Economic Environment and Business Strategy
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Inflation Measures: Comparison and the Indian Context

Welcome back to our continued exploration of inflation in the Economic Environment and Business Strategy course. In the previous session, we discussed what inflation is and how it is measured using key indices, such as the GDP deflator, the Consumer Price Index, the Wholesale Price Index, and the Producer Price Index. Today, we will go one step further. We begin by comparing these different methods, looking at their scope, data sources, coverage, and purpose, and discussing their advantages and limitations. This comparison will help us understand why multiple indices exist and how they are used differently by businesses, policymakers, and analysts. After that, we will turn our focus specifically to inflation measurement in India, examining the official indices used, the institutional bodies responsible, and why the CPI has replaced the WPI as the key benchmark for monetary policy.

And what challenges does India face in capturing inflation in a diverse and dynamic economy? By the end of this session, you will have a clear understanding of how inflation is measured and tracked in India, why it matters for business strategy and public policy, and how to critically interpret different inflation numbers. Let's begin by comparing the major indices used globally and in India to measure inflation. Let's begin with the GDP deflator and the Consumer Price Index. In the previous class, we mentioned that the GDP deflator is one of the broadest measures of inflation.

It measures the prices of all final goods and services produced domestically. It includes consumption, investment, government spending, and exports, but excludes imports. CPI measures the prices of a fixed basket of consumer goods and services purchased by households. However, it excludes investment goods, which means that it does not include government purchases. That means it excludes purchases made by producers and the government, as well as those made by the government itself.

It is excluded from the CPI. An increase in the prices of consumer goods affects both the CPI and the GDP deflator. How about an increase in the prices of capital goods or government purchases being reflected only in the GDP deflator, not in the CPI, which is one of the key distinctions here? I have presented a table to summarize the main differences between the GDP deflator and the CPI. Regarding the basket, it is unclear

whether it includes imports, exports, and what the frequency of data collection and use is in India. In the GDP deflator, flexible changes in the GDP composition are accounted for, whereas the CPI uses a fixed basket of household goods and services.

To summarize this, how does CPI differ from the GDP deflator? The GDP deflator measures the prices of a much wider group of goods and services than the CPI does. Because the CPI measures the prices of a more limited basket of goods and services, which includes only the household goods and services typically purchased by a household, the consumer basket is representative of a typical household in the country. Second, the bundle of goods in the consumer basket is fixed. Same as from year to year. While the GDP deflator is allowed to vary each year due to changes in what is being produced compared to the previous year, suppose that this year we are going to make more new goods and services.

That will all be reflected in the GDP deflator. But in the case of a consumer basket, this is already set. It's already defined in advance, and that will be followed year after year. That will be followed by. CPI includes prices of imports because, in the consumer basket, imported goods are also included, but the GDP deflator only considers goods produced domestically.

The GDP deflator is calculated by dividing nominal GDP by real GDP. Therefore, in the GDP calculation, imported goods and services are excluded because GDP has been defined as the market value of goods and services produced within a country's domestic territory. That is GDP, so it excludes imports. At the same time, the CPI includes the price of imported items. In the case of the CPI versus the GDP deflator, the basket of goods, as I mentioned, for the CPI is fixed.

At the same time, the GDP deflator and the composition of goods change each year. What is the implication of this distinction? Suppose a major earthquake occurs in Northeast India, affecting the entire tea production. What is the likely reflection? Suppose we produce tea only in the northeast, and a major earthquake strikes the country. Suppose that the quantity of tea produced as a result of the earthquake becomes zero. Assume that tea is not produced in any other part of the country.

So the quantity of tea produced in this particular year is zero. And the price of tea remaining in the market has increased. So tea is no longer a part of GDP. Here, what is going to happen to the GDP deflator? The increase in the price of tea doesn't appear in the GDP deflator. However, if the quantity of tea production becomes zero, we will have to import it from the rest of the world.

Then, that will be expensive. Consumers will have to pay higher prices for the tea they want. That means its cost of living, as measured by the CPI, increases. Since CPI is

computed using a fixed basket of goods, it includes tea; the increase in the price of tea causes a substantial rise in the CPI. But at the same time, the GDP deflator completely vanishes, right? The tea is not there, and its price is not there. In this way, if you examine the distinction, you can see that the GDP deflator underestimates the proper inflation in this scenario, whereas the CPI reflects it. The changes in tea prices are significant. However, there are some issues with the CPI.

One of the things is substitution bias. Since the CPI uses fixed weights, it cannot reflect consumers' ability to substitute for goods whose relative prices have fallen. For example, in one of the sessions, when we discussed the law of demand, we explored why demand curves slope downward from left to right; in other words, why people demand more when the price decreases. The point here is that one of the reasons is that when the prices of the product of interest decline or increase, for example, if tea becomes expensive, the substitute becomes cheaper. For instance, if tea becomes expensive and coffee becomes more affordable, consumers may switch to coffee; however, the CPI doesn't capture this, thereby overstating the cost of living.

For example, in the consumer basket, assume that one kilogram of tea is included; similarly, one kilogram of coffee is also included. But if there is, for example, an earthquake, which you have taken, suppose the tea becomes very expensive, then what is going to happen in the real world? Because this is the basket that we define, what will happen is that the consumer will, for example, now consume only half a kilogram instead of one kilogram. They will consume 1.5 kilograms of coffee, but this won't be reflected in the CPI. The substitution bias is not incorporated into the CPI calculation, and the second problem with the CPI is that it excludes new goods in the market; for example, the shift from cinema theatres to home entertainment systems may not be reflected immediately, thus underestimating the change.

Consumer choices and value when using CPI are important because, as I mentioned, CPI uses a fixed basket of goods and services. Additionally, it does not measure quality improvements, which means that CPI may not fully account for improvements in product quality over time, thereby affecting the actual purchasing power. For example, comparing a car from 1990 with one from 2022 in terms of price alone overlooks advances in safety, fuel efficiency, and other features. So, when we measure in the CPI, we say 'car' in 1990 and 'car' in 2020. However, you are aware that the car in 2022 is drastically different from the one in 1990 in terms of the features I just mentioned. A crucial point to note is that CPI has these drawbacks; therefore, it is the primary measure we have been using recently.

The Labour Bureau, a government agency in India, attempts to adjust for quality differences in the official CPI calculation, but this is challenging and not always precise. They make some minor adjustments for these quality differences. The Wholesale Price

Index was the primary measure of inflation in India until April 2014. However, in April 2014, the RBI adopted a new consumer price index as the key measure of inflation. Combined means that, in India, we calculate the consumer price index for agricultural laborers and industrial workers separately, specifically for rural areas.

And urban area separately and then we, RBI, used see the combined measure of CPI for agriculture workers that is rural area and CPI for urban area that is for industrial workers they use the combined version as the key measure of inflation these days So, the main point here is that until April 2014, WPI was the main index, but since then RBI adopted consumer price index as the primary key measure of inflation in the country. Measuring inflation is one of the key uses of this concept, as it enables us to calculate both nominal interest rates and real interest rates. Because we calculate the nominal interest rate every year, it can be adjusted for inflation, and this is the formula used for that purpose. Before that, it is the nominal interest rate, which is the return on investment in current prices. The real interest rate is the return on an investment adjusted for the effects of inflation. Using Fisher's equation, we can calculate the real interest rate.

The real interest rate is the nominal interest rate minus the inflation rate. Suppose the nominal interest rate is, for example, 10 percent, and inflation is, for instance, three percent. Then, the real interest rate is 10 minus three, which is the nominal interest rate minus inflation, or seven percent. Seven percent is the real interest rate. How do we calculate this? By using Fisher's equation, the real interest rate equals the nominal interest rate minus the expected inflation rate.

Moving on to how the CPI has been calculated in India, the methodology used involves defining separate consumer baskets for both agricultural workers and industrial workers. The number of items included in the CPI basket is 448 in the rural areas and 460 in the urban areas. The items in the CPI are divided into six main groups: food and beverages, tobacco, intoxicants, clothing, footwear, fuel and light, and miscellaneous. Additionally, given the weight, the most considerable weight is given to food and beverages based on the quantity consumed. And you know that, of all these goods and services, food and beverages account for 54.8%. That is what we calculate as the weighted CPI. So, this weight is also used in the calculation of the CPI. Therefore, if you visit the Government of India website, you will find that the Consumer Price Index has been measured in this form. It measures the change over time in the general level of prices of goods and services that households acquire for consumption. I'm showing you some newspaper clippings and screenshots from websites to illustrate the inflation rate.

How we calculate inflation is that, suppose the inflation rate is 10%. The inflation rate, as calculated by the CPI, is estimated to be 10%. For example, if the current month is December 2025. When we see that inflation is 10%, what does it mean that, although we calculate the CPI every month, we report the inflation measurement on a monthly basis?

What we do is, when we report inflation in 2025, we use the CPI for 2025; for example, this one is 100, and this one is, for example, 110. And in what we do, we compare this one with the exact one from the same month in the previous year, that is, December 2022.

Suppose that, in December 2024, the CPI was, for example, 100; then you can calculate the inflation as 110 minus 100 divided by 100. So, you can expect 10% inflation. Similarly, if you want to calculate it for November 2025, then the base year you need to take is November 2024. That means that although we report monthly, when you calculate the inflation, we are reporting annual inflation. However, every month we say, "next month." Suppose there is a slight change in this; then you may get a different rate, for example, 11%. At that time, you need to take some retail inflation figures for the respective month in the previous year accordingly. Here, you can see that food inflation is one of the six components that we mentioned. The initial component was food and beverages, so what we report here is mainly that component. This is shown separately for the base year 2012; therefore, using the base year 2012, the CPI is calculated independently for each item.

Then, for rural and urban areas, we calculate the combined index; as I mentioned, the RBI uses the combined version of the rural and urban CPI. I'm showing you the movements in inflation and consumer prices. The annual percentage is what it appears to be. I'm also showing you some screenshots of the Wholesale Price Index. And this I have taken from the Ministry of Commerce.

Here, you can also see that the primary articles report how each item has been reported. Fuel and power have been reported. For each item, this has been reported. As you can see, the weight given is also provided here.

A primary article weighing 22.62. Core inflation. Core inflation is a measure that is sometimes used in conjunction with overall inflation, as it distinguishes between core and non-core inflation. Core inflation corresponds to the component of inflation that is likely to continue for an extended period. Thus, core inflation captures the underlying trend of inflation and is, therefore, more stable. Unlike the non-core inflation components, core inflation is unaffected by temporary shocks.

In India, core inflation is generally measured by excluding specific components, mainly those that are highly volatile, from the headline inflation. The very nature of food and fuel is that they are highly volatile. You are obviously aware that food inflation is a highly debated topic in the country. Similarly, petroleum products, particularly petroleum prices, are volatile due to international price movements.

These are volatile elements. From the main inflation calculation, we exclude the volatile components, mainly food and fuel, and the remaining components to arrive at core inflation by removing the food and fuel components from the headline inflation. What we

get then, after excluding this one from the headline inflation, is core inflation. If you remove the volatile components, such as food and fuel, we get core inflation. The advantage of core inflation is that it captures the underlying trend of inflation in the country; you know, say, and it is therefore more stable. I would suggest reviewing this document, as it provides a detailed explanation of various concepts, including prices and inflation, and how they have been measured in the country.

This provides more in-depth information on the topic. Now that you are familiar with what inflation means, how to calculate it, and the various methods used, and since we are clear on these concepts and measurement approaches, what is the real importance of inflation in business strategy? There are some key linkages. One is called the pricing strategy, especially for firms that must adjust prices in line with input cost inflation to maintain a profit margin. Therefore, in a high-inflation environment, frequent price revisions may be necessary. Furthermore, firms must adopt psychological pricing because it becomes essential to retain customer trust.

What I mean here is that suppose they know that the price is going to increase in the coming days so what they need to do that instead of increasing the price of their product suppose the general price level in the economy is going to increase the input cost is going to increase then what the firms must do that they should have waiting for the last moment to increase the price at a steeper rate they should gradually increase the price or in case if they see that price is going to decline immediately after one year. They should incorporate all these things, adjust, and give the consumers only a slight price increase, or otherwise inform the customer well in advance that, because of the input cost, they should provide proper data on the input cost, produce a price index, publicize it, and show that, because of that, we are compelled to increase the price. This means they take the customers into confidence; then the firms can retain customer trust. Additionally, for firms, understanding inflation is a key input for cost control and input sourcing. Therefore, rising input prices compel firms to optimize their production costs; they can also shift to more efficient suppliers, hedge against commodity price fluctuations, and substitute raw materials that are becoming more affordable.

Similarly, for wage and contract management, understanding inflation is vital. Inflation expectations also influence wage negotiations and vendor contracts; therefore, long-term contracts with inflation index clauses can be used to mitigate future cost shocks. In other words, wages can be determined, and wage contracts can be signed by incorporating inflation-indexed clauses. Suppose they know that inflation is going to increase by five percent in the next year; accordingly, the wage contracts for laborers as well as for firms can be adjusted. They can sign the wage contract, which includes a 5% inflation index.

Similarly, for investment and financial planning, an understanding of inflation will also be beneficial. And finally, to understand consumer demand sensitivity. For example,

persistent inflation can erode the real income of consumers, shifting demand away from premium products. So, firms may adjust product lines or offer smaller pack sizes to maintain affordability. I'm also showing you some other key macroeconomic variables.

Here, I'm only showing the slides. This is just for your information. You don't need to go through this thoroughly, but you can if you wish. One is called the Index of Industrial Production. And the second one is an index. The index of eight core industries is shown here, along with the index of industrial production in this table.

This is for your information only; you don't need to review it thoroughly, as we are discussing several indicators. It would also be beneficial to display these indicators. In this session, we discussed the pros and cons of different inflation measures, made a comparison, and examined inflation measurement in India, distinguishing between core inflation and headline inflation. I hope you gained a clear understanding of inflation measurement and its use in India and globally.

And thank you for watching this video. See you in the next session. Thank you.