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RICARDO J. CABALLERO: I expect that there will be many fun lectures in the sense that we're going to be discussing a little more exactly at the right time in which that issue is an important issue, at least as described in the newspapers. And, you know, we are going through a very interesting time for macroeconomics.

Inflation is unusually high. Something needs to be done about that. And we still have problems on the supply side of the economy as a result of COVID, as a result of the slow reopening of China. And we have a war going on, which is affecting also the price of energy, and is particularly impacting Europe. And all these things, the situation is very fluid. All of them can change at any moment.

And policymakers are, therefore, paying very close attention to all these things. It's not a normal time. If you're a policymaker, macroeconomist policymaker, you are not sleeping a lot these days. And so I expect that we will have plenty of time to discuss interesting things and analyze them at a slightly higher level than you can do at this moment.

Now, I also told you in the introduction that this particular lecture is not going to be of that kind. It's going to be very boring in the sense that we need to start with definitions. And I don't know, who likes definitions? I don't. It's very boring.

Now, there is an interesting, a curious side of the definitions we're going to discuss, which is that if you were taking 1401, microeconomics, many of the concepts we're going to describe require no definition. They're obvious. I mean, if I ask for an output of a factory that produces cars, it's pretty obvious that it's a number of cars.

If I ask you for the prices of those cars, it's pretty obvious what the price of a car is. Not so for macro, because if I ask you what is the output of the US economy, well, there's millions of goods and services are produced at the same time. So what do we mean by output, a single measure of output?

Or if I ask you about the price level or the inflation, the rate at which that price level is changing. Well, what are we talking about? It's very easy to see whether the price of a car is going up. But if we're mixing sort of millions of different goods and services, then it's a little harder.

And that's the reason we need this lecture, because it's a little harder than 1401 and we need to define basic things. But they have a trick because you're summing apples and oranges-- not only apples and oranges, apples, oranges, health services, financial services, all of them in one piece. And so it's a little trickier. And that's the reason we need this boring lecture. We need to go through that slightly trickier definition of output prices and so on.

So let me start with the most basic thing-- aggregate output. At the end of the day when the economy is in a recession or not, and so we don't like it or we do like, it depends on what is happening to output. Is output growing at the pace it used to grow? Or is it growing less or it's declining?

Well, that's very important for macro and to understand the health of an economy, the macroeconomic health of an economy. But we need to start by defining what we mean by output. And because it's a tricky thing to do when you're adding so many apples, oranges, financial services, entertainment, and lots of things that are very different, we didn't have a good way of doing that.

In fact, the National accounts as we know them in the US is something that we have since the post-war period in the late '40s that we developed the techniques, the approach, to come up with a measure of aggregate output. Before that, we had measures, proxies. Industrial production is very high, meaning we're producing lots of cars, stuff like that. But something systematic like we have today is a pretty recent thing. OK we call that NIPA-- the National Income and Product Account.

Income and product-- that's going to be very important for macro, as you'll see in a minute. So the main measure of aggregate output is what we call gross domestic product, or simply, GDP. You hear GDP, that means output of an economy. Why is gross and not net? You're not going to worry about that in this course. But that's it. You hear GDP, most macroeconomic wouldn't say output. They would say GDP. It's very short. It's efficient, and so on.

Well, that's what it means, is the output of an economy. But how do we define It? As I said before, it's much harder than when you have an individual good. By the way, I will be, most of the time, I will say goods. But really it's goods and services. But it's very long to say goods and services.

So whenever I say goods, I'm not trying to play any trick on you. I really mean goods and services. I just be lazy. And most people are lazy that way. Now, what is the difference between goods and services? You're not going to worry a lot about that in this. You're not going to worry at all about that in this course.

But just to get a sense, goods are things that are tangible. Services are things that are not that tangible. They're benefits that you receive from the tasks that someone else operates on you. So you go to the Medical Center. You don't come up with a piece of a machine to-- well, they may lend you something. But you don't come out with an objective. You come out with a service provided by a doctor to you.

And the same happens if you go to a bank. You don't come with an ATM with you. But you come up with is the service of having done a transaction or deposit or gotten a mortgage or something like that. It's a service. If you go to a restaurant, again, you don't-- what you have is an experience. It's people provided an experience to you.

Things are a little tricky because if you do a take out, well, it's not an experience, or it's really the good. So, if you get into those details, which we're not going to get, it gets to be tricky. But just to get a sense, on average, a consumer in the US, 2/3 of the consumption is in services, not in goods. It's not the bananas and so on that you buy. It's a lot of the financial services, health services, and entertainment, and things like that, traveling. That's where you spend most of your time.

Having clarified that, you can forget that. From now on, I'm going to say goods. So occasionally I may say goods and services. But I always mean the same. OK, good.

So how do we measure these things? Well, there are different ways of doing this. Something happened to my slide there. OK, there we are. And so suppose that you have an economy that is very simple. I don't need to tell you how simple this economy is.

It has just two firms. Suppose that we have an economy that is very simple. It has two firms. One firm produces a steel and the other one produces cars. And the company that produces cars buys all the steel from the company. You, as a consumer, don't buy steel directly. The car company buys the steel. It uses to produce a car. And you buy the car.

So that's our simple economy. And those are the accounts of the simple economy. So there you have a company. One has a revenue from sales. It sells 100. So price of steel times steel is 100. The second company buys steel, uses workers, and sells 200. So the question I asked you, the first question I asked you here is, well, what is the GDP of this economy?

Here you have an economy that has two goods. Needless to say, a real economy is a lot more complicated than this. But you have two companies. And I asked you, what is GDP? So the obvious things that you can come up with is, well, I sum all the revenues. OK, so that's the obvious one. The total GDP of these economies is 300. That's a sensible answer. At least at this moment, I would accept that as a sensible answer.

In the quiz, I wouldn't. But here it's a sensible answer. I mean, well, you ask me for what is the total output of that economy. I sum up all the revenues and sales. And that's 300. OK, so is it 300, or is it 200? I mean, that's another-- it says, well, look, only the final goods perhaps should count because, you know, this is the only thing that you, as a consumer, will ever see is this part, not that.

Those are two sensible answers. And what I'll show you in three different ways is that the right answer is 200 for that economy, not 300. The right answer is 200. So method one-- and all these methods are used, and they used to check each other to compute GDP.

So method one is what I said here is final goods. You said GDP is the value of the final goods and services produced in the economy during a given period of time. Notice that GDP is a concept of a flow. It's something you produce in a year. That's the reason you say GDP of the US in 2022 was $23 trillion. It's in a year. It's a period of time. So that's one definition.

And one way of making sense of this definition is imagine that I give you the same economy with the same two factories. And now all of a sudden I tell you, you know what, I'm going to merge the two companies. So company, the car company will buy the steel mill, or whatever.

Well, if I now put together those two accounts, now, I never see the steel because that's all happening inside the factory. And it's still the case that the economy would be producing 200 cars. And all that you would see is 200, because I would put this thing together. There was a steel that this company had purchased from that, but now it's all inside.

So if I put them together, then that steel there doesn't appear because it's all produced in-house. And now GDP would be 200. Well, it makes no sense that just because I change the ownership structure of the company, that your GDP changes, collapses from 300 to 200.

If I'm only measuring final goods, though, I don't have that problem. It's still 200. Doesn't matter that I have the merge lies, and lies in 20 or whatever. So that tells you that we're going the right way here because it's a very robust answer.

That is, you don't count the intermediate output. You only count the final goods, which are the things that the consumer will buy, the firms will buy for investment, and things of that kind-- that foreigners will buy.

Alternative method is GDP is the sum of value added in the economy during a given period of time. What is value added? The difference between the final goods produced by a company and the intermediate inputs it purchased to produce those goods. OK, so what is the value added of the steel company here? The answer is there. But what is the value of it? It's 100. How do I know it's 100?

Well, because it's not buying any intermediate input and the revenue is 100. So that's the reason I get 100 there. OK, 100. There is no intermediate inputs. What is the value added of the car company? Well, the revenue on sales is 200. But it purchased 100 intermediate inputs. So the value added is 200 minus 100. The value added of this company is 100. 100 plus 100, I get my 200 again. Yeah.

AUDIENCE: Would we consider the wages to be intermediate good?

RICARDO J. CABALLERO: No. Those are not goods. Those are factors of production. Their machines in that factory that are helping you produce things, that's a service of the machine. It's capital. That's not an intermediate input. An intermediate input is another good or service that you buy for the purpose of producing that good.

So workers, no. The workers are working inside your company and so on. If the work was produced, was outsourced and you had another company that produces something that you use from those workers, that would be an intermediate input. But you would have to count the value added of the companies you have outsourced to.

So that's method two. And you see we get exactly 200. Those two methods are called production methods. There are different ways of measuring the production of the economy. The third method, and the last one, is an income method, which means, look, all that is produced has to be earned by someone-- the workers, the owners of capital. Somebody has to own that.

If the firms sell collectively $200, those $200 have to be allocated to someone. Someone means workers, the owners of capital of the firms, or in realistic economies, the government. You pay taxes and things of that kind. OK, we're not going to worry about the government for a while.

So that's an alternative method, is method three. You just sum the incomes. So who are the factors of production here related to your question? In this, there is no government here, no taxes. So we have only workers and profits and the capital, the owners of the company.

Wages is 80 plus 70, is 150. Profits is 20 plus 30, 50. 150 in wages plus 15 profit gives you back your 200. OK, so those are the three ways we have of measuring things. And you see, they give you exactly the same result. Now, there is something, as I say, from the construction of national accounts, there is something interesting in what I just said, which is, look, that production is the same as income.

That's going to be very important for macro-- very important for macro. And it's totally unimportant for micro. When you're looking at a company, for example, in micro, and you're looking at a car company by itself, it is true that the output of that company becomes income, part for the owners of the company and part for the workers.

But that income needs not be spent in cars. Can be spent in food and entertainment and whatever. Not so in macro. Because what else are you going to spend it to than in the same good that you're producing in the aggregate good? So it's very interesting. That's a very distinctive feature of macro that is not present in micro, is that the income has to be spent in the same goods.

If the economy is closed, later on, we're going to open the economy to the rest of the world. And then you buy some Chinese goods and blah blah, blah. But if you keep it close, hey, you are not going to buy cars. That's what you work on. But you're going to have to buy it in the single good of the economy, which is a sum of all the goods that we consume in average. That's going to be very important.

Anyways, this time this stuff moving in the right direction. OK, so that's, that. Now you know what GDP is and the different ways of measuring. You're going to have to remember that for p set one and for quiz 1. And you might as well forget it for the future. It's good that you understand the concept, but it's different ways of constructing that's not important.

Second thing we need to worry about is that whenever you're thinking about the output of an economy, you're really trying to think about the real output, meaning the number of cars and number of machines and so on. But you have inflation, for example. Then the prices of these things are growing.

And so the total revenue on sales is growing. But they don't mean the same. And we want to certainly separate these two things. And for that reason, we have a concept which is called nominal GDP and another one which is called real GDP.

Nominal GDP is the simplest thing on Earth. It's essentially we have only one final goods company there which was carved out. Imagine you have cars, refrigerators, many, many things. Nominal GDP is simply the sum of the final goods and you multiply them by the current price. And that gives you the dollar GDP that you have.

I don't know what it is in the US today. You could check it, but it's $24 trillion or something like that. So that's it. P times Q, prices times quantity. And you sum across all the final goods, as we do. That's one way of calculating things. That's nominal GDP.

But again, what we really care about is we're going to care a lot about later on is how that economy is doing over time. Is it growing? Is it not growing? Nominal GDP can grow for two different reasons. It can grow because the economy is really becoming more productive. It's producing more goods, or because prices are going up.

Now, at this moment, nominal GDP is growing very fast in the US, despite the fact that we may have a recession this year. We don't know. But nobody has any doubt that nominal GDP will grow because we have lots of inflation.

And so you want to separate these two things. And the thing that removes the inflation component is what we call real GDP. And real GDP is you hear the word only GDP. And that was produced by somebody who understand what he's talking about. GDP really means real GDP. Just hear GDP, people are trying to say the output of the economy. Well, that's real GDP.

And the real GDP is computed-- many tricks. But essentially what you do is you also sum across all the goods. You also sum across the goods, but you use constant prices, not the prices of that point in time necessarily. So I'm going to give you a very concrete example.

But before doing that, for this course, we're going to call nominal GDP and all nominal variables are going to have. That's what the textbook does. They're going to have a dollar sign in front. So that's nominal GDP.

GDP is going to be y without the dollar. That's real GDP. For the first part of the course up to quiz one, we're going to worry very little about nominal things because we're going to have prices completely fixed. But you still need to know the concept. And that's real GDP.

So now let me give you an example. So suppose you have this, this simple economy we had before. We're just going to look at final goods because as we need to look at to construct GDP. And so this economy produces cars, and supposedly produces 10 cars in 2011, 12 cars in 2012, and 13 cars in 2013.

But suppose the price of a car is what you see there, 20,000, 24,000, and 26,000. Nominal GDP is simply the product of this times that. That gives you $200,000. 12 cars times $35,000 gives you 288 and so on. That's nominal GDP.

Real GDP, you have to pick which price you want to use. But only use one. And don't vary it over time. So in this particular case we picked 2012. So that means when you say GDP, real GDP at 2012, base 2012, were 2012 prices, means you're using the prices of 2012. You don't vary that.

You let quantities change over time. But the prices remain fixed. So in this case, real GDP at 2012 is, 10 cars times 25,000. That gives you 240,000. 12 cars times 24,000, 288. This is interesting. For this year, nominal GDP is the same as real GDP. Why is that? An accident?

AUDIENCE: Because you used the base year as the [INAUDIBLE]

RICARDO J. CABALLERO: Exactly. We're using that as a base year. So nominal GDP will always be equal to real GDP at the base year. That's the year we're picking as the base because those are the prices we're using. I got about 2013. Well, is not 26,000 times 13. Is 24,000 times 13. So we get 312.

And it's obvious here that real GDP is growing less than nominal GDP. Why is that? Well, because this economy has inflation. Prices are rising over time and we want to remove that when we look at the real concept. The real concept removes the price effect.

There are times in which you don't want to remove all that price effect. And it happens a lot, for example, in computers. Because sometimes the increase in the price of the computer is simply because the computer is better and you want to correct for quality and so on. But again, that's not something you need to worry about in this course.

Maybe some of you are deciding the pace at which you want me to move. I'm really puzzled by this stuff. This is from the book. And you see what happened in the US, with nominal and real GDP, with base year 2012. So as I said before, these two curves, one is nominal GDP, the red line. The blue line is real GDP. We're using base year 2012.

So at that point, they have to be the same. And what you see very clearly there is that the blue line, real GDP, is flatter than the red line. Why is that? Why is the-- yeah.

AUDIENCE: Real GDP before was lower beacuse [INAUDIBLE] GDP-- I mean this particular market probably [INAUDIBLE] inflation.

RICARDO J. CABALLERO: This inflation. By the way, I do have a reference for you. So ask me after the-- OK, good. And anyway, so yeah, in the US, between 1960 and 2018, nominal GDP increased by a factor of 38, while real GDP by a factor of 5.7. Big difference.

So you better be careful when you look at GDP that you are removing inflation, especially-- I mean, if you were to look in Argentina, these guys have had a recession, a chronic recession for a long time, big recession. But nominal GDP is exploding because they have 10,000% inflation. So it makes a big difference, especially over time.

This is just so you get the picture, the complete picture for the US. This is GDP growth in the US since we have national accounts. And some noticeable things-- well, again, recessions. This was a big recession. Remember, we call this the Great Recession, big recession. And this is COVID. And then this is 2020. And then they bounce back in 2021 when we reopen the economy. Big growth. But that's very anomalous. I mean, it was a very weird shock.

But see, these are all the shaded areas are recessions. Recessions are defined as slightly more complicated way than that. But one sort of popular way of describing recession is as an episode where you have two consecutive quarters of negative inflation. That's not the formal definition of a recession, but it's pretty close.

And so that's what you have there. Another concept is unemployment rate-- the unemployment rate. So that's GDP. And in the first part of the course, we want to worry a lot about that. We're going to build a model on how to find equilibrium GDP. And we're going to see what happens with fiscal policy, with monetary policy, how does equilibrium GDP, macroeconomic output, changes with different forms of policies or when consumers get scared or stuff like that.

What about the unemployment rate? The unemployment rate is not something we want to worry a lot about until the second part of the course, after quiz 1. But still, I want to get it over with these definitions. So what is employment?

It's a number of people who have a job. That's easy. Unemployment is slightly less easy because it's first of all, obviously to be unemployed, you cannot have a job. But it's not enough that you don't have a job. An unemployed person is somebody that doesn't have a job and is looking for one.

And not all unemployed people look for a job. Not all non-employed people are looking for jobs. So to be unemployed, you need to not have a job and be looking for one. The labor force, what we call the labor force, is the sum of those two groups, the employed and the unemployed that would like to get a job.

The unemployment rate, which is something I showed you in the previous lecture, is just a ratio of these two concepts, the unemployed over the labor force. Notice, over the labor force, not population, the labor force, which is the sum of the employed, and those that are unemployed that do not have a job and are looking for a job.

And how is unemployment measured in the US? It's mostly a survey. And I have the info there. It's called the CPS, the Current Population Survey that consults lots of households. And they ask them about the employment status, whether they have been looking for a job over the last two weeks or not and so on. And that's the way we come up with the number.

As I said before, those that do not have a job but are not looking for a job, they haven't been looking for a job in the last two weeks, are called not in the labor force. That's what we say. Now, these concepts are between unemployed and not in the labor force is not that clear.

We look at the unemployment rate. But we also tend to look at those people, as well, because many people are simply discouraged. They would like to get a job, but they have been looking for a while and they haven't found it. And it happens that there is a lot more discouraged workers during recessions. And you're having a big recession. It's very difficult to find a job. So it's very easy to get discouraged.

And so that's the reason we look at broader measures of non employment than the typical unemployment rate, because a lot of those-- not in the labor force. People do not have a job and are not looking for a job, are really discouraged. They just gave up after a while.

The participation rate-- and that's a very important concept-- is something you would have ignored most of the time. It's very critical at this moment. The participation rate is the ratio of the labor force to the total population of working age. And you exclude people in prison and stuff like that.

But so it's labor force, which is the sum of the employed and unemployed, divided by those that could work in principle. And that's what we call the participation rate. How do these numbers look? I showed you this picture in the previous lecture. And that's the unemployment rate. It skyrocketed during COVID, but it has declined enormously.

And as I said in the previous lecture, a big issue is that the unemployment rate today is extremely low. We haven't seen levels like this since the early '60s. Unemployment rate today is at record low levels. And that's a problem. Sounds wonderful.

But it's also a problem because we have an inflation problem. And those two things are connected, as you will learn later on in the course. But that's what we have right now. That's the unemployment rate.

Now, the reason that employment rate is so low, there are two reasons, really. One is that there was lots of stimulus policy, fiscal policy, monetary policy. So aggregate demand and consumers were fed up with being locked out of restaurants and trips and so on for two years, decided to travel and so on. And they had lots of savings.

The US consumer accumulated excess savings of $2.7 trillion. And now they're spending the stuff. China, a big reason why people expect a big bounce back is because they also had a lot of savings because they were locked up for quite some time. So as a result of that, there is lots of demand for goods. And as we learn in the next lecture, that means lots of output, as well.

But the second reason is the following. It's the participation rate. People haven't come back to work in the magnitude that we expected. So that's the participation rate in the US. Remember, the participation rate is labor force over all those that could work, in principle.

What do you think is this? Look at the participation rate used to be in the '60s, below '60s. And then there was a big rise in the participation rate in the US. What do you think is this due to?

AUDIENCE: Women joining the workforce.

RICARDO J. CABALLERO: Women joining the workforce. That's what it did. OK, that's that. Since then, since this woman did all that they had to do, we have been declining. And that's an issue. But look at what happened here.

Lots of people exit the labor force during COVID. I mean, you know, they had to take care of the kids and/or the elderly. And so people withdrew from the labor force. They didn't want a job. It was also discouraging. It was very difficult to get a job. I mean, you work in a restaurant. It was impossible to get a job in a restaurant.

But everyone expected this to recover to the previous level and it hasn't. So you see that the participation rate has not come back to the levels pre-COVID. It's substantially below.

And that's one of the reasons, you know, that restaurants complain that they don't have workers and so on and so forth, is that many people haven't come back to the labor force. We thought this was going to be temporary. Now, there is a concern that a lot of that is really permanent.

People that decided that life at home wasn't that bad after all. Less income, but they spend more time with the kids or whatever. And that's an issue. And that's a big reason behind the low unemployment rate. And the fact that we have all this inflation has to do with everyone. In particular, the Fed miscalculated the bounce back of the participation rate.

So as I said before, we're not going to look at labor market issues until the second part of the course, after quiz one. And the same is for inflation. We're not going to look at inflation issues until the second part of the course because to connect them, I mean, they are connected.

And we're not going to look at labor markets until sort of eight lectures from now or so. But this is an important variable and certainly something you're facing every single day in the newspapers and so on-- the inflation rate.

So by inflation, when you hear inflation, that typically means the sustained rise in the general level of prices. So it's not that the price of cars went up relative to the price of hotels, or now down relative to the price of hotels. It's that on average, prices are rising. That's what we call an inflation.

We're going to call the price level BT. And there are many different price levels, as you see. So the inflation rate, when you hear the inflation rate, is the rate of change of that price level. An episode of deflation, the opposite of what we're experiencing now, where we're experiencing inflation, is when that inflation rate is negative.

Japan most prominently has experienced something like that not now, but experienced it for on and off for the last three decades or so. And so what is the price level? There are many ways of defining it. And there are many different price levels.

A very popular one is what is called the GDP deflator, and it's the one you see. It's never mentioned in the newspapers. But we economists tend to look at the deflator. The deflator is nothing else than the ratio of nominal GDP to real GDP.

Another one is far more popular and more relevant for you as consumers, is what we call the consumer price index. That's the CPI. The CPI, that's what it is. So you calculate the rate of inflation from the CPI. You calculate the same way. But you use a CPI there instead of the GDP deflator.

Now, it turns out that-- obviously confused with this. It turns out that these two measures are sort of pretty well aligned. There are differences that may be interesting at some specific point in time. But they tell you more or less the same picture. In particular, there is absolutely no doubt that we have an inflation problem these days.

You can be as selective as you want with the price index you want to use and people are getting very selective. Now we have CPI excluding-- Well, one thing that makes a lot of sense is to exclude the most volatile goods. So typically, the CPI, we use is called Core CPI, which removes energy and food, which are very volatile prices. You don't want the thing to be moving all over the place.

But now we're also beginning to remove shelter because shelter inflation is very high and sticky and so on. So people can get to be very selective. But no matter how you look at the thing, we have a problem. There is no way around that.

So that's the way we look. Again, we're not going to look-- we're going to talk a lot about this problem, of course. But we need to build tools. And we're going to get there in about nine lectures from now. Nine lectures from now, we're going to be able to talk about what is going on with models. I mean, you can talk whenever you want, but with models,

OK, so those are the concepts I wanted to discuss today. Those are the definitions, some relief that we got over this stuff. Let me just show you, because we have five minutes or so, equivalent numbers for other places around the world. That's China.

That's China. That's GDP growth for China. And there are several things that you can see for this GDP series. The first is that it was very high. These numbers look a lot on average. That's a lot higher than the US. When I showed you the US, the rate of growth was moving around 2%, 1.5%, blah, blah, blah, occasionally recessions and so on.

This is China. Look, you had numbers like 10% or so. That's interesting. We want to know why is that you can have so much difference in different countries. And that's what we're going to do in the third part of the course. When we look at growth, we're going to look at these kind of factors, what can give you sustained rate of growth? Sustain, I mean, for a long period of time higher than in another country.

The main factor, just to preview what will happen, is simply that China was a lot poorer than the US at the beginning. And when you're poorer and you put your act together, you can grow a lot faster than the rest. Now China is slowing down. Aside from COVID, it's very clear for quite some time that they have been worried because clearly GDP growth is declining.

And they're terrified about that. And many of the things that are happening with China have to do with the fear associated to a slowdown in the rate of growth when they are still quite poor in per capita terms. So a lot of what happens in China has to do with that.

If you look at Japan, look at Japan. Japan also grew very fast in the '60s. You see this very fast rate of growth. Then it began to slow down. And boom, here it collapsed. They have a massive crash in financial markets, equities and land. The price of land was enormous in Japan at this time. They had a big financial bubble. For those of you that know Japan-- or if you don't know, doesn't matter. The imperial park in Tokyo, which is a park that is much smaller than Central Park or whatever, the value of that land at some point in time was the same as the value of the entire state of California.

That's an order of magnitude. It was not for sale. But, you know, in terms of location, times, price. But that bubble crash. And since then, Japan has never been able to recover its mojo. It has been sort of growing at a very low rate for a very long period of time. And one of the things that scares China is that this may happen to them.

Because this happened to Japan when they were already quite rich. Japan was pretty poor after the war, naturally. And they grew very fast in the '60s. But then they had this issue, financial bubble and so on. They crashed and had never been able to recover.

And China is worried that this slowdown happens to them before they have reached the level of income per capita that Japan reached when that happened. There are common factors behind the two of them, as well-- demographic factors. Demographics are very negative for both of them, which naturally will slow down the rate of growth. We're going to look at that later on.

This is inflation in Japan. You see, most countries had high inflation around there because the price of oil, we had massive oil shocks and so on. So inflation was pretty high. But the problem of Japan has been the opposite. Since the bubble crash in the late '80s, early '90s, they have had very low inflation, even deflation. And that's been a big problem.

Part of the reason why they have had so low growth is because they have been in this deflationary trap. And then something you will look at later on in the course, when you have deflation, it's very difficult to use monetary policy to get out of a recession. And that's the reason they keep getting stuck there.

So that's all I wanted to say for today. And I'm relieved again that this lecture is behind us. In the next lecture, we're going to introduce the first model. We're going to look at is how to determine equilibrium GDP and how that depends on a variety of things, including fiscal policy-- not monetary policy, that will happen later-- but how scared you are, consumers' preferences and fears and so on.

So that's the plan. So unless there are any questions about this-- No. I'll see you next Monday.