

CORE INFLATION AND THE ESTIMATION OF CORE INFLATION

1. What is core inflation?

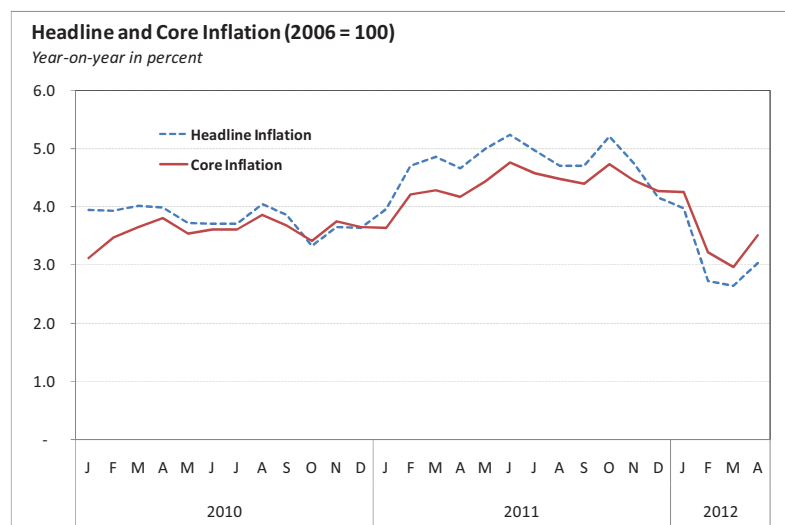
Core inflation is a widely used measure of the underlying trend or movement in the average consumer prices. It is often used as a complementary indicator to what is known as “headline” or Consumer Price Index (CPI) inflation.

2. How is core inflation different from CPI or “headline” inflation?

Headline inflation refers to the rate of change in the CPI, a measure of the average price of a standard “basket” of goods and services consumed by a typical family. In the Philippines, the CPI basket is composed of various consumer items as determined by the nationwide Family Income and Expenditure Survey (FIES), which is conducted every three years by the National Statistics Office (NSO).

Headline inflation thus captures the changes in the cost of living based on the movements of the prices of items in the basket of commodities and services consumed by the typical Filipino household.

On the other hand, core inflation measures the change in average consumer prices after excluding from the CPI certain items with volatile price movements. By stripping out the volatile components of the CPI, core inflation allows us to see the broad underlying trend in consumer prices. Core inflation is often used as an indicator of the long-term inflation trend and as an indicator of future inflation. It is usually affected by the amount of money in the economy relative to production, or by monetary policy.



3. Why do we need to measure core inflation?

In many countries, CPI inflation is often influenced by factors beyond the control of economic policy and has tended to be historically volatile. Shocks or disturbances in certain areas of the economy may cause it to temporarily move away from its long-term trend.

In the Philippines, the volatility of inflation has been caused by factors such as disturbances in agricultural food supply or movements in international oil prices. As a result, the headline inflation rate may reach double-digit levels, even though the prices of other CPI components show only mild increases.

Core inflation is an indicator of the underlying movement in consumer prices since it takes out the effect of temporary disturbances and shocks that cause prices to surge or decline, independent of economic and monetary policy. Measuring core inflation helps policymakers determine whether current movements in consumer prices represent short-lived disturbances or are part of a permanent trend. Such knowledge is important to the formulation of economic policy, particularly monetary policy.

4. *How is core inflation measured or computed?*

There are several methods used to compute core inflation. The most common approach used in many countries is the **exclusion method**, which computes core inflation by taking out the prices of a fixed, pre-specified set of items from the CPI basket. The excluded components are considered to be either volatile or susceptible to supply disturbances and typically consist of food and energy items. This is based on the notion that the markets related to these goods are prone to supply shocks.

Some economists advocate the use of **statistically-based methods** that remove extreme or outlier price changes (both positive and negative) from the overall inflation rate. The set of excluded items changes each month, depending on which particular items exhibit extreme price movements. The most common statistical measures of core inflation are the trimmed mean and weighted median. Both measures are derived from a highest-to-lowest (or positive to negative) ranking of individual price changes for each given month. The trimmed mean measure takes the average inflation rate after excluding a specified percentage of extreme positive and negative price changes, while the weighted median simply takes the median inflation rate which corresponds to a cumulative CPI weight of 50 percent from the highest-to-lowest ranking.

It is also possible to use **econometric techniques** to estimate core inflation by estimating or calculating a statistical relationship between inflation and other relevant economic variables. The estimated regression model is then used to generate monthly estimates of core inflation using actual data for the other variables in the model.

In the Philippines, the official core inflation measure is computed using the exclusion method. This approach was chosen for the following reasons: ease of construction; understandability by the general public; easy replication and verification by others; increased accountability and transparency of measurement; and timeliness. Answers to question nos. 9-10 provide a more detailed explanation on the choice of core inflation measures. Answer to question no. 12 provides a numerical example.

CROSS-COUNTRY EXPERIENCES ON CORE INFLATION

5. Do other countries monitor core inflation?

Yes, most statistical authorities in other countries publish a measure of core inflation. Among central banks, it has become a common practice to monitor core inflation, irrespective of the monetary policy framework being used. For example, non-inflation targeting central banks such as the US Federal Reserve, the Bank of Japan and the Monetary Authority of Singapore also monitor core inflation.

6. How do other countries measure core inflation?

The majority of countries employ the exclusion method and define core inflation as the overall price index net of the most volatile components, which most commonly refers to food and energy. In addition to food and energy items, other countries also excludes the effects of changes in interest rate, Canada, for example, excludes food, energy and the effects of indirect taxes, while the US only exclude food and energy.

The table below summarizes the official core inflation measures adopted by other countries as well as the other core inflation measures used internally by their central banks.

Country	Excluded component from Core CPI	Weight in the total CPI basket
United States	Cereals and bakery products, meats, poultry, fish, and eggs, dairy and related products, fruits and vegetables, nonalcoholic beverages and beverage materials, other food at home, food away from home, fuel oil, motor fuel, electricity and utility (piped) gas service	26.8
Canada	Fruit, fruit preparations and nuts, vegetables and vegetables preparations, Mortgage Interest costs, natural gas, fuel oil and other fuels, gasoline, inter-city transportation, and Tobacco products and smokers' supplies as well as the effect of changes in indirect taxes	17.9
United Kingdom	Mortgage interest payments	3.4*
Korea	Radish, young radish, Chinese cabbage, leek (welsh onion), yellow onion, spinach, bean sprouts, cabbage lettuce, carrot, cucumber, squash, eggplant, tomato, sweet potato, platycodon, mushroom, fembrake, unripe hot pepper, parsley, perilla leaf, scallion, apple, pear, peach, grape, persimmon, chestnut, mandarine, orange, melon, watermelon, strawberry, banana, dried pepper, garlic, ginger, sesame, peanut, kerosene, LPG for cooking, city gas, potable butane, ginseng, fresh flower, gasoline, light oil and LPG for car	11.7*
Japan	Fresh food (fresh fish and seafood, fresh vegetables, fresh fruit)	4.1*
Indonesia	Administered prices (fuel prices, transportation tariffs, electricity, and tobacco)	40.0

Thailand	Raw food (rice and cereal products, meat, poultry and fish, vegetables and fruits)	24.1
Australia	Fresh fruit and vegetables, automotive fuel, mortgage interest charges and consumer credit charges	15.2
Singapore	Rented accommodation, owner-occupied accommodation, minor repairs and	31.7
*For United Kingdom, Korea, and Japan, CPI weights are expressed in thousands (parts per 1,000 for UK and Korea and 10,000 for Japan).		

7. *How do policymakers use core inflation in other countries?*

Most statistical agencies in other countries use core inflation as a supplementary indicator to headline inflation and publish it alongside the headline rate. Some inflation targeting central banks—such as the central banks from Canada, Czech Republic, Finland, Thailand and South Africa—use core inflation as the operating target for monetary policy.

TOWARDS AN OFFICIAL DEFINITION OF CORE INFLATION IN THE PHILIPPINES

8. *Is there an official definition of core inflation in the Philippines?*

Yes, there is an official definition of core inflation in the Philippines. The National Statistical Coordination Board (NSCB) through NSCB Resolution No. 6 Series of 2003 adopted an official definition and methodology for computing core inflation in the Philippines based on the exclusion method. Thus, while headline inflation is calculated as the year-on-year change in the overall CPI compiled by the NSO, the official core inflation measure is defined as the rate of change of headline CPI after excluding selected food and energy items.

As is practiced, the core inflation is regularly reviewed with the change in the CPI base. Using the 2006-based CPI series, results show that the official core inflation measure excludes basically the same food- and energy-related items as the 2000-based core inflation series, with the addition of meat.

9. *How was the official definition of core inflation determined?*

The official definition is the result of inter-agency technical discussions among the NSO, the NSCB, the National Economic Development Authority (NEDA), the Statistical Research and Training Center (SRTC), the National Wage and Productivity Commission (NWPC), the Department of Trade and Industry (DTI), and the Bangko Sentral ng Pilipinas (BSP).

10. *Why was the exclusion method chosen for the official definition?*

The exclusion method was chosen because: (a) it is easier to understand compared to the other methodologies; (b) it is more transparent and can be easily computed by anyone from CPI data; (c) it can be produced by the NSO at the same time as the headline inflation rate; and (d) it is in accordance with the common international practice of excluding food- and energy-related components of the CPI. Given that core inflation is a relatively new concept for the Filipino public in general, policymakers believed that the simplicity of the exclusion method can facilitate greater understanding by the public and consequently, help build credibility in the use of core inflation.

11. What specific items were excluded in order to compute for core inflation?

The items in the CPI that were excluded in the definition of core inflation components and their corresponding CPI weights (2006=100) are as follows:

- Rice (8.9 percent)
- Corn (0.7 percent)
- Meat, fresh, chilled or frozen (4.9 percent)
- Fruit, fresh (1.5 percent)
- Vegetables, cultivated for their roots, fresh or dried (0.6 percent)
- Vegetables, cultivated for their fruit, fresh or dried (1.2 percent)
- Natural gas, liquefied or in a gaseous state (1.5 percent)
- Gas oils for motor vehicles (0.7 percent)

Together, the above excluded items account for **20.0 percent** of the CPI. The list of excluded items shall be reviewed by the NSCB Board and the Technical Committee on Price Statistics (TCPS) whenever the CPI is rebased.

12. Is it possible to cite an example of the numerical computation of core inflation based on the official definition?

For illustration purposes, the following table presents a sample computation of core inflation for December 2011. The core inflation rate for a given month (in this case December 2011) is the sum of core items' inflation adjusted by the re-calibrated weights of these core items.

CONSUMER PRICE INDEX, PHILIPPINES (2006=100)								
December 2011								
in percent								
COMMODITY	HEADLINE		Weights of Non-Core Items	CPI Weights Excluding Non-Core Items	CORE			
	Inflation Rate	Weights ¹			Weights in Core CPI	Dec 2010	Dec 2011	Core Inflation
	(1)	(2)	(3)	(4)=(2)-(3)	(5)=(4) / 80.0	(6)	(7)	(8)=[(6/7)-1]*100
ALL ITEMS	4.2	100.0	20.0	80.0	100.0	119.4	124.4	4.2
A. Food and Non-Alcoholic Beverages	4.1	39.0	17.9 ^a	21.1 ^a	26.4	129.9	135.8	4.5
B. Alcoholic Beverages and Tobacco	6.0	2.0	0.0	2.0	2.5	117.7	124.8	6.0
C. Clothing and Footwear	3.7	3.0	0.0	3.0	3.8	115.8	120.1	3.7
D. Housing, Water, Electricity, Gas and Other Fuels	4.9	22.5	1.5 ^b	21.0 ^b	26.3	115.0	120.6	4.9
E. Furnishings, Household Equipment and Routine Maintenance of the House	2.5	3.2	0.0	3.2	4.0	114.9	117.8	2.5
F. Health	3.0	3.0	0.0	3.0	3.8	122.0	125.6	3.0
G. Transport	6.2	7.8	0.7 ^c	7.1 ^c	8.9	116.8	122.9	5.2
H. Communication	-0.4	2.3	0.0	2.3	2.9	92.6	92.2	-0.4
I. Recreation and Culture	1.8	1.9	0.0	1.9	2.4	105.6	107.5	1.8
J. Education	4.7	3.4	0.0	3.4	4.3	126.8	132.8	4.7
K. Restaurants and Miscellaneous Goods and Services	3.2	12.0	0.0	12.0	15.0	116.8	120.5	3.2

n.b. - Figures may not add-up due to rounding off
¹ The CPI weights are derived from each components' percentage share to the total personal consumption expenditure of a typical family, based on data from the NSO's FIES.
(See Question No. 2)
^a Non-core items are rice, corn, meat, fruits and vegetables
^b Excluding natural gas, liquefied or in a gaseous state
^c Excluding gas oils for motor vehicles

13. *Which government agency generates the official core inflation data?*

The NSO generates and publishes the official rate of core inflation, alongside the headline inflation rate.

14. *Will core inflation replace the current CPI or headline inflation published by the NSO?*

No. Core inflation is not intended as a replacement for headline inflation, but as a complementary indicator of the general movement in prices of goods and services.

15. *Where does core inflation fit into the BSP's monetary policy framework?*

Under the BSP's inflation targeting framework, the annual inflation target is still defined in terms of the headline inflation rate. The BSP uses the official measure of core inflation as a complementary indicator of consumer price movements. Thus, it would serve as an additional input to monetary policy analysis.

16. *As a consideration in adjusting the minimum wages in the country, should Regional Wage Boards use core inflation rather than headline inflation?*

No. Core inflation should not be used as basis for adjusting wages in the country. Since the intention is to factor into the wage-setting decisions the overall increase in the cost of living and losses in purchasing power, the Regional Wage Boards should still use headline inflation. Wage adjustments must consider the price changes in all the items in the CPI basket, including rice, corn and fuel-related items which are excluded in the computation of core inflation.