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ANALYZING THE CPI AND WPI FOR A GIVEN ESTIMATION TO DEVELOP A MODEL BASED ON MULTIVARIATE INTEGRATION APPROACH TO APPLY CO-INTEGRATION AND CAUSALITY ANALYSIS IN ENHANCING AN EFFICACIOUS INFLATION FORECASTING

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INTRODUCTION

The project is mainly concerned with the economic analysis of a news article. I have chosen an article which is on the divergence in food inflation as shown by CPI and WPI data in the Indian economy. Before getting to that I have first given a background on CPI and WPI; their definitions, their differences, comparison etc. Also, it has been shown why India used WPI as a measure of inflation. The project ends with a conclusion of the article analysis.

COST OF LIVING

It is the expense of keeping up a specific way of life. Changes in the average cost for basic items after some time are regularly operationalized in a typical cost for basic items file. Typical cost for basic items estimations are additionally used to look at the expense of keeping up a specific way of life in various geographic territories. Contrasts in average cost for basic items between areas can likewise be estimated as far as buying power equality rates.

In economics, **purchasing power parity** (PPP) is a component of some economic theories and is a technique used to determine the relative value of different currencies.

The idea of acquiring power equality enables one to assess what the swapping scale between two monetary standards would need to be all together for the trade to be keeping pace with the buying intensity of the two nations' monetary standards.

Asia is home to more than 10 most expensive cities in the top 20 but also home to 6 cheapest cities of the cheapest ten.

COST-OF-LIVING INDEX

It is a hypothetical value file that estimates relative typical cost for basic items after some time or areas. It is a file that estimates contrasts in the cost of products and ventures, and considers substitutions to different things as costs change.Application to Price Index Theory

APPLICATION TO PRICE INDEX THEORY

The United States Consumer Price Index (CPI) is a value list that depends on the possibility of an average cost for basic items record. The US Department of Labor's Bureau of Labor Statistics (BLS) clarifies the distinction:

"The CPI as often as possible is known as an average cost for basic items file, however it varies in critical routes from a total typical cost for basic items measure. BLS has for quite a while utilized a typical cost for basic items structure in settling on functional choices about inquiries that emerge in building the CPI. An average cost for basic items record is a reasonable estimation objective, be that as it may, not a clear option in contrast to the CPI. An average cost for basic items file would quantify changes after some time in the sum that buyers need to spend to achieve a specific utility dimension or way of life. Both the CPI and an average cost for basic items file would reflect changes in the costs of merchandise and enterprises, for example, sustenance and apparel that are specifically bought in the commercial center; yet a total typical cost for basic items record would go past this to likewise consider changes in other administrative or ecological variables that influence purchasers' prosperity. It is hard to decide the correct treatment of open merchandise, for example, security and training, and other wide concerns, for example, wellbeing, water quality, and wrongdoing that would comprise a total typical cost for basic items structure."

INFLATION

It is the rate at which costs of merchandise and ventures increment in its economy. It means that the ascent in the general dimension of costs after some time. Since it's basically hard to find the typical change in expenses of the significant number of stock and endeavors traded an economy (which would give total development rate) in view of the sheer number of items and adventures present, a model set or a container of items and adventures is used to get a trademark figure of the modification in costs, which we call the inflation rate.

Numerically, it is resolved as the rate of advancement of a particular esteem list. The esteem documents commonly used at this are Consumer Cost Index (gotten by countries, for instance, USA, UK, Japan and China) and Wholesale Price Index (grasped by countries, for instance, India). Accordingly inflation rate, for the most part, is gotten from CPI or WPI.

CONSUMER PRICE INDEX

It gauges changes in the esteem measurement of a market bushel of purchaser stock and undertakings acquired by families. It is a factual gauge developed utilizing the costs of an example of agent things whose costs are gathered occasionally. Sub-lists and sub-sub-lists are

processed for various classifications and sub-classes of products and enterprises, being consolidated to create the general file with loads mirroring their offers in the aggregate of the purchaser consumptions secured by the file. It is one of a couple of significant worth records controlled by most national quantifiable associations. The yearly rate change in a CPI is used as an extent of inflation.

Calculation of CPI

- Fix the basket: The initial step is deciding the market container of products and ventures and deciding the loads for every great and administration in respect to the general bin. The CPI showcase bin is created from definite consumption data given by families and people on what they really purchased.
- Find the Prices: The prices of all of the goods and services at each point of time must be collected.
- Compute the Basket's Cost: After the prices are obtained, the price level is calculated by multiplying the quantity of each good in the basket times its price and summing over all of the goods.
- Choose a Base Year and Compute the Index: Finally, after gathering all of the information and computing the price level, the CPI can be calculated. Review that the CPI is an extent of the rate of progress in the value level. So, first we must select a base year that we want to compare to today's price level. We calculate the price level for the market basket for that year and the price of the market basket for this year. Then, we use the following formula to calculate the CPI:

  CPI = (Price of current basket/Price of base year basket)*100

- Compute the Inflation Rate: Now that we have the CPI, we can calculate the inflation rate between two periods. Let's call the first period year 1 and the second period year 2. First, we calculate the CPI for each period with respect to the same base year. Next, we use the following equation to determine the inflation rate between the two periods:

  Inflation = [[CPI (year 2)-CPI (year 1)]/ CPI (year1)]*100

Example:

Suppose the market basket contains 20 pizzas and 10 compact discs. The prices for pizza over time are:
2000: $10
2001: $11
2002: $12

2003: $13

The prices for CDs over time are:

2000: $15
2001: $15
2002: $16
2003: $15

For every year, process the expense of the crate by increasing multiple times the cost of pizza and multiple times the cost of smaller plates. Then, if we choose 2000 as our base year, we can compute the CPI for each year using the equation above. Using the CPIs, we can compute the inflation rates.

Basket CPI Rate:

In 2000, the price of 20 pizzas and 10 CDs was $350. Using the CPI equation, this gives a CPI of 100.00.

- In 2001, the price of 20 pizzas and 10 CDs is $370. Using the above equations:
  CPI = (370/350)*100 = 105.7
  Inflation rate = ((370-350)/350)*100 = 5.7%.

- In 2002, the cost of the crate is $400.Therefore:
  CPI = (400/350)*100 = 114.3
  Inflation rate = ((400-370)/370)*100 = 8.1%.

- In 2003, the price of the basket is $410, so:
  CPI = (410/350)*100 = 117.1
  Inflation rate = ((410-400)/400)*100 = 2.5%.

Challenges in computing the CPI

- Substitution Bias: Consumers re-allocate purchases when prices rise to buy less of more expensive goods or buy substitutes for the goods. Since the CPI assumes a fixed basket, this substitution bias isn't captured and the CPI may be higher year over year than what households are paying.
- Presentation of New Goods: The presentation of new merchandise offer more decisions and diminishes the expense of supporting a similar way of life. Since the CPI is a fixed basket, it doesn't incorporate the impact of the introduction of new goods.

- Unmeasured Quality Change: The qualities of goods change over time, as improvements are made. An improved product equates to higher value per dollar than the previous version. Thus if the nature of a decent break down starting with one year then onto the next while its value continues as before, the estimation of a dollar falls since one is getting a lesser useful for a comparable proportion of cash.

General Consumer Price Index (CPI) in India for 2012-13 (base year: 2010):
Rural: 124.5 Urban: 121.8 Combined: 123.3

Source:
Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India
Date of Publish: Oct 10, 2013

WHOLESALE PRICE INDEX

It addresses the expense of stock at a markdown arrange for instance stock that are sold in mass and traded between affiliations as opposed to clients. Several nations (like India and The Philippines) use WPI changes as a focal degree of expansion. Budgetary and cash related methodology changes are remarkably affected by changes in WPI. In the United States, Producer Price Index (PPI) is used to check development

A Producer Price Index (PPI) measures the normal changes in costs gotten by residential makers for their yield.

Calculation of WPI

When figuring the WPI, you have to 'weight' the items as per their utilization. It is something like this

1. Essential Articles (nourishment, natural products etc):22%

2. Fuel, Power, Light and Lubricants: 14%

3. Made Products (roll, toothpaste):63%

- Now overview the costs of all things in the base year and in the present year.
- Then you plug them in the Laspeyres Formula for weighted number-crunching mean.
- And you get a number; we consider it the WPI list number for the given year or given week or given month.
- Inflation Calculation: If we have the WPI estimations of two time zones, state, starting and end of year, the improvement rate for the year will be,

[(WPI of end of year – WPI of start of year)/WPI of start of year] x 100

Example:

WPI

WPI is settled on a base year and WPI for the base year is accepted to be 100. To show the figuring, we ought to foresee that the base year ought to be 1970. The information of markdown costs of all the 435 items in the base year and the ideal open entryway for which WPI is to be settled is accumulated.

We should enlist WPI for the year 1980 for a specific thing, state wheat. Expect that the cost of a kilogram of wheat in 1970 = Rs 5.75 and in 1980 = Rs 6.10

The WPI of wheat for the year 1980 is,

(Cost of Wheat in 1980 – Price of Wheat in 1970)/Price of Wheat in 1970 x 100

For example (6.10 – 5.75)/5.75 x 100 = 6.09

Since WPI for the base year is recognized as 100, WPI for 1980 will finish up 100 + 6.09 = 106.09.

Thusly individual WPI values for the staying 434 wares are determined and after that the weighted normal of individual WPI makes sense of are found to touch base at the general Wholesale Price Index. Products are given weight-age contingent on its impact in the economy.

Inflation

WPI on Jan beginning 1980 is 106.09 and WPI of Jan starting 1981 is 109.72 by then swelling rate for the year 1981 is,

(109.72 – 106.09)/106.09)x 100 = 3.42% and we express the improvement rate for the year 1981 is 3.42%.

Difficulties in registering the WPI

The WPI in its job as a manual for approach definition has a few basic restrictions.

- For numerous wares, for example, autos, discount markets may not exist.
- With expanded challenge, costs dependent on expenses, and the marked down job of government in exchanging of products and ventures, it is hard to acquire costs and value information from private makers.

- WPI doesn't take the cost of administrations into thought, which presently represents 60 percent of the GDP of India.

- It is excessively broad and can't be utilized for explicit purposes; for instance, on the off chance that an individual needs to know the patterns in office stationery items, WPI may not catch the right or complete picture.

- Some items may have higher loads amid a specific period and may not be devoured amid other. For instance, woolen materials are a piece of the utilization bushel just for four months.

- The offer of consumption of items may change extra time. For example, the use on PCs, which were only sometimes accessible before 1990s however at this point have a noteworthy offer in the use of a urban Indian

WHY TO USE WPI TO CALCULATE INFLATION

The reasons are as follows:

Data on Wholesale Price Index (WPI) is accessible consistently, while information on Consumer Price Index (CPI) is just accessible consistently, so there is a period slack in CPI information accessibility contrasted with WPI information accessibility, which can affect basic leadership both for RBI and the Government of India, as the past answer states.

- In India, we don't have one CPI determined in essence. Prior, there were 4 CPIs determined for 4 distinct arrangements of laborers, and now we have three such CPIs, out of which the most celebrated is CPI for Industrial Workers (CPI-IW). The others utilized presently are CPI for rural workers and CPI for rustic workers. The contention utilized consequently is that there is nobody CPI esteem which can be utilized for basic leadership by either RBI or the Government of India.

- According to our arrangement creators/chiefs at RBI and somewhere else, or so it appears, WPI has a more extensive inclusion contrasted with every one of the CPIs, as far as the wares secured, citations, bigger number of non-horticultural items and tradable things, which are absent in the CPIs.

Additionally, loan costs which the RBI controls might not have a lot of a relationship with high nourishment costs and subsequently leaders may feel that since they can't target expansion crosswise over real segments comprising the CPI, they would prefer to concentrate on WPI established of products on whose request financing costs may have an increasingly noteworthy effect.

- WPI is determined on an all India premise, while CPI is determined for explicit focuses in India and after that this is accumulated to an all India list

NEWS ARTICLE ANALYSIS

Source: The Times of India

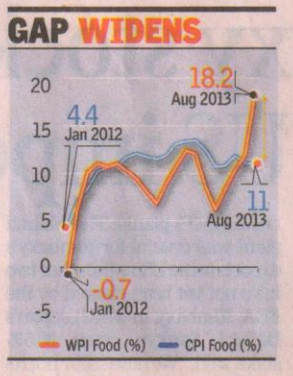
Food inflation divergence seen in WPI, CPI data

Partha Sinha | TNN

Mumbai/Delhi: Has the government's statistical office erred with data collection relating to food prices, either by chance or design, for calculating the two inflation indices, Consumer Price Index (CPI) and Wholesale Price Index (WPI) for August?

Else how can someone explain the fact that while food prices as shown in WPI for August exhibit a higher rate of inflation now than a year ago, food inflation as measured by the CPI, also for the month of August, is lower this year?

Normally, you would not expect much of a difference between food inflation numbers calculated from the CPI and WPI. The government does not think so, although the huge discrepancy raises several questions in the mind of the economists, including if there are policy implications for the same. "I don't think so," said Pronob Sen, chairman, Statistical Commission, when asked whether there was any error in calculating the food inflation numbers under the two different indices.



Data released on Monday showed that food inflation based on WPI spiked from 9.3% last August to 18.2% on an annualized basis, while the food inflation figure for CPI for August, which was released last week, showed a decline from 12% to 11% over the same period.

One of the plausible explanations could be that the data used in CPI was collected by the government from shops where the prices of food products were artificially controlled to paint a better picture for consumer inflation. "If the price data that was taken was actually from shops where the prices were controlled, that would not accurately reflect the rise in food prices," said an economist.

Sen said the divergence in the food inflation data in the two indices was largely due to two factors. The first of these is the fact that the CPI does include data from PDS (public distribution system) shops. "In WPI, when you take cereals, only the market price is reflected, while in CPI cereals prices are calculated taking into account the weighted average price between the market price and public distribution system price. The PDS price is constant so it tends to pull down the CPI food inflation," Sen said.

Economists also pointed out that if the data is true and food prices at the retail level rose more slowly in August than at the wholesale level, then the government's long-standing theory that the current spate of inflation was mainly because of supply side bottleneck also falls flat. Sen pointed out that the CPI is calculated on prices at the retail level whereas WPI is done using prices at the mandi level. He said retail mark-ups may sometimes be lower, which reflects in lower retail inflation than in the WPI.

In its report on the economy, SBI too pointed out this interesting trend. "What is perplexing is that CPI edged down in August 2013, which in normal circumstances should have increased, given the preponderance of weightage of food items," wrote Soumya Kanti Ghosh, chief economic advisor, SBI. "This trend of WPI higher than CPI in respect of food items is intriguing and is a trend against normal price behavior and needs to be examined more carefully, as it may have some important policy ramifications," Ghosh noted.

In India, WPI has been all the more broadly examined by method for its experimental association with other pertinent factors, for example, yield, money related totals and loan costs, hence, presents more extravagant expository experiences. In spite of the fact that that even as we use WPI as the feature proportion of swelling, we likewise consider the patterns in CPI-based

expansion and the discoveries of family expansion desire overviews for adjusting our money related approach. The article states that there is a huge gap between the WPI and CPI of the food prices for the year 2012-13. The CPI of food declined from 12% last August to 11% in August, this year. While WPI of food prices increased from 9.3% in August 2012 to 18.2% this August. The possible reasons could be the following:

In the new CPI, nourishment costs include 50 percent of the record, making the development of CPI generally increasingly delicate to sustenance cost changes. This suggests the impact of supply-side components could rule the patterns in CPI.

Additionally, house rents involve around 10 percent load in the new CPI. With house rents being to a great extent credited, there could be worries about the viability of their estimation.There could be some bias during the survey. The data used in CPI could have been collected by the government from shops where the prices of food products were artificially controlled to paint a better picture for consumer inflation.

According to Pronob Sen, the divergence between CPI and WPI is due to two different reasons: One is in WPI, when you take cereals, only the market price is reflected. In CPI cereals prices are calculated taking into account the weighted average price between the market price and public distribution system price. The PDS price is constant so it tends to pull down the CPI food inflation

CONCLUSION

CPI and WPI are important indices which are used to measure inflation. These contribute largely to the policies implemented in an economy. This huge divergence seen between them may need to be looked upon closely as they can bring out complexity in the policies further adopted.