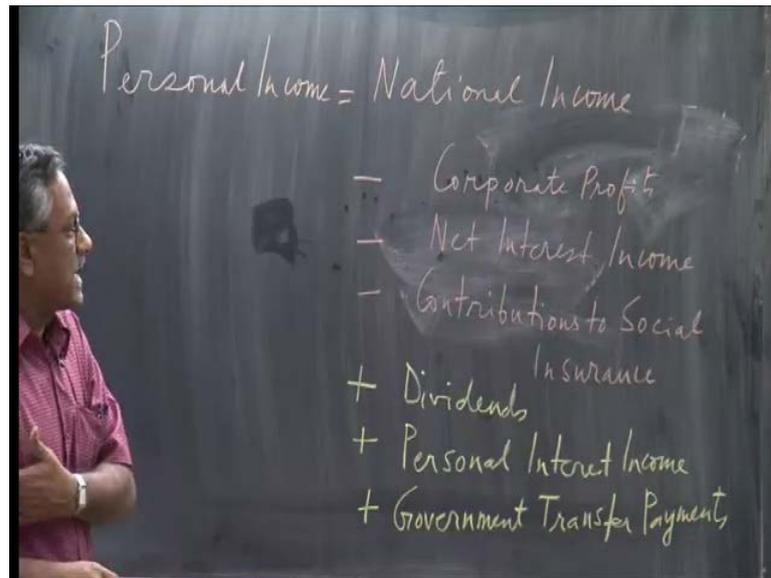
Somebody during the break ask me a taxes part of this or what part what the situation is here because if you earn wages you pay taxes, income taxes. If you earn corporate profit, you pay corporate tax; if you earn properties income you pay some other form of income tax, company income tax etcetera. These are all gross number, the total income I have from my this all numbers here, variables are before taxes are paid because once taxes are paid, you get to the interaction with government. I do not want to get the interaction with government here. Is the economy that has generated this amount of income then, total salary I get from my IIT.

Now, what I take home after deducting taxes after funds savings is a different story. These are gross stickers remember the interest variable that interest are the most variable that interest people are just going to follow. The first variables that comes to mind that you can obtain from once you have the national income number is called personal income, is a very important variable. Personal income once you have national income your personal income. Now, the question is you may ask sir what is personal income alright.

There are three things according to my note there are three things that have be deducted from national income and then three things to be added to national income to get something called personal income. You ask me sir why personal income is important because from the macroeconomic point of view, if you think how much do the economic consume? Well consumption essentially the personal matter what I decide to consume. So, the macroeconomist say finance may etcetera may be interested to know, what is my income that interest me personal income, what is the personal income of the country.

So personal income is the very important figure I would like to know that if this is my salary from IIT, what is my personal income that mange to be because once again the salary is not entirely given to me there are things that you deduct, and also things because do with the rules of the countries says that. So, what are the things that I need to do adjustment to national income to get personal income, moreover in national income you seen corporate profit while entire national income are not corporate processional income. Entire proprietor income may not be personal income, wages salary may be. So, what is personal income which determine say the consumption demand in the country alright so from national income.

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What you have to do is this personal income is equal to national income of course minus three things one you deduct corporate profits, then you deduct net interest income then you deduct contribution to social insurance, I would explain that to you contribution to social insurance three things you deduct. So, you deduct corporate profits because they are not consider to be personal income naturally, you deduct net interest income because the entire net interest income is not personal income because net is interest income interest income is earn by the banks, interest income can be earn by the business by putting money in banks.

So, entire income is not interest income my and your savings account interest income is personal income of fix deposit income, entire income interest in the country cannot be personal interest income alright. So, having done that what you need to do is you need to add back therefore some other things, and the things that you add you may deduct corporate profit right. But part of corporate profits arise as personal income to the share holders what is it dividends.

So, therefore you add dividends then you add dividends then you add personal interest income, if you can find that out how much the total income interest is personal interest income from individual small savers, savings accounts, fixed deposit accounts etcetera not the company account. So, you can have personal income interesting income then you can also add very interesting, I have to explain that something called government transfer payments. Government transfer payments that you add back usually you that not add back you add that so I need to explain this terms a little bit more. Munising corporate profit is stream is to you taking out that interest income and adding back personal

interesting income is alright taking out corporate profits adding back the what you call that dividends is alright

Now, contribution to social insurance I need to explain that to you depending upon the laws of the country every individual wants always earnings suppose contribution something's toward the future the future is uncertain. Now, government helps out individual in insist of country to plan for the future by also putting on a contribution from their sides, you take the case of for instance providence contributions this gives rise to if you are government employ a pension when you retire like which is like cheque monthly income cheque that you receive from the government. You can have contributory provident funds in the private company if you are working where you put in income your income salary some 10 percent, 15 percent, 20 percent that goes into a kitty called CPF and it is contribute provident fund means also that the companies side also puts in the amount of money there.

So, it doubles and stage there and earns certain interest and you get the cash when you retire or design from the company, this are insurances in some sense insurance policy. You can also have a contribution to social insurance to private insurance companies when you can buy life insurance policy tension schemes also something's. In India we are realize see we are max insurance that has come from the US various insurance bajaj, bharati all source schemes loading around this are contribution to show social insurance. Social insurance means this essentially protecting itself from uncertain features so what happens in foreign countries one more thing which don't have here called unemployment insurance. even as the student the laws in Canada were so strict even as the student they ask me to pay unemployment insurance every month when they give the cheque the salary from my scholarship and teaching assistant ship to live there and study, they deduct unemployed insurance. I want to there a my goodness I am not a citizen of this country if I go unemployed tomorrow, if I become unemployed tomorrow will you allow to use the money no, but rule say that so that money s always been back remain with Canada. In US you will also find this same thing you get a scholar teaching assistantship to get a monthly cheque, but you are paying also unemployment insurance.

[FL] You want a unemployment is same thing when you become unemployed, you get money back from the government, immediately the short run they have unemployment insurance. In India we don't have unemployment insurance we have provident funds etceteras. So, contribution to social insurance therefore becomes like a tax reduction company are reductions and this percentage deductions rates or often fix like a tax, like

unemployment insurance. In India contribution to social insurance is a variable rate we decide how whether we can work or not all right we have to decide, whether we can how much we should pay.

So, a contribution to social insurance [FL] and then you have to add back you see there is item called government transfer payment, now what are these payments these are very important variable constant very different, taxes are collected or contribution to social insurance like unemployment insurance provident fund contribution the collected from the current deal income. But transfer payment by nature is something which is not arise out of current income by definition transfer payments beings something which earn in the past now being transfer to you. It was lying somewhere else these are like this contribution to social insurances etcetera that we make and they lie with the government finally when you hopefully you more happen you become unemployed, unfortunately or you retire not unfortunately, fortunately you have to retire because the retirement age is there then the money is return to you. These are like pension cheques and etcetera.

So, government transfer payments constitute our personal income to day although these are transfer payment, therefore we didn't earn it today we earn it in the past was lying in somebody else. Now, they have added something to have a scheme as to how that will be written back to us, but definitely when they written like a retire person who goes with his sabji vegetable a jhola bags in a morning to buy the sabji vegetable the money that we spent to buy the sabji is not from he earns today, but he is from that pension cheque. So, government transfer payment is an important variable in a macroeconomics sense because transfer payments are never part of current income they have been earn in the past lie somewhere now give you to me alright return to me.

Whereas contribution to social insurance are any other variable that you see there are all part of the current income that is generated, but why we have it here it is defiantly important for the point of a view of the person income person of the retire people, where is coming from they all from pass savings. And some of that is government transfer payment to they are very much part of the personal income of the country yes.

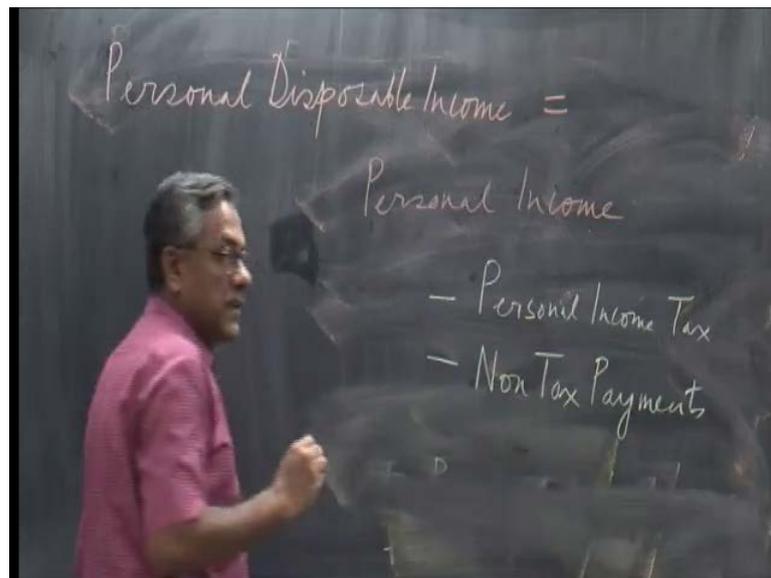
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Person income is right there is a overlapping time situation here, but what I am trying to say this are essential variables, where one variables is not because of the current income national income is all current income, I have it here. But in personal income there is one component which are transfer payment, which is the pass income now income active in the current in period. But don't think that government transfer period payment will be a

very large percentage a personal income, don't think that. Personal income if you take the percentage distribution government transfer payments will be small percentage of that because the other variables here like dividends personal interest income, proprietors income rental income, that you have in the that all that is included they have deducted only three and added back three more, which some of that is part of the that you deducted which should be there.

So, pursue income large chunk is not government transfer payment I was small may be it is there alright. Now, many people would say that personal income is also not real interest in individual, what really interest and in individual as a person as a householder which as to run a family is another variable called personal disposable income. So, let me explain that to you know what really interest, this are macroeconomic variable I am slowly getting that later soon we have macroeconomics models, using this variables alright. So, the variable that interest the variable that interest is called personal disposable income.

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The variable that interest everybody a macroeconomist more they think when they are thinking to hard is not personal income, but personal disposable income. So, the question is what is possible disposable income, you have to do again some adjustment to personal income to get the personal dispose only income. So, adjustment to personal income is the following, personal income was disposable income is equal to personal income plus minus something. Number one is personal income tax minus personal income tax which is very important personal income tax that you have to deduct. My wife or my children

are not interested what my personal income has been if I tell them they are interested how much I can spent on them.

So to know how much I can spent on them i deduct the personal income tax and if I do a miscalculation I seen end of the financial year my entire salary is really gone into tax because the previous eleven month, I did never proper amount deducted from my monthly cheque, I went on happily spending whatever I have final end of the year when they calculate entire tax they find I have been average amount and I am paying less then amount per month. So, they had a amount deducted finally found is nothing positive make out last two months three months.

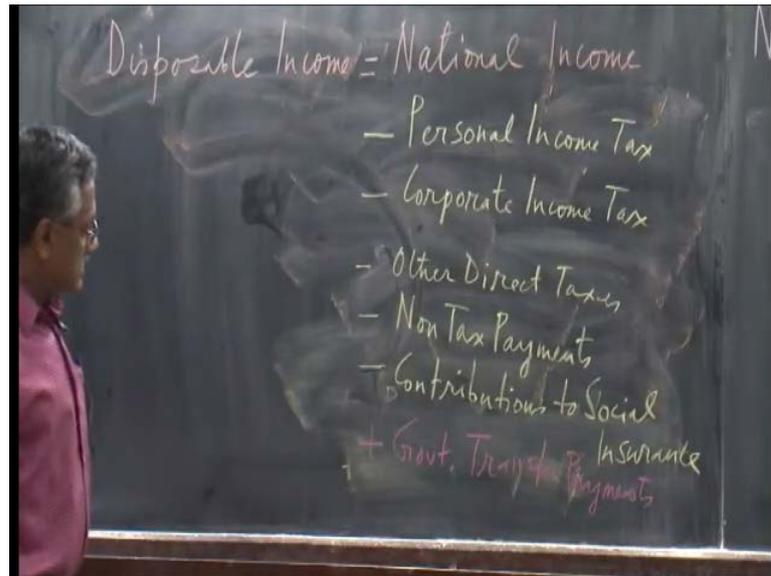
So, what is important to macroeconomics or people who run the house hold is to know personal disposable income for which personal income tax has to be deducted, then there is something else in the macro economy that is deducted, which interest macroeconomist not individual so much called non tax payment called non tax payments, what are non tax payment? It doesn't interest individual so much to be honest with you, but a macroeconomist is interested to know to get the personal disposable income non tax payments are very interesting things.

Non tax payment can be might registration free of my car, I get a parking ticket to tomorrow I have to go the motor vehicles or the code to pay the parking fee the licensee fee traffic tickets, whatever this are non tax payments punishment penalties and some compulsory cost like if you drive a car even auto, you have a motor two wheeler or not cycles, but two wheeler or even a car or whatever you have to pay a registrations fee licensed have to be renewed. So, motor vehicles will India the non tax payments goes up simply more because in order to get the registration free done pay you have to pay again and etcetera to some clerks, hidden income. Then you get it down so non tax payment are this small item alright.

So, you get personally disposable income, but to me when I saw this variables I was very happy that in macro models, we are really using them in macro models I failed not using personal disposable income a personal income may be, but not personal disposable income. So, what I felt was we need another variable we say found in one text book so far that was way back in the 1980's a text book written by macroeconomist from university of western Ontario, and I found this book only that variable was written out defined none of the text book not even the Man Queue, Don Boston you will find this variable is that in macro model.

If you look at the variable if you just look at the macro models you will see personal this disposable income, I knew them something else is there this variable he called profession park in Michal parking called it this variable is neither personal income not personal disposable income. But he called it directly when from national income called it disposable income simple disposable income so what is this disposable income.

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Now, the variable disposable income is very common, very popular in macro models disposable income. Now, what is disposable income? That is national income minus a host of things, what are the things? Disposable income is you have to deduct personal income tax from national income, personal income tax, then corporate income tax personal income tax, corporate income tax then other direct taxes, any other direct taxes minus non tax payments, non tax payments minus contribution social insurance to social insurance. And having done this deducting all this things only one thing that will be added back is government transfer payments, one thing that is added back is government transfer payments.

So, what you see here basically all the compulsory deductions are taken out, it is similar to possible disposable income, but not exactly it is different you compare. Now, when you go back you compare this variables look at the definition you will see what is different what is not, it is a very simple a mind that is required to understand it is not that complicated or suffocated at all. What you are doing is taking out the two taxes measurement taxes personal income tax that I pay corporate income tax the companies

pay, then you take other direct taxes like property taxes well duty etcetera that other direct taxes we have, if you own a flat you have to pay some municipal taxes, compulsory every year, you take that out other direct taxes. Income taxes are direct taxes there are other direct taxes also we take them out.

Then you have the non tax payment taken out which I already told you this are very small numbers. Then you contribution social insurance taken out everybody is paying a social insurance, except the informal sector the daily wage owners even government is trying to make rules for daily wage owners to have social insurance you know they asking them [FL] even government is trying to encourage minimum wage earners, which work on daily wages under the contract or somebody have job today they doesn't have job tomorrow to go for some certain of health insurance policy to go for some certain this social insurance policy etcetera.

So, contribution to social insurance is picking up finally you have government transfer payments the last I have added, can you see the board? Alright government transfer I told you why it is parts of personal income it is something, which is coming from the past my activity in the past not now alright, this is the variable I find mostly use in macro models and not the person disposable income. Unfortunately in your text books I will point out that time to time a text books often do not have everything they have most of the things, but do not have everything they are all certain short comings may be because I will show you the macro models, and you will see that the disposable income more of variable there then personal disposable income alright.

Now, is that alright ok even the India we have something called gift tax, you have gift something to somebody the poor fellow still not free of taxes even that gifts they receive and go and pay the tax [FL] then if you go to sleep you will have to pay a tax tomorrow, who knows you go and sit with your friends on a long when the canteen is open you have paying taxes anyway because you are buying goods sells taxes are going anyway. Now, I am come to the final method are under national income accounting method, that is the expenditure method.

The final thing I am talking about the expenditure methods the income methods is over with this alright. So, I will go into the expenditure method now two methods done expenditure method is something which is blowing to mind away because in the expenditure method, which is very popular with the statics they also say the compute the value of GDP at market prices, but it is most less convincing then the income method that you see consensually or the output method that you seen expenditure method also

say that we compute GDP values for you using, the expenditure method as oppose to the output methods alright. And income methods gives you national income and another variable.

How convincing it will be follow you are really don't know, now let me tell you what it does. Expenditure the word means you are collecting data on when actual purchase are made not goods are produce, expenditure when goods are produce is in the factory, but unless it is sold to you no expenditure number will be available, how much consumer are spent all right. So, they takes essentially the sells values from shop etcetera to find out the numbers.

Whether you like it or not this is what they do now the expenditures aggregate expenditure they do not call gross expenditure they still call it GDP and I wonder how they called this number GDP I don't know but any way this is what they do. There are 1, 2, 3, 4, 5 items on which they collect data and finally at data or deduct whatever they do arithmetically and get the number called GDP the using the expenditure method.

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The image shows a chalkboard with the following handwritten text:

$$\begin{aligned} \text{GDP} &= \text{Consumption Expenditures} \\ &+ \text{Gross Private Domestic Investment Expenditures} \\ &+ \text{Government Expenditures} \\ &+ \left. \begin{array}{l} \text{Exports} \\ - \text{Imports} \end{array} \right\} \text{Net Exports} \end{aligned}$$

Expenditure method what they do they add up they call GDP is equal to five items consumption expenditures, consumption expenditures plus gross private domestic investment expenditures, gross private gross private domestic investment expenditures plus government expenditures they called exports, which are expenditure on your goods by outsiders foreigners this is how he is look upon. Exports there they also minus that is should use the different color may be minus imports, this are expenditure by you own foreign goods, which is deducted.

Let us take one buy one consumption expenditure are typically house expenditure there are two kinds of consumption expenditures in a country, on predicable goods like food items which disappear can rote even consume with in a specific time period and you have consumer durable, which leaves with you T V, computer a fridge a fan a furniture music systems whatever you have washing machine, consumer durables. So, consumption expenditure day type who want to quality go from shop to shop collect on data on how much expenditure are encored by Indians on goods aright sold in the country whoever produce them GDP I am talking about, Indians producing them foreigners producing them who ever HCL computer or Hewlett computer doesn't matter alright so there are two kinds of consumption expenditures.

Then I come private gross private domestic investment expenditure, which understand gross investment expenditures, including net investment and replacement investment, I told you and gross private domestic investment expenditures so it is done by the private sector we are not talking about government expanding. Now, come to government expenditures they are making all social expenditure salary of MP salary of teachers like me, salary of MLA, bureaucrats, police, defense you name it buildings roads, highways bridges all kinds of expenditures, government expenditures because they are contributed to the national output and income.

Then the exports the some of the goods that you produce or export it foreigners expenditure on you that should be part, but there is a foreign currency problem, you convert that into Indian currency and you get the Indian rupee value of it no problem to exchange rate have a topic on exchange rate also, how it matters at end of the course I will tell you about that which is the big thing now going on. So, expenditures net exports export then when you collect this data, some of the goods may be imported on the shelf in the store you got to Z-square mall, rave you pick up the good you like it is a important good may be not produce in India, or some others something you buy shoe a trouser or a jeans or a sunglass whatever. So, you have to deduct goods that were not produce in India produce outside, but the money spent by the Indians on them in India.

So, you have to deduct the important so this two variables often exports in imports back to modules, you will see they club them together they don't write them separately, they club them together and they called that net exports, alright its very simple, but you can see this is taking the sell value. Now, what will happen to the inventories it's not total output the part of the output which I was telling you yesterday, which is sold, what happens to the consumer goods investment goods inventories in India which are not sold

now. So, this equal to GDP what means unless you add the inventories a final goods and they have also taken investment goods here. So, it is not truthful true the GDP that we have final goods because private investment expenditure, means on one words on investments on buildings, machines some of them are capitals goods which cannot be consume by the consumer.

So, now here I have problem the national income accounting method they should names this variables something else, they should not called the GDP because the GDP way we know is not this GDP, you have intermediates good here it investments goods of course you have taken and careful in terms of export goods, that are produce, but sold outside to be consider fine. Imports of goods, which are foreigners foreign produce deducted the value good, but that is not going to reflect that your total output because the total output is all as unsold stalks, which is part of inventories which is not there.

So, I have I told you before I start talking about it that here I have a real problem with the text book version of national income accounting method, when they called this variables GDP, I have a real problem. You are assuming inventories to be zero you are violating that rule that private investment expenditure are not part of national output, unless they produce the final goods, you are talking about the final goods. But you have the intermediate goods here you violating it, alright unless this machines are gone into producing goods simultaneously, simultaneously and you have deducted from the sell value of consumer goods all this intermediate goods values, which they don't say. Then some adjustment has been made double counting ids not there ok.

And another question that is ask me two days back which is very relevant so you talking about the export a single leanings or important expenditures, you often have intermediate goods machines are bought, machine sold we sell not final goods. So, if you have this intermediately goods also export and import data are you really saying this are item which are deducted from countries export earnings and export expenditure, no. Can courtiers export earnings include all that you have exported that I earn some money either final goods or intermediate goods, you don't have only final goods exports.

So, this is the another violation, but in the export number or a import number you may very non final like intermediate goods machine etcetera. Goods means in macroeconomics always this is goods and services I am dropping the word services every time will have to repeat goods, and services goods and services text and extra effort, goods includes services. Product is the best words, but this products includes both goods and services alright.