Economic Growth and Development

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Lecture – 01
Concepts of Economic Growth

Hello and welcome to the NPTEL MOOCs course on Economic Growth and Development. Today is the first lecture in this, lecture I will take you through to the basic Concepts of economic growth which are important in understanding the differences in the levels and rate of growth between countries across the world. We live in an unequal world inequality shows up in differences in standards of living of people within a country as well as across countries.

Within the national boundaries of a country when we talk about inequality of incomes and assets as well as unequal access to opportunities of gaining incomes and assets. Inequality within a country may be estimated vertically say in terms of levels of incomes of people within a country or horizontally say in terms of differences in different social groups of population including caste class and gender and so on. But when we talk about inequality across countries, we are usually measuring inequality in terms of the level and the rate of economic growth registered.

So, whether or not India isead of Sri Lanka or Bangladesh or South Africa has strategic importance for investment within a country and to be able to make sense of such differences, we need to get introduced to certain basic concepts of economic growth and one such is a system of national income accounts.

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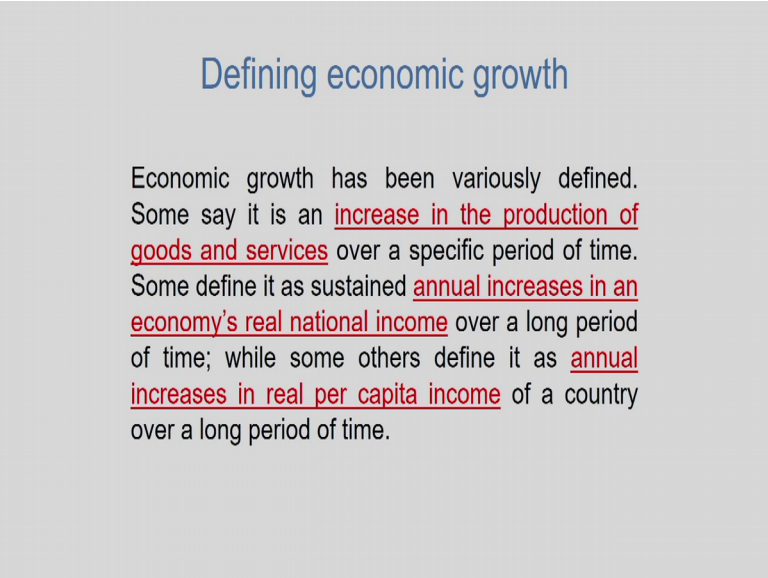

Now, if you look at a certain ways in which economic growth has been defined, we see that it has been variously defined some say it is an increase in the production of goods and services over a period of time some others defined it as sustained annual increases in an economies real national income over a long period of time, while others will define it as increases in real per capita income of a country over a long period of time.

Now, note the usage terms such as increase in production of goods and services, annual increases in an economies real national income and annual increases in real percapita income. What do all of these terms mean? All of these terms basically say that economic growth means raising the standards of living of people. However, this rise in standards of living of people must be a sustained increase it must be consistent, if it has to qualify as economic growth. Also note the term real while the growth theory has to its credit a vast literature focusing on all aspects of it, including the desirability of it in various country contexts a definition of growth points to its measurability.

So, when we are saying that country A is growing at a faster rate than that of country B, we are essentially referring to the estimate of economic growth which is a calculation and this calculation is usually made in real terms.

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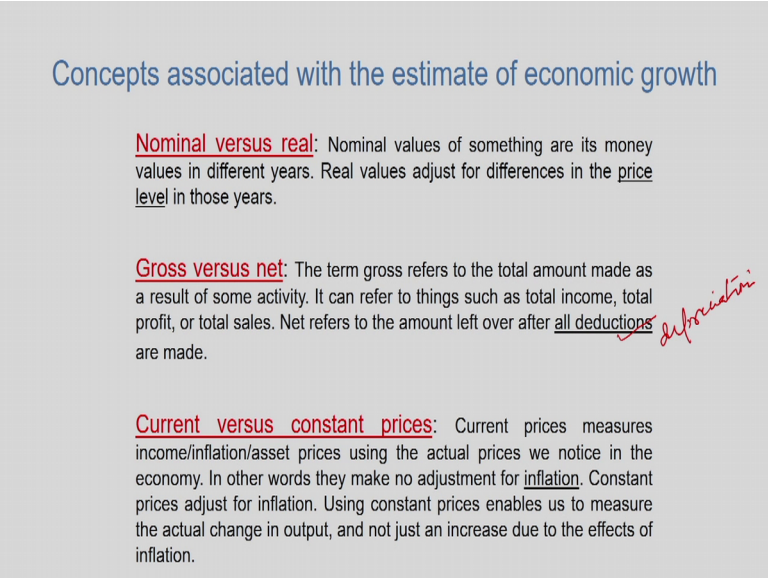

Before I introduce you to some of the very basic definitional issues with respect to national income accounts, as they use in India and is generically used in various countries across the world. Let me introduce you to some general differences with respect to certain terms, which are central to understanding these issues. One such is nominal versus real second is gross versus net and current versus constant prices.

Now, in economics the nominal values of something are its money values in different years. Real values are just for differences in the price level in those years, what we are essentially trying to talk about is whether or not values are adjusted for inflation. Examples include a bundle of commodities such as gross domestic product and income. For a series of nominal values in successive years, different values could be because of differences in the price level.

But nominal values do not specify how much of the difference is from changes in the price level. Real value removes this ambiguity; real values convert the nominal values as if prices were constant in each year of the series. Any differences in real values are then attributed to differences in quantities of the bundle or differences in the amount of goods that the money incomes should buy in each year. The term gross refers to the total amount made as a result of some activity it can refer to things such as total income or sales or profit net refers to the amount left over after all deductions are made and usually

in terms of national income accounts and we are referring to deductions we are basically referring to depreciations.

Current prices measure income or asset prices using the actual prices we notice in the economy, in other words they make no adjustment for inflation, which can very simplistically be defined as the rise in the general level of prices within the economy. Constant prices adjust for inflation using constant prices enables us to measure the actual change in output and not just an increase due to the effects of inflation.

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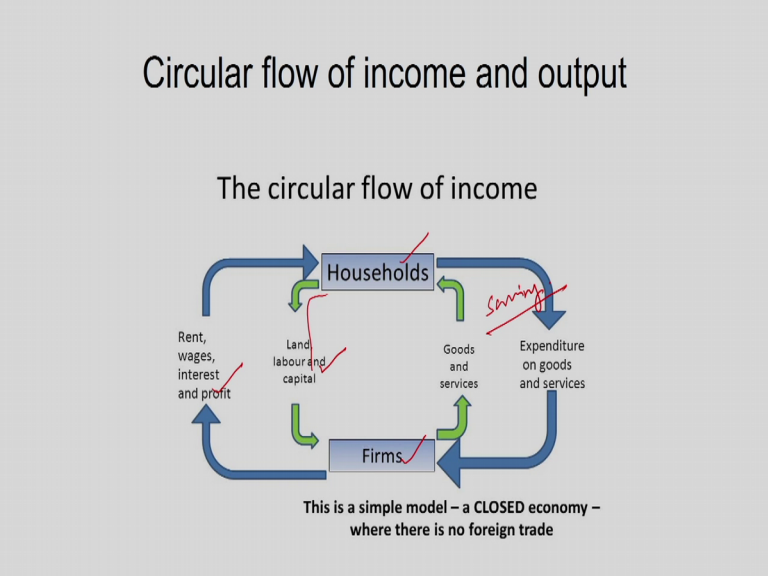

Understanding the basics of the systems of national accounts is crucial to delving into the growth literature.

For that let me demonstrate how incomes and output flows take place in an economic. In standard economics literature we are introduced to certain circular flow models; there are two sector, three sector, four sector multiple sector models. It will suffice to introduce you to a simple model a closed economy where there is no foreign trade and there are just two sectors households and firms.

Let us assume that only two types of goods are produced that is investment goods and consumption goods. The resources such as land labor and capital are provided by the households to the productive sector or the business sector or the firms, they are also

otherwise referred to as the business sector. For these productive services they receive rewards in the form of rent wages interest and profits.

So, the households provide land labor and capital to the firms and in return the firms provide rent wages interest and profit to the households. Now households as a rule do not spend all their incomes and consumption, as they have some part of their income as they save some part of their income to meet exigencies. So, parts of their incomes go into savings and part into expenditure on goods and services. The firms for investment purpose plow back some of its savings and get the household savings which is funneled through the money market.

In this model economy only two types of goods are produced consumption and investment goods and some of these goods may be purchased and distributed by the government.

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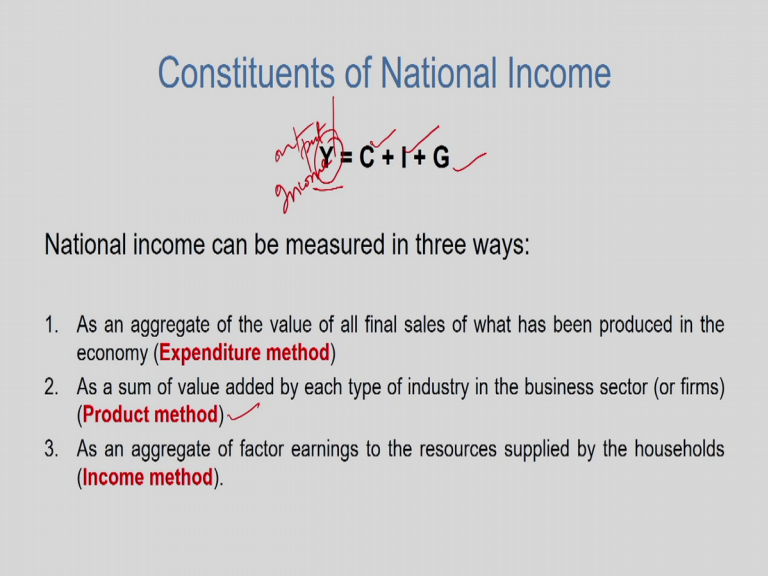

So, a national output we generally refer to national output as Y. This is referred to this may mean output this may also mean income. So, a national outputs Y will here have three components: consumption, goods investment goods and goods purchased or distributed by the government.

Through this flowchart I also want to draw your attention that typically national income is measured in three ways; they are first the expending expenditure method. So, it is

basically an aggregate of the value of all final sales of what has been produced in the economy, second is the product method which is a sum of value added by each type of industry in the business sector of firms and the third is an income method which is an aggregate of factored earnings to the resources supplied by the households.

Now, let me throw some light on each of these methods of estimating national income as I have discussed here, as it is important that we get clear of concepts such as problems of double counting.

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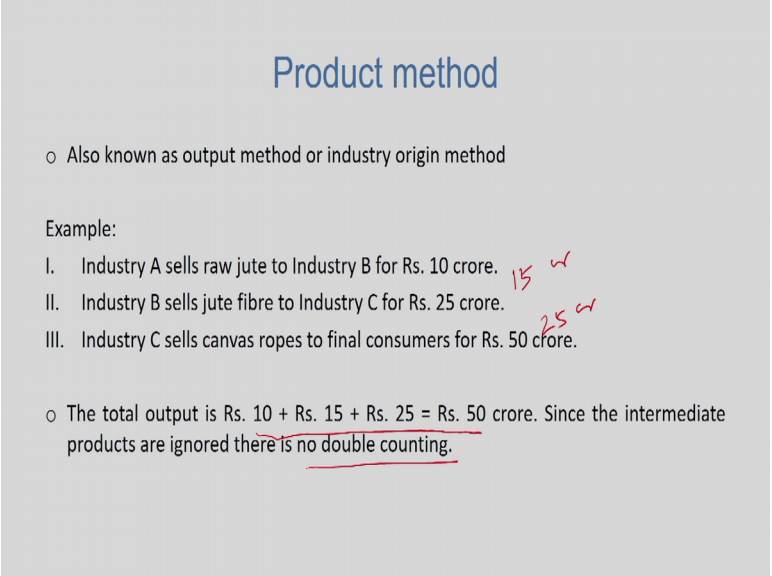

Let me begin with the product method. The product method of estimating national income is also known as the output method or industry origin method or commodity service method. National product is arrived at by adding the net output of each industry in this method.

The term net output means the value of final product produced by an industry minus the intermediate purchases made by it. Now consider the following example say there are three industries industry A B and C industries A and B sell intermediate products and industry C sells final products to consumers. Industry A sells raw jute to industry B for rupees 10 crore, industry B sells jute fibre to industry C for rupees 25 crore and industry C sells canvas ropes to final consumers for rupees 50 crore we have made certain assumptions here.

It is assumed that industry A purchases no intermediate products and therefore, rupees 10 crore is the final output. The net output of B and C are rupees 15 crore and rupees 25 crore respectively. Since B purchases raw jute from A for rupees 10 crore it adds only rupees 15 crore an industry C adds only rupees 25 crore over the intermediate purchases of rupees 25 crore from B.

Therefore the total output is rupees 10 plus rupees 15 plus rupees 25 that is rupees 50 crore. Since the intermediate products are ignored there is no double counting and this is extremely important in the system of national accounts when we are trying to estimate national income accounts by the product method. If the final output of value of these three industries is added the double counting boosts up the national product to rupees 85 crore. Therefore, it is extremely important then issues of double counting are avoided.

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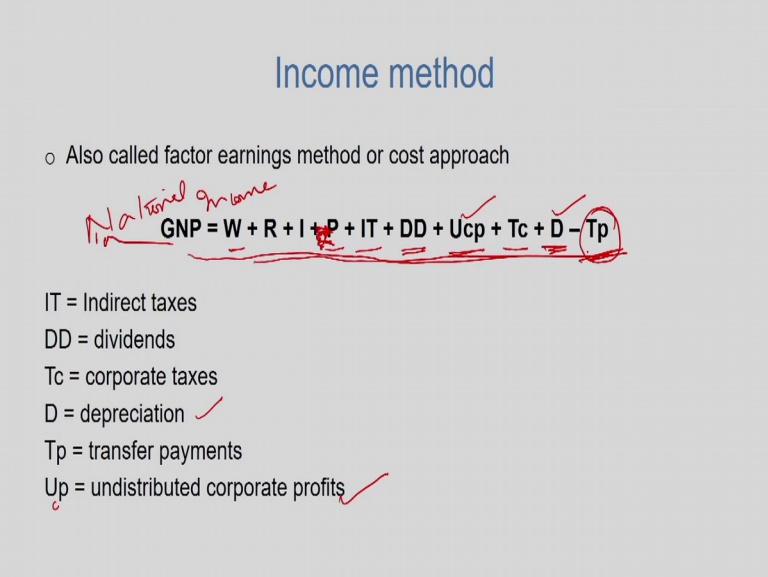

Let us now look at the income method of national income accounting. The income method is also referred to as factor earnings methods for the cost approach, estimating national income through income method helps us understand the distributive shares of different factors of production in an economic. Therefore, this method is also called factor earnings method or cost approach. Let me demonstrate this very simply. In the circular flow model we have seen that households supply labor capital and other resources needed for producing the product to the productive sector for the firms and the forms in turn pay wages, salaries, rent, interest and profit.

All these sources of income received by the basic factors of production are added to get the national product. Profit is treated as an earning over cost item. So, according to the income method national income or GNP, the national income or Gross National Product is an addition of wages plus rent plus interest plus profits plus indirect taxes plus dividends plus undistributed corporate profits plus corporate taxes plus depreciation minus transfer payments.

I will presently get to giving you a short definition of all of these components when we are deriving national income through the income method. But let me mention to here to you here transfer payments are deducted because they are not paid for any productive activity indirect taxes are the part of the prices of commodities and therefore, they are included. Depreciation and undistributed corporate profits; depreciation and undistributed corporate profits are not received by factors as income and therefore, they are also added.

National product calculated by these two methods product an income should be identical. This is because product contribution is made equivalent to earnings made out of the products. Therefore, in terms of national income identities following the circular flow of income and output in the economy, national product is equal to national income. Let me repeat this identity once again going by the income method, national income or GNP is calculated by adding the factor payments, wages, rent, interest, profits, indirect taxes, dividends, undistributed corporate profits plus corporate taxes plus depreciation minus transfer payments.

To give you a little more clarity about these constituent elements of national income through income method let me give you small definitions. Wages are of course, the payment made to labor; rent is the payment on land, interest on rate of investments and profits. Indirect taxes are basically a tax levied on goods and services rather than on income and profits. Dividends are a sum of money which is paid regularly by a company to its shareholders out of its profits or reserves.

A corporate tax is a levy placed on the profit of a firm to raise taxes. In India a flat rate of 25 percent corporate tax is levied on the income owned by a domestic corporate is our charge of 12 percent is levied in case turnover of a company is more than rupees one crore. Depreciation here refers to the monetary value of an asset which decreases over

time due to use wherein or obsolescence this decrease is measured as depreciation, this decrease in an assets value may be caused by a number of factors as well as unfavorable market conditions.

Machinery equipment currency is some examples of assets that are likely to depreciate over a specific period of time. Opposite of depreciation is appreciation which is increase in the value of asset over time. It is important to understand the term transfer payments, transfer payments are basically payments made or income received in which no goods or services are being paid for such as a benefit payment or a subsidy.

So, basically no productive activities are associated with transfer payments,. They are simply a transfer from the government to the people mostly in the form of subsidies or income support such as old age pensions and so on and so forth. Undistributed corporate profits are commonly referred to as retained earnings these are corporate profits that are neither paid as corporate profit taxes nor paid to shareholders as dividends.

So, UCP or an Undistributed Corporate Profits are important for the derivation of personal income from national income. So, what we have looked at so far is the method of national income estimation. The first method is the product method in which we try to see how double counting should be avoided by excluding the value of intermediate products from the final product. The income method which is basically the factor earnings method or the distributive shares of factors of production within an economy and lastly the expenditure method.

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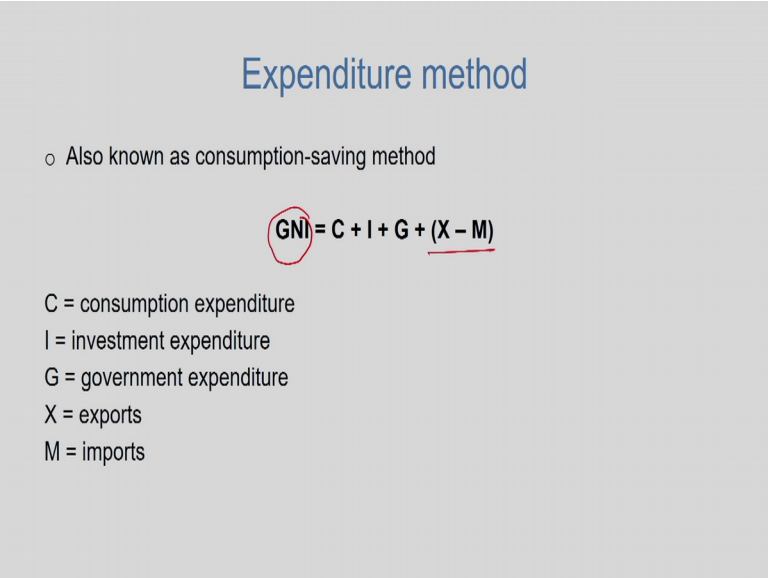

According to the expenditure method, national product is the sum value of sales to final demand. This method is also known as consumption saving method since the personal consumption expenditure, net foreign investment expenditure and the government expenditure on goods and services are added to obtain the national income market prices. Note that I have used the term gross national income unlike gross national product in the earlier cases.

Since we are talking about national income identities here, national product and national income are substitutably used the GNI here is C plus I plus G plus X minus M which is basically the net of exports and in terms of a national income identity based upon all of these methods the GN the national income should be equal when we are looking at all of these identities.

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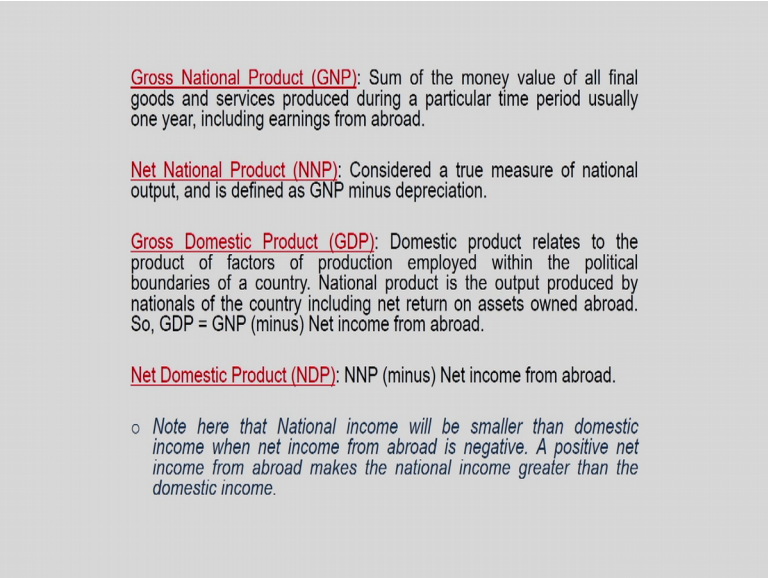

Moving on let us have a look at some of the definitions of national income. One of the most widely used terminology in national income accounts is what is referred to as the gross national product. Gross national product is defined as the sum of the money value of all final goods and services, produced during a particular time period usually one year including earnings from abroad. Now GNP consists of a variety of final goods and services like manufacturing services etcetera.

These diverse items cannot simply be added up to get GNP therefore; we add only the money value of these final goods and services. Intermediate products are excluded because they are a part of the final product. Also note here that GNP includes only productive activities related to the current year. On these count sales of existing shares, bonds, existing houses, cars and other assets and the consumer durables purchased previously are not included in GNP.

In case of the consumer durables, it is counted in the year in which demand is made. The other items listed in the identities that I have just discussed involve only financial transfer and do not result in associated activity. The profit or loss due to changes in the prices of capital assets due to market fluctuations does not enter international product, since they do not form part of any productive activity.

Only goods and services passing through organized market are included in GNP, activities in parallel economy, personnel services, goods and services made free or free

of charge for exchanges which involve no money payment are not included in GNP. One of the important limitations of the concept of GNP is that since it takes into account productive activities only in the organized sector, the vast informal sector of developing countries such as India have been left out as far as national income accounts is concerned. That brings us to the second concept which is the net national product.

Now, NNP is considered a true measure of national output and it is simply defined as GNP minus depreciation. I have already discussed what depreciation means it is invariably also referred to as capital consumption allowances an NNP is simply GNP minus d which is depreciation. So, depreciation is deducted from GNP to arrive at NNP since capital stock wears out in the process of production.

In other words the amount of capital equaling depreciation goes out of the production process. So, far we have been talking about national product; note the difference in usage of the term gross national product and gross domestic product. However, estimating domestic product is also extremely important for growth assessments. Domestic product relates to the product of factors of production employed within the political boundaries of a country, that is what is produced within the domestic territory.

On the other hand, national product is the output produced by nationals of the country including net return on assets owned abroad. So, GDP is equal to GNP minus net income from abroad. You must note here that net income from abroad is the balance after deducting the earnings of foreigner's investment in domestic territory from the nation's investment earning a broad. National income will be smaller than domestic income when net income from abroad is negative.

A positive net income from abroad makes the national income greater than domestic income. Now before we move ahead let me summarize what we have discussed so far I started giving you a definition of economic growth, what do we mean generally when we say economic growth, it basically refers to a sustained increase in standards of living of people and when we are measuring a sustained increase in standards of living. We are generally referring to increase in incomes or the changes in levels of incomes of individuals within a country.

To be able to understand this, I introduced you to certain general concepts used in economics and which is central to understanding the system of national income accounts

nominal versus real, gross versus net, current versus constant prices. Then we tried to look at a very simple model of a closed economy where there is no foreign trade and there are two sectors household and the firms and how the circular flow of income and output takes place in such a simple economy.

Through the circular flow model we came across the first national income identity which is output or income comprises of three constant three elements in terms of output, consumption goods, investment goods and goods purchased and distributed by the government. So, we have three methods of national income estimation one is the expenditure method secondly, the product method and the income method.

I started explaining the product method first, in which I took an example of three industries, two industries producing intermediate goods and one industry producing final good. So, we looked at how the intermediate products are ignored and there is no double counting. So, we are basically adding up the final goods and services and that is how national income or GNP is estimated.

We also looked at the income method which shows us the distributive shares of different factors of production within the economy, then we also looked at the expenditure method which is basically the summation of all expenditures consumption investment and government expenditure including the net of exports minus imports. After being introduced to three methods of national income estimation or accounting I introduced you to some of the definitions of the most important terms used in national income GNP NNP GDP and NDP.

Let us now move on to certain personal income concepts that are important as far as household flows are concerned.

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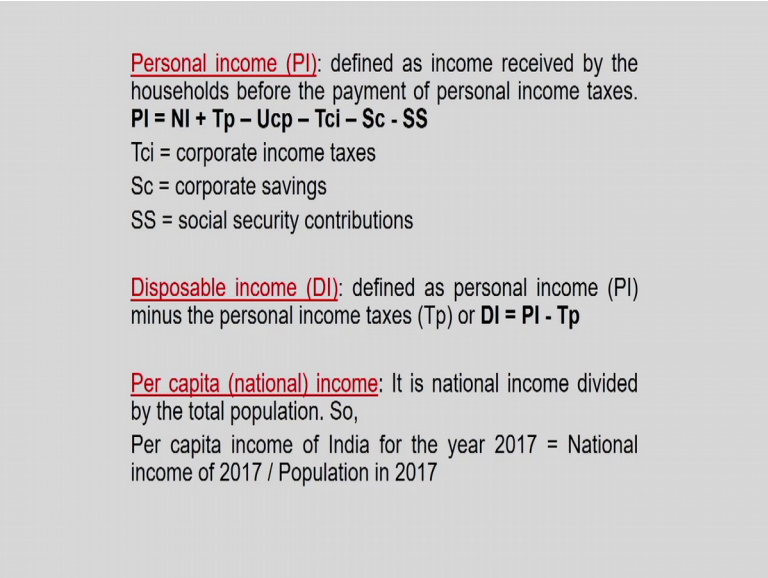

Personal income is defined as the income received by the households before the payment of personal income taxes. From the national income undivided corporate profits, corporate income taxes, corporate savings and social security contributions made by individuals are deducted and the transfer payments are added since they increase the income of individuals.

Let me remind you here that transfer payments are those payments for which no productive activity is made. They are merely transfer of purchasing power from one group or persons to others such as old age pensions, lottery, gifts, gambling, unemployment allowance, vedo relief and pensions and other social security contributions from the government. So, personal income is important to be able to understand the overall incomes within a country now relatedly an important concept is disposable income which simply put means what gets into the hands of public for consumption and savings.

So, it is personal income minus personal income taxes. DI stands for disposable income which is personal income minus personal income taxes. Another important income estimate is that of per capita income and this is something that we generally use when we are when we are referring to the levels of income within a country, if the per capita income of a country matches international standards or not. It is simply put it says how the total national income of a country is distributed across the population.

So, if a national income of a country in a particular year is divided by the total population in that year, we get the per capita national income. So, per capita income of India for year 2017 will be the national income or GNP of India for 2017 divided by the population of 2017. So, the population of two thousand seventeen is estimated from the census of India population estimates of 2011.

Now, in most empirical studies per capita income is taken as a more reliable measure of national income than GNP. This is because per capita national income tells us how national income is distributed across the population in this country. However, you must also note here that g are like GNP per capita national income also does not reveal the existence of income inequalities within a country and that is a matter concerning growth and development debate which we will see as the course progresses.

The per capita national income since the unorganized sector or the informal sector is also not accounted for as far as the national income accounts is concerned. Therefore, per capita national income mostly talks about distribution of national income over the population in the in the organized sector and does not say much about the unorganized sector.

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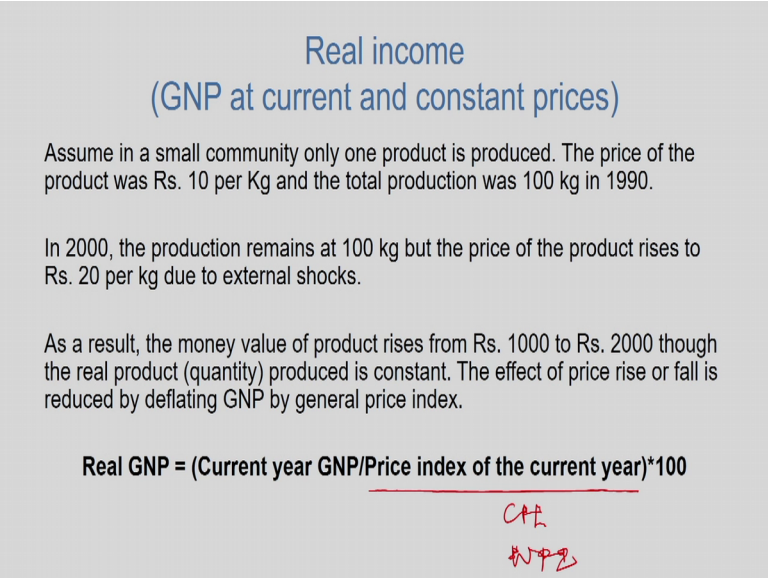

Now, I have made references to real income in some of the previous slides, and it is important that we spend a little time on GNP at current and constant prices which will bring us to this concept of real income.

Although I have already discussed the difference between nominal and real, I would like to specifically point out what real income here means. In comparing economic growth through any of these impress estimates it is important that we adjust for changes in the general price level in the economy. I hope you now understand that in a country in an economy in a particular year, a great number of goods and services are produced and all of these goods and services have different valuations and to be able to come up with a general level of price within a country.

Indices price indices are constructed and it helps us to understand how the general price level in a country has moved in a particular year or from one year to another. And that brings us to the concept of GNP at current and constant prices. GNP measured at current market prices may overstate GNP when there occur increases in price level. Let me demonstrate this to you in terms of an example; assume that in a small community only one product is produced. The price of the product was rupees 10 per kg and the total production was hundred kg in 1990.

In 2000 the production remains at 100 kg, but the price of the product rises to rupees 20 per kg due to some external shocks. As a result the money value of product rises from rupees 1000 to rupees 2000 though the real product or quantity produced remains the same. This effect of price rise or fall can be reduced by deflating the GNP by a general price index.

As a result the real GNP may then be defined as current your GNP over price index of the current year multiplied by 100. And there are various kinds of price indices that are used in the country usually we use the consumer price index or the wholesale price index. The labor Bureau the ministry of labor has a list of price indices. In India we have consumer price index for agricultural laborers, we have consumer price index for industrial workers, we have wholesale price index and any of these indices can be used to deflate the current GNP at market prices to arrive at real GNP.

So, essentially what we are trying to do when we are calculating real GNP is adjust for inflation within the economy. So, if we are calculating real GNP for let us say the year 2000 and we are comparing it with the real GNP of 1990, then we can conclusively tell how much growth has taken place within a time span of 10 years between 1990 and 2000.

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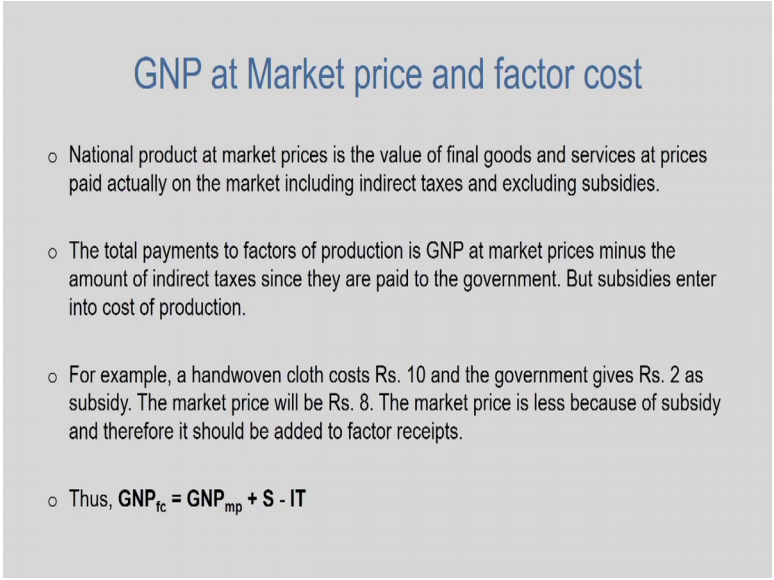

Such a deflated income is called GNP at constant prices, for which usually a particular year is taken as base and the GNP measure at actual market prices is called GNP at current prices.

In my lecture I have made frequent references to GNP at market price. Let me point out what it means and how it is differentiated with respect to GNP at factor cost. National product at market prices is the value of final goods and services at prices paid actually on the market including indirect taxes and subsidies. The total payments to factors of production are GNP at market prices minus the amount of indirect taxes since they are paid to the government.

But subsidies enter into cost of production; let us have a look at an example. A hand woven cloth costs rupees 10 let us say and the government gives rupees 2 a subsidy. So, the market price will be rupees 8, the market price is less because of subsidy and therefore, it should be added to the factory receipts. The market price is less because of the subsidy, but it has entered into the cost production and therefore, it should be added to the factory seats. So, GNP at market price minus indirect taxes plus subsidies is defined as GNP at factor cost.

It is important to look at GNP at market prices and factor cost because it helps us to understand as I have already pointed out the distributive shares within the economy, it is important to know how much of the what is the share of different factors of production in

the overall national income of a country, which is why we tend to calculate GNP at market prices and GNP at factor cost.

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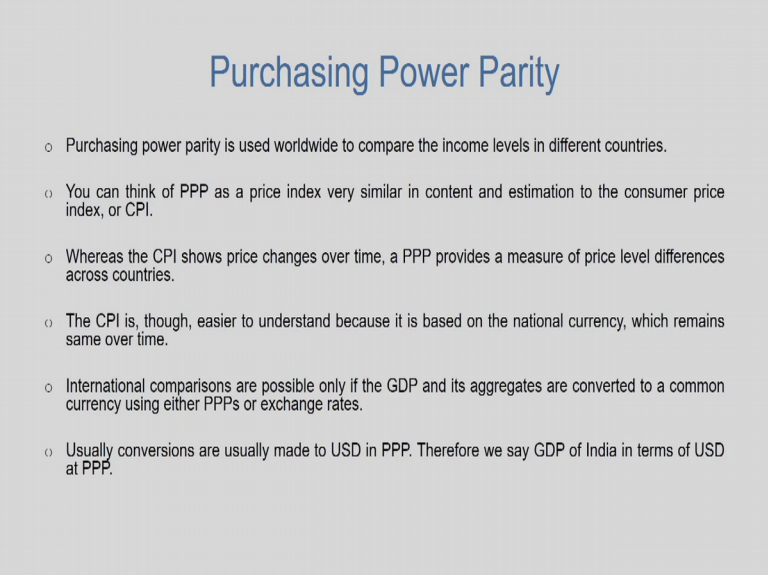

Another important concept income concept which is used for international comparisons and which you must all know is what is referred to as the purchasing power parity. Often when comparing economic growth across countries we come across examples where you will see the use of country s GDP estimate being converted to an international currency usually a us dollar in terms of purchasing power parity.

I will end todays lecture with demonstration of the PPP concept in the next slide, but what is PPP? The Purchasing Power Parity, you can think of PPP as a price index which is very similar in content and estimation to the consumer price index or the CPI. The CPI will tell you the price changes over time within a country whereas; PPP or Purchasing Power Parity will provide a measure of price level differences across countries.

It is however, easier to understand consumer price index because you are looking at price index within a country, which means that you are looking at a basket of goods and services transacted within a country in a given year. And it is based on one national currency which remains same over time. However, PPP is slightly complex because we are looking at basket of goods and services and based on which international comparisons are made possible. Usually conversions are made to USD or US dollar in purchasing power parity.

So, you would find reports for example, the human development reports or world development reports referring to GDP of India in terms of USD at purchasing power parity.

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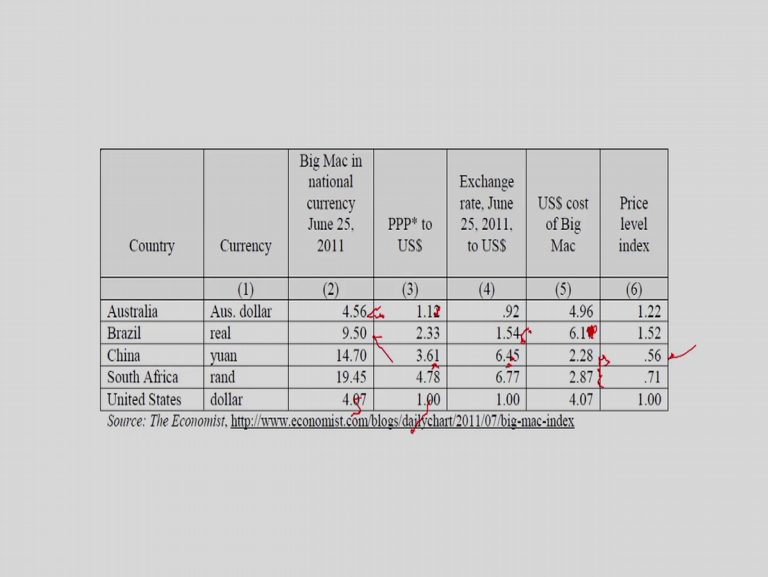

Country	Currency	Big Mac in national currency June 25, 2011	PPP* to US$	Exchange rate, June 25, 2011, to US$	US$ cost of Big Mac	Price level index
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	Aus. dollar	4.56	1.12	.92	4.96	1.22
Brazil	real	9.50	2.33	1.54	6.17	1.52
China	yuan	14.70	3.61	6.45	2.28	.56
South Africa	rand	19.45	4.78	6.77	2.87	.71
United States	dollar	4.07	1.00	1.00	4.07	1.00

Source: The Economist, http://www.economist.com/blogs/dailychart/2011/07/big-mac-index

If you look at this table through this table I will demonstrate why and how PPSs are used to convert expenditures in national currencies to a common currency. Column 2 in this table shows the price of a big mac as reported on the magazine economist website for five countries for June 2011.

Big mac is basically a kind of a hamburger which is sold through the McDonalds outlets across countries in the world; the PPP between the five countries or Australia, Brazil, China, South Africa and the United States. The Australian currency is the Australian dollar, Brazil's Real, China's Yuan, South Africa's Eand and United States dollar the PPP between Australia and USA for a big mac, is the price paid in Australia in its national currency divided by the price paid in USA.

So, it is 4.56 divided by 4.07 which is 1.12 what does this mean? This means that a consumer pays 1.12 Australian dollars to make a purchase in Australia that would cost one dollar in the United States. So, column three provides the PPP for other countries to the USA to understand their full meaning. These PPPs have to be put into the context in which they are used column four shows the exchange rate of each country's currency to the USA.

Brazil for example in June 2011 a US dollar could be purchased for 1.5 for Real which is the Brazilian currency. When the cost of a big mac in Brazil is divided by the exchange rate, the result is how many US dollars are needed to purchase a big mac in Brazil. 9.5 divided by 1.54; 9.5 divided by 1.54 which is USD 6.17 which comes to us to 6.17. So, what does this mean this means that big macs are more expensive in Brazil than they are in the USA which is USD 4.07.

The same column, column five shows, they are much cheaper in China and South Africa than they are in the USA. These price level differences are measured by a price level index which can be computed two ways. One is simply the ratio of PPP to the exchange rate which for China is 3.61 divided by 6.45 which is equal to 0.56. The other is the ratio of the cost of USD of purchasing a big mac in China to the cost in USA or 2.28 divided by 4.07 which is equal to 0.56.

So, what do we know then that, big macs are more expensive in Australia and Brazil and cheaper in China and South Africa than in the USA. Why do we carry out these calculations? Purchasing power parity calculations are very important in economic growth calculations, because it helps us in desire in understanding what are the international differences in prices across countries of the world.

So, for example, when we have rankings carried out of countries based upon let us say the human development index or some income, we tend to convert the national currencies into US dollars in terms of purchasing power parity the price index so, as to be able to tell us what is the rank of country A B and C with respect to the USD. I will now sum up todays discussion in today's lecture, we try to understand what does economic growth mean, how is it defined, what are the important concepts that are used.

I try to give you a very brief introductory overview of what are the basic concepts involved in the system of national accounts. We understood how circular flow of income and output takes place within a country within an economy. We looked at a simple two sector economy a closed model where there is no foreign trade and we saw how income and output flows take place between the household and the business sector or the firms. Through the two sector model we also saw three methods of national income accounting; the product method, the income method and the expenditure method.

National income identities or national income accounting are carried out in such a manner that national income estimated whether through the product method or the income method, for the expenditure method are basically the same. It gives the same it gives a single estimate. We then also looked at the definitions of gross national product, net national product, gross domestic product and net domestic product.

We also looked at some of the personal income concepts important among which was the disposable income concept and the per capita national income. We then also looked at the definitions of some of the constituent elements of national income such as what are indirect taxes, what are undistributed corporate profits, what dividends, what are transfer payments and finally, we also looked at the concept of purchasing power parity with the help of an example, which is basically to tell us how international comparisons income comparisons yeah income comparisons are made internationally.

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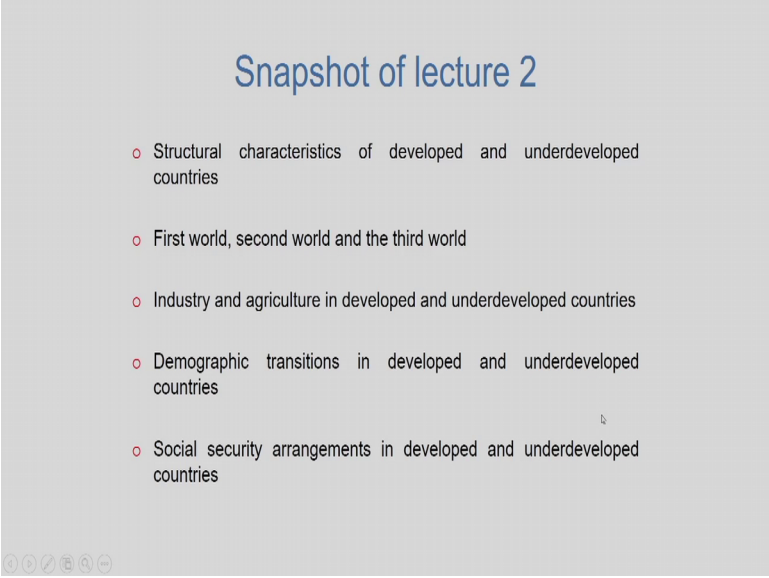

In I will give you a snapshot of the next lecture, which in the next lecture we will look at the structural characteristics of the developed and underdeveloped countries. We will try to understand why the first world second world and the third world have been named. So, we will also look at the basic features or the characteristic features of industry and agriculture in developed and underdeveloped countries of the world. We look into the issues of demographic transitions that have taken place in developed and underdeveloped

countries and finally, I will end the next lecture with the social security arrangements made in developed and underdeveloped countries.

To reiterate there are various measures of income inequalities that has been carried out. In this lecture I introduced you to certain basic concepts and in the lectures to come we will try to look at some of the growth theories and the economic development theories, for which these economic concepts are extremely important you may post your doubts, and confusions if any which I will try to solve through the responses.

Thank you for your time.