Introduction to Economic Growth- I

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Lecture-5

Hello and welcome to week 2's lecture on Introduction to Economic Growth. Hope all of you are doing well and you did get a chance to go through the lectures of the first week, okay? So, before we proceed this week, let us do a quick recap from the first week and let us see in the process how much of it we actually remember. So, last week we were setting the stage for this particular course. How? Because we first discussed that why is it that we study economic growth, and I hope some of the answers that were given you found them satisfactory, and you should also come up with answers of your own, okay? The next thing that we had done in the last week was we tried to place this particular course in context, in context of the other subjects or the other areas that we study in economics. And we said that this falls under the broad category of macroeconomics. So, we do use macroeconomic tools in trying to analyze some of the questions.

And when we work with data, we also take help from econometrics, right. So, if we are doing an empirical growth course, then it is also a course in applied econometrics, okay? And then, after that, we spent a considerable amount of time trying to distinguish between the short-run fluctuations in an economy versus long-run economic growth. And we did present this distinction. As we had mentioned, so that we are very clear about the objective of the course, you know, because otherwise the questions that we are going to ask ourselves would not be clear like for instance, in this course, we are not asking ourselves the question, that why do recessions occur or when is the next slowdown going to occur.

Those are a part of, you know, they are still a part of macroeconomics, yes, but those are studied when we study the short-run fluctuations. Contrast that with long run economic growth where the question is different. The question is about the same economy, but the question is about the real long term performance of an economy. So, this distinction is very, very clear, okay? And it should be clear, at least for this course, so that we are clear about the kind of questions that we ask ourselves in this particular course. And then towards the end of that week's lecture, we had presented what we call the stylized facts of economic growth.

What are these stylized facts? These are some of the regular observations one can say. So, these are observations. This is what we have seen over the last several years. And based on these stylized facts, we try to find answers to those questions. That is why they are stylized facts.

And absolutely, towards the end of last week's lecture, we also talked about how it is that we are going to conduct this course. The reason being that as we said that first this kind of a course can be taught in several ways. There is no one single way of teaching a course like this. Some might like to concentrate only on theoretical models, someone might like to concentrate only on empirical evidence. So, there are variety of ways in which one can try to find answers to some of the questions that we have posed.

So it makes sense to clarify how we are going to conduct this course. It will be a good combination of both theoretical models, as you know, as well as an understanding of data because we will also see, especially in today's lecture, that you know there is data all around us, and we find a lot of different kinds of headlines when we read the newspapers or magazines. So, we should also be able to infer from data, if we see a data table we should be able to you know read or interpret that data. So, as far as this particular course is concerned, we are going to combine both theoretical models and we are also going to talk about data as well. And I had also mentioned the two textbooks that I generally follow, and most of the information that you will find in this course is taken from those two textbooks, okay? So, if we are all on the same page now as far as what we had covered in the first week, well then welcome to the second week's lecture, which is now about measuring and comparing economic growth, okay? So, we now start our journey.

So, as to say in the first part we had presented the relevant questions and some of the data that you know we observe when people talk about economic growth. This week, we are also going to do some hands-on exercises, okay? We are going to take a look at different kinds of data sources. So, this week is all about first how to measure economic growth and when we are comparing economic growth across nations. Well, what kind of comparisons are generally made? So, to make our task simpler, just like the first week, we are going to break down this week's lecture into smaller modules, okay? The first module we will talk about GDP. I know many of you might be already familiar with the concept of GDP because that is generally.

You know, national income accounting is the first chapter that we generally cover in basic macroeconomics, right? So, for those of you who are already familiar with this concept, it will be a quick recap for you, and if you are new to this concept, well, then you know you might like to spend some time on this particular lecture. So, we are going to talk about GDP. We will also take a look at some of the data. I would also like to mention here that wherever possible, you know, we will go back to data. We will see a lot of graphs so that

whatever definitions we are using, we will see how, in real life, we can actually infer from those, you know, data or figures.

In the second module for this week, we are going to take a look at how to measure economic growth. So, there are various techniques that are used. So, we will see that if we do have access to data, how is it that we are going to measure economic growth. Then we are going to talk about something known as proxy variables. This is very interesting because, you know, when we talk about economic growth, we kind of take it for granted that GDP data is available.

Now, there are instances where either the GDP data is not available, or we do want economic activity data, but it is not available at the level we want it to be. What do you mean by the level? I am talking about, let us say, you know, GDP at the district level, let us say, or economic activity at the district level. Now, there is generally no data on that at a very regular basis that is. So, what do we do when we cannot either find that data or we cannot access the kind of data that we are looking for? We use a class of data that is known as proxy variables. So, that is a broad class, so as to say, for our purpose, we will talk about the role of proxy variables in measuring economic growth.

And finally, we will wrap up the session by talking about what can we learn from data. So, this is going to be a combination of mostly data in terms of the headlines that we come across. There are some very common terms we come across. So, we will also see that what is the meaning of those common terms, how are those things calculated, and how we should be interpreting those numbers. So, this is the agenda for this particular week.

Okay. So, we will begin with the first module, which is about GDP, right? Why is it that we start talking about GDP? The reason being when we talk of economic growth, it is measured in terms of GDP. It is in terms of GDP. So, it makes sense to spend some time in trying to understand GDP especially in the context that we are going to discuss. Now, discussions on GDP is generally very lengthy as you know we must have seen that during national accounting there are many facets to it, but for our purpose we are not going to go in that particular direction. We are going to use only those facets that we will be using while exploring more about economic growth.

So, I just wanted to clarify that because this is not going to be a very comprehensive discussion on GDP because that is not the purpose. But as far as whatever we require for our own understanding of economic growth, those aspects we are going to discuss here. So why talk about GDP? So we would start with this indicator. So GDP is a very important macroeconomic indicator because this is the first thing that we generally look for in an economy. So you might like to recall in the first week's lecture, we had started the lecture with the world map right, and I said that it is a very diversified world, it is a very divided world.

When an economist says that, you know it is a divided world or it is a very diversified. Then, on what basis are we talking about this diversity? We are not talking about the linguistic diversity here as economists. We are talking about the difference in terms of income of these nations. So, that is what we do as economists. So, that is why when we talk of the income of nations, the income of nations is measured by the gross domestic product or GDP.

Sometimes, we also use GNP, etc, or NDP, NNP, right? So, these are also used at times depending upon what kind of data is available, but the crux remains the same. They are all measuring income of an economy. And more so, why is it that we are going to discuss GDP here? Because this is again from a popular news headline, and I had mentioned this earlier as well. This is the cover picture or the cover story of The Economist, you know, which is a very well-known magazine, and it talks about how India's growth will outpace China. So, wherever growth is measured, economic growth is measured, the underlying unit is always income or GDP.

So, to understand stories like this, we should also have a good grasp on the underlying factor which is GDP. So, very quickly, what is GDP or Gross Domestic Product? So, the economic status of a country that is determined by its GDP. Now, GDP is generally, you know, denoted by this letter Y, capital Y, or sometimes small y. If it is real, GDP is generally denoted by small y; these are the common notations you can say. So, this Y is a measure of the market value of all final goods and services that are produced in an economy in a given period of time, okay? Year, generally yearly GDP, but we also have quarterly GDP.

In some cases, there is also monthly GDP, right? So, there are a few important terms here that we should be paying attention to. One, it is a measure of market value. So, all those goods and services which might not have a market value per say generally are not a part of GDP. The second thing to pay attention to here is that it is a market value of all final goods and services because there are also intermediary goods and services, right? Now, if we also take into account if we miss out on the word-final here and if we say that it is the market value of all goods and services, it is incorrect because then we are double counting, right? Does this ring a bell? I am sure that when you are studying national accounting. These points were made there as well.

So, that is why it is important to mention that we are considering only the final goods and services so that there is no double counting. Also, it is produced in an economy. So, here the geographical boundary is important. it is not about who is producing, so that is why produced in an economy. If we are talking about the GDP of India, this is whatever has been produced within the boundaries you know of this particular nation, geographical boundaries, who is producing is not you know that important here rather the location or the geographical boundary here is important, and the last bit is in a year in a year is very

specific it would rather be in a given period of time and by a given period of time generally we consider it as a year, but you know as we said it can be a biannual thing, it can be monthly, it can be quarterly.

So, here it should be in a given period of time. So, that is the definition of GDP. Sometimes, we use the term national income; sometimes, we use the term just output; sometimes, we use the capital Y. So, these are different ways of representing the same thing, right? So, sometimes, instead of GDP, saying GDP repeatedly, we might just say that the income of a nation; by the income of a nation again, we mean the same thing. So, as we said that GDP indicates the economic status of any country.

So this is a world map but the shades here, the color shades that we see here, what they denote is how the world looks like when it is divided in terms of income, right? So, the different shades that we see here are based on income. I am sure that we have all seen maps like this. So, in the legend, if we pay attention to the legend, we will see that the different colors that we see here they represent the different income intervals, okay? So, this is generally how we classify countries or economies based on their income. We will see more of these graphs later as well.

So, I think we can move on here. Also, GDP when we talk about GDP because we are just mentioning this, so it might make sense here because some of the data it can be from the income side or it can be from the expenditure side as well. So, GDP can be measured in various ways in an economy; it can be the expenditure aspect of the income or GDP there can be the income aspect as well. So, these are the two aspects primarily when we are looking at data, this is how we would also be looking at GDP. Okay. Now, the next thing, and remember, we are discussing all these things because, as we said that we will also be taking a look at some of the data, so that data should make sense to us.

Now, especially from the point of view of data, we need to be very careful about what kind of GDP we are talking about here. What do you mean by what kind of GDP? So, are we talking about nominal GDP, or are we talking about real GDP because that numbers are going to be different, okay? So, whenever we are dealing with numbers, we should be very, very careful because we should know first what the origin of those numbers and, second, what those numbers indicate; that is a very important factor that should be considered. So, if we take a look first, let me show you the data, and then we can come back to the definition. Say for instance, for India we are looking at the GDP data. So, generally, we refer to the RBI website.

There is a link that we will find in the handbook of statistics on the Indian economy, okay? There you see the first table is the macroeconomic aggregates at current prices, okay? So, how is it that we are going to make sense of this data? So, that is the objective with which we are discussing this. Now, since GDP is the value of all final goods and services and I

have highlighted the term value here in red. Why? Because you know, very simply speaking, what GDP is, is actually all the goods and services that are produced in a nation. Let us say in a particular year, but all the things that are produced in a nation. They are all heterogeneous things, right? Say, for instance, a nation produces or manufactures 5 chairs, and 10 cars, and 50 laptops, and 20 shirts.

Now, they are all a part of GDP, but how do we enumerate them because these are all different goods. So, we cannot add up cars with computers with shirts. So, the next best thing that we can do is to convert everything in terms of value, okay? So, the number of cars times the unit price of the car, the number of computers times the unit price of the computer. So, in other words, GDP is nothing, but it is the sum total of the product of prices and quantities, right? I hope this rings a bell as well. So, when we talk of value, that is why it is P times Q, price times quantity.

So, this becomes a little tricky in terms of numbers, why? Because it is a product term. So, if the value of that product term is going up, we do not know whether it is going up because P has gone up, or is it that Q has gone up, or is it that both P and Q have gone up because it is a product term. So, that is why this term value is highlighted here because when we talk of value Then, we should be careful because what we really want to know is whether the production in the economy has gone up. But as we said, if we are just looking at the production side of it like cars and computers and shirts etc, they cannot be added up together, remember. They always have to be multiplied by price so that we can add up its value.

But whenever price comes into the picture, then we do not know whether the product term has gone up because the prices have gone up because prices do go up every year; that is what inflation is all about. So, to distinguish between these two things, we use the concept of nominal GDP and real GDP. Nominal GDP measures these values at current prices, whereas real GDP and real GDP are mostly what we use in macroeconomics; this measures these values using the prices of a base year, okay? So, I am sure you are also you are familiar with these definitions and these concepts, but this time, we are going to see how it plays out in terms of numbers. So, in terms of numbers these two things are going to be different, okay? The second thing that we have to be a little careful about is because, you see, now we are moving towards data, which is very short while we are going to take a look at the GDP data. When we talk of GDP data and suppose you are doing some independent work or some independent project and you are looking for GDP data, the very first question is where should I take data from? What are the data sources? Now, these days we just have to Google and we find variety of sources, right.

And that might even confuse us even more because, well, how do I know what source I should be using? As far as GDP data especially is concerned, we generally prefer to take it from official data sources. Why? Because this is not the kind of data that can be generated

by individuals because this is at the entire macro level or at the economy wide level. By official sources what do we mean? We mean, you know that those data have been published by the government or by central banks or might be by some international agencies as well like the IMF, World Bank, UN, etc. Sometimes, we also do use data that is published by some private companies or NGOs that have good credibility. So this is how we first have to ascertain which data I am going to look at.

So, for instance, when we talk about the GDP data for India, this is the source that I generally use, which is from the RBI or the Reserve Bank of India, which is the central bank for India. And if you go to the RBI website under publications, you will find a link to this handbook of statistics on the Indian economy, a bunch of macroeconomic variables that we use in day to day, you can say our work or analysis one can find here. So, this is a screenshot of what we get to see once we open up this particular link. Okay. Now, if you go to the first table, this is again a screenshot from that table, but I would urge you that please visit the website and open the table yourself to see you know how we actually get these numbers.

Now, if we open up the first table, what we see is the macroeconomic aggregate. So, there are more indicators there, but what is interesting is what is written here is at current prices. This is what we meant. But you know, nowhere when we are looking at data will it tell us that, or we will come across the term nominal GDP or real GDP. Those are used only in the textbook or only when we are dealing with macro.

You know, no one else is going to use that term, but they will imply the same thing. So, how would we know what is nominal GDP? Where we see that it is written at current prices, then we know that this is nominal GDP. For instance, here the last row. So, I am only showing a part of the table by the way.

This is not the entire table. The last row that we see in this particular table, this mentions the gross domestic product. Okay. So, this is the GDP and this is in rupee crores, INR crores. So, we should be able to look at a table, and we should be able to infer from there which kind of GDP this table is talking about.

Okay. Vis-a-vis, if you open the second table in that you know the same link here, let us see what is written under Table 2. Here, the base year is 2011-12 at constant prices. Again, nowhere is it going to write real GDP. As we said, this is a term that we use for our purpose in macroeconomics for our understanding. But data wise because also remember when we are working on something, or we require some information, we have to fall back on data.

And there, if we are expecting that somewhere, I will, you know, find this term real GDP, no, we are not going to find that term anywhere. So, we should know that if you are looking for real GDP, then what are the terms that we are looking for when we are looking for it in data? So this is the term that we are looking for at constant prices and for which year? For

2011-2012. So, currently, this is the base year that India is following. And again this is a partial table that we are seeing here. If you look at the last row, this is the GDP number and I will just take you back for a second to the previous table.

You see for the year 2016-17. The first column I am referring to and the last row, the GDP number is 15391669 just remember that and here you see same thing, but now the GDP number is instead of 15 something it is now 12308, this is the point I have been trying to make that. When we just talk of GDP or GDP data, but now, as students in macroeconomics, we should be very specific, and we should also be careful because, you see, the two numbers are different. So, and if we are doing calculations based on these numbers, our results are also going to be different. So, this is why we start by distinguishing between the two kinds of GDP. So, again how would we know whether we are talking about nominal GDP or real GDP? We should look for certain keywords like Is it at current prices? If it is at current prices, then it is nominal GDP.

If it is written at constant prices and the base here is mentioned, it is the real GDP that we are talking about, and in most cases, we generally consider real GDP. The reason being if we take it at current prices, and we also see here that when we consider nominal GDP, The numbers are generally higher because it is multiplied by current prices, and current prices, they are generally higher than last year's prices, right? So, the numbers are going to be different. So, that is why we distinguish between the two.