INFLATION IN PAKISTAN
Understated, Especially for the Poor

Dr. Hafiz A. Pasha

Sohaib Jamali, Wasim Saleem & Ali Salman

INFLATION IN PAKISTAN
Understated, Especially for the Poor

Authors:

Dr. Hafiz A. Pasha

Honorary Senior Academic Advisor, PRIME Institute

Sohaib Jamali

Research Editor, Business Recorder

Ali Salman

Executive Director, PRIME Institute

Wasim Saleem

PhD candidate, PIDE Islamabad

Research Team

Jazib Nelson, Fizza Behzad & Sara Javed

May 2016

PRIME is a public policy think tank working for an open, free and prosperous Pakistan by creating and expanding a constituency for protective function of the state and freedom of the market.

The study titled **"Inflation in Pakistan: Understated, Especially for the Poor"** by Dr. Hafiz A. Pasha, Sohaib Jamali, Wasim Saleem & Ali Salman presents a critical analysis of measurement of inflation, its results and implications in Pakistan. As a pilot study, it considers price data of February 2016 as released by Pakistan Bureau of Statistics by taking consumption items which constitute 80% of monthly expenditure for an average household. By applying splicing technique of weights rectification and standardisation, it identifies discrepancies between reported inflation rates and adjusted inflation rates, in particular for the low income households.

Published by: Policy Research Institute of Market Economy (PRIME)

Recommended Citation: Pasha, Hafiz A. et'al. (2016), "Inflation in Pakistan: Understated, Especially for the Poor", Islamabad: PRIME Institute.

Series Editor: Sohaib Jamali

This publication has been produced in partnership with the Friedrich- Naumann- Stiftung für die Freiheit. The contents of this publication are the responsibility of Policy Research Institute of Market Economy (PRIME).

No. of copies: 1000

Published in: May 2016

ISBN: 978-969-9824-13-5

For inquiries:
PRIME Institute
Office 401 Gulistan Khan House,
82-East Fazal-e-Haq Road, Blue Area
Islamabad 44000- Pakistan
Tel: 00 92 (51) 8 31 43 37 - 38 Fax: 00 92 (51) 8 31 43 39
www.primeinstitute.org
Email: info@primeinstitue.org

Introduction

Across the world, inflation is perhaps the only macroeconomic topic (outside of unemployment) that helps economists get a popular audience. The situation is no different in Pakistan; the subject has been researched extensively by local and foreign academia as well as the multilateral agencies. Likewise, the media – though mostly interested in sound-bite economics – has frequently touched upon inflation whenever it became topical to do so.

However, the focus of the former has mostly been limited to finding the determinants of inflation, whereas the latter has had a tendency of setting inflation as the agenda only when consumer prices soar to the erosion of peoples' wallets. Despite the popular perception in Pakistan that official inflation numbers are artificially underestimated, the measurement of inflation in Pakistan – as a subject of academic research and as a topic for popular economic discourse – has rarely caught traction, if ever[1]. This policy paper attempts to fill that gap.

Supported by Friedrich Naumann Foundation for Freedom, the idea behind this study is to carry out an objective and independent analysis of the existing methodological issues in measuring inflation in Pakistan. Specifically, the aim of this paper is to critically analyze inflation measurement from methodological aspects focusing on Consumer Price Index (CPI) and Wholesale Price Index (WPI), without any underlying intent to make it a political statement against or in favour of any particular party or any government, past or present.

It is ultimately the government's responsibility to measure inflation – and measure it correctly. However, it is the job of the civil society to create a demand for better measurement of inflation. To that end, it is hoped that this study will serve as an accessible paper, and will initiate an open and informed dialogue on the methodological issues pertaining to inflation in Pakistan and its consequences for the country's economy.

PRIME Institute is indebted to Dr. Hafiz A. Pasha, Pakistan's economist par eminence, for not only being lead author of this study, but also for coaching the co-authors and research team extensively in a series of technical workshops at our Institute. Dr. Pasha has done it pro bono, in an honorary capacity, with the sole motivation of transfer of knowledge to next generation, and in his own words, with his burning desire to help produce a new breed of PhD scholars in the field of public finance, growth and development. We hope that the work done by PRIME Institute in the area of public policy continues to inspire students and scholars alike.

[1] *For example: Even when the ongoing rebasing of inflation measurement basket kick-started in February 2015, a senior economics editor of the country's top English newspaper (that also has a dedicated business/economic weekend supplement) said: "this is not the kind of stuff we would like to cover in our newspaper."*

Contents

List of Tables

List of Figures

List of Acronyms

CPI	Consumer Price Index
FBS	Family Budget Survey
FCA	Fuel Cost Adjustment
GDP	Gross Domestic Product
HRI	Housing Rent Index
ILO	International Labour Organisation
PBS	Pakistan Bureau of Statistics
PIDE	Pakistan Institute of Development Economics
SBP	State Bank of Pakistan
SPI	Sensitive Price Index
WPI	Wholesale Price Index

Executive Summary

This paper is a critical analysis of measurement of inflation, its results and implications in Pakistan. As a pilot study, it considers price data of February 2016 as released by Pakistan Bureau of Statistics by taking consumption items which constitute 80% of monthly expenditure for an average household. By applying splicing technique of weights rectification and standardisation, it identifies discrepancies between reported inflation rates and adjusted inflation rates, in particular for the low income households.

The paper is divided in three chapters. First chapter provides a general introduction to the subject of inflation, its causes and consequences with an emphasis of factors of inflation in Pakistan. The second chapter delves into the issues of methodology in inflation measurements while introducing basic measures used. The third and final chapter comprises data analysis, results, conclusions and recommendations.

The paper argues that the rate of inflation in prices is one of the key indicators of the state of the economy of a country. A low rate implies a relatively stable macro-economy. A high rate, possibly double-digit, indicates either high aggregated demand/pressures, rise in costs of production and/or higher prices of imported consumer or intermediate goods. By its very nature, inflation adds uncertainty to the economic lives of citizens and businesses alike.

To avoid the unexpected inflation-related costs or at least mitigate the negative impact of inflation, it is imperative that inflation is correctly measured and anticipated. Correct measurement - that entails careful, unbiased and accurate recording and reporting of price movements - is also required for a host of economic management activities by the state or its authorities.

This paper critically analyses the process and methodology of CPI measurement in particular, which has been subject to various controversies in Pakistan. As presented in the concluding chapter, the methodology to evaluate inflation measurements is driven by primarily two considerations. First, an approach is adopted to determine if there is a variation in the rate of inflation by level of income of households, in particular, the question is whether the poor are facing higher or lower rates of inflation. Second, determining from the available data on consumption patterns and prices if, there is significant variation in the rate of inflation by location, province and type of consumer. For this purpose, price data of February 2016 has been chosen, which was the recent most month at the time of writing of this paper.

The following key conclusions emerge from the analysis.

(i) The price level of CPI for all urban households in February 2016 is understated by 9 percent.

(ii) The price level for the lowest quintile of households is 13 percent higher than the overall CPI in February 2016.

(iii) Poor households have faced an annual inflation rate since 2007-08 which is almost two percentage points higher than the overall CPI reported by PBS. Other households have been exposed to 1.5 percentage points more inflation on average annually than that reported by PBS.

There is significant scope for improvement in inflation reporting by the PBS. Our major recommendations are as follows:

(i) There is need for more inflation indices to be constructed to fully portray the taxonomy of inflation in Pakistan. Specially, PBS needs to prepare the following indices on a monthly basis:

- CPI for Urban households by Quintiles
- CPI for Rural households by Quintiles
- CPI for Province, Urban and Rural separately
- CPI for industrial workers
- CPI for all households by Quintile

The last index will act as the most aggregative measure of inflation in the country.

(ii) For rural prices, the number of locations of survey will have to be increased to include more 'mandi' towns at the rural-urban interface and in rural areas.

(iii) There appears to be a serious problem of understatement of inflation in housing rents. Based on a sufficiently large numbers of properties, each month a national rent hedonic function will need to be estimated. The rent can then be worked out for pre-specified bundles of housing from the equation.

(iv) The time has come to move to a new base year, which is more recent. If HIES for 2014-15 has not been undertaken or finalized, then the results of the 2013-14 should be used.

(v) There is no reflection of quality, especially in food items, in the methodology. There is need to ensure that the sample of markets nationally includes markets catering for different income groups. Higher quality prices should be used for upper income households and lower quality prices for poorer households.

(vi) The retail price should include all levies and taxes. For example, the fuel charges adjustment should be included in the electricity prices.

(vii) The study has highlighted large inconsistency between WPI and CPI of some consumer goods. PBS needs to check these price estimates.

We are generally concerned about the findings that the rate of inflation has been significantly understated by the PBS, especially for the poor. There is urgent need for a group of experts to examine in-depth the methodology used by PBS for collecting data on prices and weights and construction of individual price indices. The recommendations made above could also be implemented to remove any bias or lack of coverage in price indices of Pakistan.

1- Inflation: Causes and Consequences

The rate of inflation in prices is one of the key indicators of the state of the economy of a country. A low rate implies a relatively stable macro-economy. A high rate, possibly double-digit, indicates either high aggregated demand/pressures, rise in costs of production and/or higher prices of imported consumer or intermediate goods. High inflation is a serious problem because it implies a big increase in the cost of living especially for the lower income households, who may not get, more or less, the same rise in nominal incomes. Therefore, inflation in prices, especially of basic food items, is a key factor in determining nutritional poverty.

As a common thread of global and regional economic history, inflation has been one of the biggest worries for rulers and governments since urbanisation began and people started living together in the earliest cradles of civilisation. The ancient history of Indian sub-continent (350-275 BC) reveals that state control over prices – to avoid the fury of local populace – "extended to all commodities and made no distinction in its application to either localities or classes of people[2]." In the same era, Rome also chose to control prices, though its price control was confined to limited commodities and specific localities[3].

Medieval Europe too has a plethora of examples of rulers trying to hold back price increases by maintaining fixed prices; though it's another thing that they were hardly successful in fixing prices, and whether fixing prices was a good policy. The fact that governments "continually had to issue edicts on prices suggests quite strongly that none of those fixed prices were maintained.[4]"

So pervasive was the fear of public backlash that in 1795 Fordingbridge, Hants, England, a woman was tried, convicted and sentence to three months of hard labour in prison[5] for protesting against the high price of butter. She was imprisoned because the government was afraid it might lose control of society if inflation-triggered protests got out of hand. There had been an assassination attempt on the king over food price increases[6].

The fear of inflation monster continues to thrive in the modern age. There were riots over the price of rice in Japan in 1918; whereas 1923 Germany saw its social order becoming disintegrated due to hyperinflation. In the case of latter, Stefan Zweig, the famed Austrian novelist, playwright, and journalist, hauntingly said: "nothing made the German people so embittered, so raging with hatred, so ripe for Hitler, as the inflation.[7]" Margaret Thatcher, the former British premier, pronounced in 1975 that "rampant inflation if unchecked could destroy the whole fabric of society." The history of Pakistan too is replete with examples.

---

[2] *(Saletore R.N, 1973, p.456)*
[3] *Ibid*
[4] *(Donovan P, 2015, p.5)*
[5] *This is equivalent punishment for a crime like assaulting a police officer in the USA today.*
[6] *Ibid, pp.1-11*
[7] *(Jefferson M, et al, 1977. p. 46)*

Definition of inflation

It is not easy to define inflation. That's because most definitions are rooted in the causes or determinants of inflation, whereas economists oft disagree on what actually causes inflation. At the risk of simplicity, however, a generally accepted definition is: Inflation is a general rise in the level of prices, measured by the rate of change in prices, which results in continuous falling value of money.

The key to understand here is that prices of a few goods and services may indeed rise in non-inflationary conditions as well. But one swallow does not make a summer. Therefore, one-off events of price increase don't make an inflationary environment. To qualify for inflation, the increase in prices needs to be across a wide range of products.

The second aspect of the definition pertains to the falling value of money. Simply put, this refers to the following notion: if for example, Rs100 could buy a kilo each of potatoes and tomatoes in say December, but in January if the same amount of money bought only about 3/4th-kilo each of the two commodities, then the increase in prices has eroded the value of money.

In late 1960s, a 25-paisa hike in sugar prices resulted in massive protests on streets against the then military dictator General Ayub Khan. The collective memory of that incident has forced successive governments to introduce and continue to run the Utility Stores Corporation that offers subsidized prices on key non-perishable food items.

Successive governments have also run special fiscal packages and rolled out administrative measures in Ramadan[8] each year to help keep prices in control, even though research by central bank economists shows that there is no evidence of systematic acceleration in overall consumer price inflation, food and non-food price levels in the month of Ramadan in Pakistan[9]. Violent protests had also erupted in small pockets across the country when food and fuel price hike hit the country in the aftermath of global economic crisis of 2007-8[10], whereas as latest as November 2015, protestors from a leading political party blocked roads in Islamabad against high fuel prices in the country despite a slowdown in global oil prices[11].

It is difficult to have a detailed historical survey of inflation of Pakistan (let alone of the world) in so little space. Any attempt to do so would come at the expense of analysis. The learning from this section, however, is that inflation and governments have been intimately associated since humanity said goodbye to the hunter–gatherer age, and that throughout history inflation has been taken as grave threat to political stability.

Before moving ahead to specific economic consequences of inflation, it is important to briefly discuss the determinants of inflation across the world and at home.

[8] *The month of fasting in Islamic calendar*
[9] *(Akmal, M. & Abbasi, M.U, 2010)*
[10] *(Walt, V. 2008)*
[11] *(Dawn, 2015)*

1.1 What Causes Inflation?

If inflation is the rate of change in prices, then two questions surface quite naturally; the first: what is price and how it is determined; and the second: what causes that change in prices? This section focuses on the second question, but a quick word on the first question is warranted.

Simply put, price is the amount of money expected, required or paid against some good or services. In most cases, it represents the cost of production, the cost of packaging, storage and transportation as well the profit to be made by the seller of goods and services. In other cases, it often represents a hedonistic value; for instance, in the case of paintings, or sculpture or sometimes even in fine dining. In such cases, the seller's profit margins are significantly above the cost of production and other ancillary costs.

As for the second question, it is interesting to note that a series of Babylonian price records has been recovered "on whole or partial tablets for a period stretching from 652 BC to 61 AD. These tablets included various causes of inflation astronomical observations, measurements of the height of river Euphrates, occasional pieces of gossip and news, along with the price of six specific commodities."[12] Closer to home, Kauṭilya, the famed economist and royal advisor in ancient India, who was against the increase of prices above sanctioned levels, also recognized how prices altered every year based on shipping costs or the terms on which a particular merchant has bought them or how some dealer dominating the market whipped up the price[13].

Kauṭilya's modern age peers, however, have far more elaborate theories of what causes inflation[14]. The first of these is the monetarist school. As the name suggests, they argue that inflation is a monetary phenomenon. When is there is too much money, chasing too few goods, inflation is bound to happen. The second theory is based on what is known as the Phillips Curve Model. Under that model, it follows that there exists a trade-off between price inflation and unemployment in the economy, at least in the short to medium run. In other words, an economy cannot simultaneously achieve lower inflation and unemployment rates.

The third theory is called the 'structural approach', which essentially argues that it is the differential rates in productivity growth, wages and elasticities of income and prices between the industrial and services sectors that determine the long-run trend of rising prices. Aside from these macroeconomic factors, however, a host of other factors can also impact inflation. These include supply shocks, such as draught or excessive rains or floods that affect agricultural production; wars or conflicts that may affect the prices of global commodities, changes in government-administered prices or taxes, and so forth.

[12] *(Donovan P, 2015, p.22)*
[13] *(Saletore R.N, 1973, pp. 441-443)*
[14] *This summary description is based on (Zaidi A, 2005, pp. 305-307) and (Pasha H, et al, 1995, pp. 930-931)*

Lastly, 'inflationary expectations' also plays a critical role in driving inflation. Under that hypothesis, it follows people's expectations of inflation in the future has impact how inflation actually behaves. Simply put, if price rise is built into the minds of people, they will adjust their economic transactions accordingly and drive prices higher.

To conclude this section, it is suffice to say that a host of economic factors explain how inflation happens. However, economic factors alone cannot explain why it happens. In other words, if it is not the visible hands of nature (such as draught, floods etc) it is the visible hands of 'political man'[15] that causes inflation. Whether it is by starting a war that causes supply disruption, or by printing excessive money for unproductive government spending, or by raising the support prices of food committees, or whether it is wage-hike by labour unions or whether it is any other kind of misguided policies – at its heart inflation remains a deeply political problem.

Unless the hand of nature is explicitly involved, inflation is an outcome of economic competition between interest groups, and its impact on different sections or income groups of the society is hardly ever equal across the board. In an increasingly interconnected world, it is also important to remember it is the economic competition thousands of miles away – say America or Europe - that causes inflation here at home in Pakistan, leaving domestic policymakers often helpless.

1.2 Pakistan's Perspective

Inflation has been historically low in Pakistan. It averaged 3.3 percent in 1960s, rose to 11.9 percent in the 70s, as a result of global oil crisis, fell again to an average of only 7.5 per cent in the 1980s. Only since the early 1990s did inflation become a matter of concern[16] causing economists to seriously start looking for its determinants.

Various studies conducted by Pakistan Institute of Development Economics (PIDE) identified different factors responsible for high rate of inflation. The factors identified by different PIDE studies were: "(a) increase in the prices of food, raw materials, fuel, manufactured goods; (b) inflationary expectations[17]; and (c) the growth rate of money supply in relation to the GDP[18]." Subsequent study found that the contribution of supply shocks and monetary expansion to inflation was somewhat limited. The principal factors appeared to be the rise in wheat procurement prices and administered prices of energy inputs, and the increase in indirect taxes in the 1994-95 budget[19].

---

[15] *Not be confused with politicians*
[16] *(Zaidi A, 2005, pp.293-294)*
[17] *Note: A 2015 study (Abbas H, et al) also found that households systematically exaggerate expected inflation, with the bias being more entrenched in low-income, less-educated, female and younger respondents. It was also found that energy prices act as an anchor for inflation expectations, which may be due to popularity of these commodities in media coverage and their weight in households' basket of commodities.*
[18] *(Pasha H et al, 1995, pp. 928-929)*
[19] *Ibid, p. 940*

Later studies have identified a mix of factors as well. One 2006 study[20] indicated that monetary factors had played a major role in driving inflation in the preceding years, whereas changes in wheat support price was found to have limited short run impact. A 2007 study found that "the most important determinants of inflation in 2005-06 were adaptive expectations, private sector credit and rising import prices."[21] In 2008, fiscal indiscipline and the oil/commodity price shock were termed as major contributors to inflationary pressure in the economy[22]. The same year, a study by central bank economist explored 50 years of data on inflation, growth rates of money and real GDP to find that inflation is primarily a monetary phenomenon. "Food inflation too is a monetary phenomenon," the paper[23] said.

It seems that economists have a long way to go before the causes of inflation are fully understood, especially in developing economies such as Pakistan. But regardless of whether the economists' community will ever reach an agreement on the cause of inflation, they do agree on the economic consequences of inflation. The ensuing section discusses just that to highlight the importance of measuring inflation correctly.

1.3 Consequences of Inflation

At the start of this paper, we discussed how inflation is a major threat to political stability. But how exactly does inflation puts political stability at risk. This section briefly attempts to answer that question, central to which are two concepts: (a) uncertainty, and (b) unequal impact.

By its very nature, inflation adds uncertainty to the economic lives of citizens and businesses alike. Owing to increasing globalization and changing positions in the economic struggle of various interest groups, along with the unexpected hand of nature (such as plague, climate change, earthquake etc.), prices can be expected to change. But what economists cannot say for sure is when exactly will they change and by how much will it erode the purchasing power of citizens and businesses. Month after month, global and local economists produce tones of research to forecast inflation, but they nearly always miss the mark, for inflation, it seems, has a mind of its own.

The second characteristic inherent to inflation is its unequal impact. Because prices of different goods and services inflate different pace and at different time periods, inflation affects different citizens and business differently. For instance, a persistent rise in food prices may not affect the rich sections of the society as much as it will affect the poor, since food consumption is relatively small portion of the monthly household expenditure of the rich, whereas it constitutes nearly half of the monthly household expenditure for the poor. Likewise, inflation does not

[20] *(Khan M, et al, 2006)*
[21] *(Qazi M, 2007 et al, 2007)*
[22] *(Sherani S, 2008, p. 9)*
[23] *(Riazuddin R, 2008)*

treat companies fairly; the impact of inflation varies from country to country, from industry to industry and from company to company. This means that their relative competitive positions can change in the market, and renders their planning exercise rather difficult.

As a result of this double whammy, inflation affects the standard of living, and the expectation of livelihood of individual people. And since it is essentially people who purchase goods and services, inflation affects business and markets, industrial relations and so forth, which in turn marks the whole economic environment with feelings of unfairness and demands for social justice. The brunt of those feelings is faced by governments, or big businesses[24], as people develop a feeling of social class division with an 'us versus them' mindset.

The macroeconomic impact of inflation takes the following shape. As uncertainty rises in an inflationary environment, people's investment, saving and borrowing plans are affected – this, in turn, has a negative impact on a country's economic growth due to lower saving and investment and lower credit supply. In the case of high inflation, a country's external competiveness also erodes due to appreciation of real exchange rate that hits exports[25].

[24] *For instance the Occupy movement with slogans of 'we are the 99%'*
[25] *(Pasha H et al, 1995, p. 928)*

2- Measurement of Inflation

In order to avoid the unexpected inflation-related costs or at least mitigate the negative impact of inflation, it is imperative that inflation is correctly measured and anticipated. Correct measurement - that entails careful, unbiased and accurate recording and reporting of price movements - is also required for a host of economic management activities by the state or its authorities.

For instance, correct measurement of inflation is critical for the central bank for its monetary policymaking and the setting of interest rates. This is because price stability is the principle mandate of the central bank, whereas some central banks also aim for 'inflation targeting', which is an explicit inflation target that the central banks tries to achieve. Likewise, correct measurement of inflation lies at the heart of estimations that a government does to arrive at the nature, extent, and incidence of poverty in the country, as well as for estimations of national economic output (GDP) ever year.

Correct measurement of inflation is also necessary for indexation of different kind of public and private sector contracts for the purpose of adjusting various contractual payments such as wages, rents, interests and social security benefits. The rate of inflation also plays an important role in determining the export competitiveness of an economy. If the domestic rate is higher than the global rate, then this implies loss of competitiveness unless there is corresponding adjustment in the value of the national currency. Also, central banks generally link the interest to the rate of inflation.

2.1 Inflation Indices in Pakistan

The PBS prepares a number of price indices, including the following:

(i) Consumer Price Index (CPI)
(ii) Sensitive Price Index (SPI)
(iii) Wholesale Price Index (WPI)

The brief methodology used for constructing each index is described below.

2.1.1 Consumer Price Index:

The CPI is reported on a monthly basis. The base year for the index has been updated six times. Currently, it is 2007-08. The CPI is focused on urban households, and monitors consumer prices in 40 urban centres of Pakistan. At each location, depending upon sizes, information is collected on price in one to seventeen markets. The index includes the prices of a basket of 487 goods and services. The total number of markets covered in the country is 76.

The index is disaggregated into twelve groups. The major groups are food, beverages, and tobacco, housing and utilities and clothing and footwear. The respective weights for all

households combined are 36.3 per cent, 28.4 per cent, and 7.6 per cent. The remaining 26.7 per cent includes items in transport and communications, health, education, recreation etc.

2.1.2 Sensitive Price Index (SPI)

The SPI is computed weekly. The base year is 2007-08. It is essentially a sub-set of the CPI, covering fewer commodities/services and locations. 53 items are included in the SPI, with 33 items from the group of food, beverages and tobacco. Seventeen major cities are covered. The SPI is derived for five household income quintiles.

2.2.3 Wholesale Price Index (WPI)

The WPI is the most comprehensive price index. It determines prices at the wholesale level. 463 items are included. Information is obtained on prices in wholesale markets of 21 cities, four more than the SPI. The base year is the same, 2007-08. The index is disaggregated into five groups of commodities, 74.2 percent from industry and 25.8 percent from agriculture. Services are not included. The value of marketable surplus (production – self-consumption + imports – exports) is used to derive the weights.

Other important indices include:

'Core' Inflation: This is the consumer price index excluding fuel and food prices. It is used primarily as a surrogate for overall demand pressures in the economy. It plays a key role in the conduct of monetary policy.

'Implicit' GDP deflator: This is derived by taking the ratio of value added in current prices to value added in constant prices. It is available at the sectoral level at the aggregated level for the economy.

Guidelines of Best Practices

The International Labour Organization (ILO), which is the responsible agency for establishing international standards for CPI methodology, has issued the following guidelines to countries for developing and revising their CPIs to help ensure consumer welfare in each country can be better estimated (based on CPI) and to help make CPI comparable across countries.

Representativeness: It follows that items selected for CPI basket should be representative of different regions of the country, its households, markets, outlets/shops, and consumption items.

Accuracy: This principle entails that the sample, data collection method, aggregation, computation meet international standards both for the sake of quality of measurement and to help in cross country CPI comparisons.

Timeliness: This implies that inflation is measured at a pre-agreed and notified frequency, and published soon after the end of each month.

Reliability: It follows that in order to ensure public confidence in the index, a full description of the data collection procedures and the index methodology should be prepared and made widely available. Amongst other things, the monthly CPI publication document should also include a discussion of the accuracy of the index estimates. *(Source: ILO)*

2.2 Whose Inflation is it anyway?[26]

Since it is impractical and unnecessary to measure price changes of every item bought by every household, the question, therefore, arises: whose basket of goods and services should be tracked to measure inflation.

To answer this question, the PBS forms a technical committee comprising of representatives from PIDE, independent think tanks, business chambers and trade unions, academic research clusters and so forth. In the second step, the committee decides the tentative list of cities from where the prices of different items will be collected. Later, a list of items is prepared with the items grouped under various categories.

The list of items is prepared in the following manner: field officers of the PBS are sent to a pre-agreed number of markets in different cities across Pakistan to take notes of what is being consumed and what is not. The technical committee then takes a decision based on the suggestions given by field officers to include or exclude items from the overall CPI basket. Once the list is finalised, then the PBS conducts a survey called the Family Budget Survey (FBS) to arrive at the weights to be given to each item on the list.

Simultaneously, the items of goods and services selected for measurement of CPI are classified into sub-baskets – such as food, health, transport, clothing, etc. The FBS is then used to assess the expenditure patterns of urban households from five income groups, such that each income group in each city has different weights assigned for each of the CPI sub-baskets. For example, food may have weight of 55 percent in the lowest income quintile, while in the highest income quintile it may have a weight of 30 percent.

2.3 Issues in Pakistan's CPI Measurement

A plethora of methodological issues surround the existing measurement of CPI in Pakistan. For instance, a host of outdated items are included in the CPI basket, whereas many widely consumed household items are not included. Examples of the former include: 'video game sega 16 byte' (which was obsolete even back in mid-2000s), or video cassette (which is hardly even available in the rural areas nowadays). Examples of the key missing items are: items of women's health and hygiene, infant diapers, contraceptives and so forth.

In addition, there are some concerns pertaining to the collection of price information. For instance, CPI food items data are collected from 1 to 14 of every month. However, food prices are often found to be volatile on week to week basis, which implies that any increase or decrease in food prices after the 15th of each month is not incorporated in the official price record of that month[27].

[26] *Based on coverage in (Business Recorder 2015a & 2015b)*
[27] *(Saghir P, 2015)*

Following the 80-20 rule of thumb, however, this study will focus only a few key issues that account for most of the under or over estimation issues in the CPI. These areas of concern surround around food, house rent and utilities, which constitute about 80 percent coverage for the lower two income groups (or quintiles).

Specifically, this study looks at the following key issues in the measurement of CPI:

- **Questionable accuracy of price data collection:** Huge differences have been found between the prices of a number of major items tracked for the measurement of CPI and WPI. This raises concerns over the accuracy of monthly price data collection by the PBS.
- **Concerns of underestimation of CPI:** Underestimation of CPI could be because of two major type of reasons; (a) inaccurate collection of prices or flawed methodology of estimating national price average; and (b) incorrect weights assigned to different classifications of consumer goods and services. This study focuses on the following:
    - **Under-importance of cities:** Under the existing methodology, the PBS gives equal weights to cities, whereas the population differences between cities (between Karachi and Khuzdar for instance) is often huge. This leads to misrepresentation of inflation since it does not reflect the average prices faced by the wider population.
    - **CPI prices incomparable with other surveys:** Prices reported by CPI have been found incomparable with the prices collected under Household Integrated Economic Survey (HIES).
    - **Inconsistencies in House Rent Index (HRI):** The PBS measures HRI based on the Family Budget Survey briefly discussed above. However, when one compares the house rent values reported in the urban findings of HIES, the HRI reported in CPI appears understated, especially in the case of lower income groups.
    - **Inaccurate record of utility prices:** When it comes to electricity tariffs, the PBS only takes the simple average of base-tariffs announced for different consumption slabs by the government. Periodic fuel price adjustments, which are quite significant, are not incorporated. Due to this methodology, CPI is either under estimated or over-estimated depending upon the direction of fuel prices in the country.
    - **Types of weight affects:** This study also evaluates the impact of change in weights of different groups of consumer items. This is done by estimating the CPI based on the weights arrived at from HIES, and also by changing the base year.

Lack of rural representation: Under the current methodology, the PBS measures prices of 487 items collected from 76 markets in 40 cities across Pakistan, which effectively means that the CPI only represents the urban consumption basket at the exclusion of rural households. When 62 percent of Pakistan's population lives in rural areas, then the national CPI should also include rural economy. India, which has a rural population of 68 percent, compiles CPI for both urban and rural areas in each of its states. Their national CPI is then computed by merging

urban and rural CPIs with appropriate weights. Likewise, Bangladesh, with rural population of 67 percent, also has rural as well as urban CPI. In Indonesia too, which has a rural population of 48 percent, prices are collected from large cities and rural areas.

The box below gives a bird eye view of different price indices being prepared by peer economies in South Asia.

TYPES OF PRICE INDICES IN SOUTH ASIAN COUNTRIES

Country	Indices
India	• WPI • CPI – Industrial Workers • Agricultural Labourers • Rural Labours • CPI – Urban • CPI – Rural • CPI – All Urban
Bangladesh	• CPI – All Rural (Base Year: 85-86) • Middle Class Families in Dhaka City • WPI • Cost of Living Index of Industrial Workers in Narayanganj, Chittagong and Khulna • Consumer Price Index
Sri Lanka	• WPI • Colombo CPI • Prices by Province

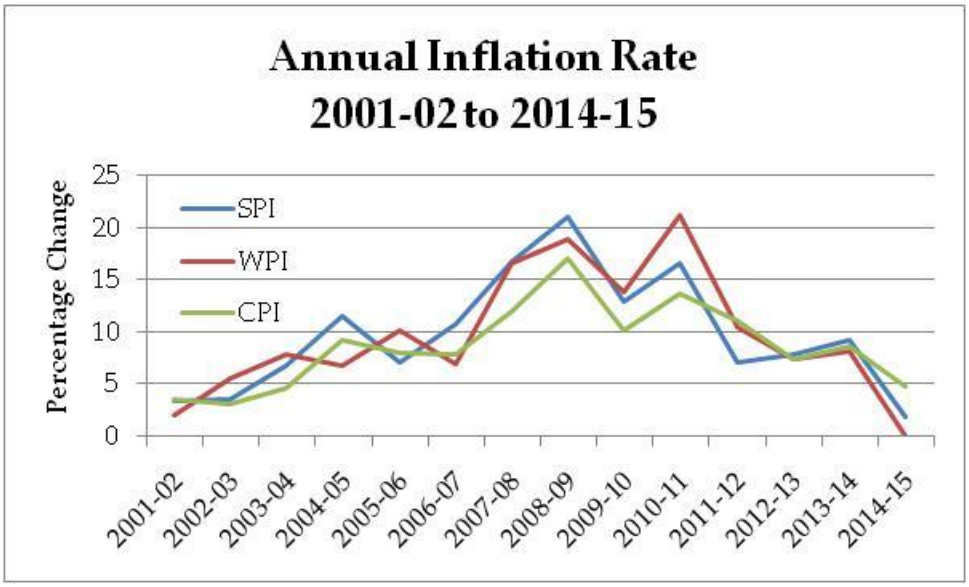
3- Inflation in Pakistan- Understated, Especially for the Poor

In this chapter, the methodology to evaluate inflation measurements in Pakistan is driven by primarily two considerations. First, an approach is adopted to determine if there is a variation in the rate of inflation by level of income of households, in particular, the question is whether the poor are facing higher or lower rates of inflation. Second, determining from the available data on consumption patterns and prices if, there is significant variation in the rate of inflation by location, province and type of consumer.

3.1 Extent of Correlation among Indices

Figure 1 depicts the rate of inflation annually from 2001-02 to 2014-15, according to the different indices. In aggregated terms, there is significant correlation among the three indices –CPI, WPI, and SPI. For example, the peak rate of inflation was 2008-09, according to all three indices. Similarly, the lowest rate of inflation is generally observed last year.

Figure 1: Annual inflation rate



Source: Pakistan Economic Survey

A correlation is carried out of the rates of inflation in Table 1. A correlation coefficient of close to one implies strong association between any two measures of inflation. As opposed to this, a low coefficient close to zero implies little correlation.

Table 1: Correlation among Rates of Inflation according to different indices (2001-02 to 2014-15)

	Correlation Coefficient
Between WPI and CPI	0.877
Between CPI and SPI	0.922
Between WPI and SPI	0.892

Source: SBP & PBS

WPI and CPI

The question is whether there is one-to-one transmission of the inflation rate, for example, from the wholesale to the retail level. It appears that for a one percentage point rise in the WPI there is a rise of 0.59 percentage point in the CPI. This coefficient is relatively low and raises the issue of a measurement bias. Why do we not observe full transmission?

This is best tested by looking at the relationship between WPI and CPI for a given commodity. This is done for 17 major consumption items, as of February 2016, in Table 2. Each of these items has a weight of more than one percent in the consumption basket of a typical household.

Table 2: WPI and CPI of major consumption items as of February 2016 (2001-08 = 100)

	Weight	WPI	CPI	% Difference between CPI and WPI
Type I*				
Vegetable	2.68	204.49	189.86	-7.7
Fresh Fruits	1.86	231.68	204.55	-11.7
Poultry	1.36	151.73	148.72	-2
Meat	2.43	268.53	259.99	-3.2
Vegetable Oils	1.76	148.73	132.13	-11.3
Sugar Refined	1.04	239.31	223.59	-6.6
Cigarettes	1.39	387.3	339.36	-12.4
Medicaments	1.27	153.18	151.34	-1.1
LNG/Natural GAS	1.58	210.01	158.08	-24.7
Type II**				
Rice	1.58	144.7	156.66	10.6
Milk	6.68	255.42	259.27	1.5
Vegetable Ghee	2.07	118.76	135.96	14.5
Wheat Flour	4.16	201.07	217.05	7.9
Beverages	1.2	171.95	215.64	25.4
Fabrics	3.05	204.81	226.84	9.7
Readymade Garments	1.37	193.27	237.04	22.6
Footwear	1.55	137.38	165.44	20.4

**CPI<WPI **CPI>WPI*

Source: PBS

The analysis reveals that for majority of items the CPI is lower than the WPI (we have classified those items as Type I items). This implies some squeezing of retail profit margins over the last eight years. In some cases, like fruits, cigarettes, vegetables oil and LNG, the difference is so large that it implies elimination, more or less, of net income of retailers selling these commodities. This is clearly not feasible or sustainable. Therefore, PBS will have to check if the prices, both wholesale and retail, have been reported correctly or not.

Type II items are where the CPI is greater than WPI. In such cases, the retail margins have increased. This is very large in the case of vegetable ghee, beverages, readymade garments and footwear. Again, this appears unlikely. It is generally considered that retail markets are competitive in character. The likelihood of emergence of monopolies is low.

The presence of large differences, positive or negative, between CPI and WPI for a number of a major consumer items raises serious doubts about the accuracy of price data collected by PBS. It is necessary that PBS undertakes a proper check of data collected to avoid the inconsistencies highlighted in Table 2.

CPI and SPI

The correlation between the rate of inflation as measured by the CPI and the SPI respectively is high at over 0.92. Therefore, the latter can act as leading indicator of the movement of CPI.

3.2 Extent of Underestimation of Inflation

The fundamental question is whether there is a difference between the 'true' underlying rate of inflation in the economy and the rate reported by PBS. Specifically, is there a downward bias in the latter?

There are two ways in which a bias can be created. The first is the 'price effect', where prices of some commodities or services may be understated. The second is the 'weight effect', where consumption patterns may not be fully and accurately captured in the prices indices of PBS.

The disaggregation methodology between the two effects is given below. We first designate the following:

P_{Ti} = 'True' price of the ith commodity/service

W_{Ti} = Weight of the ith commodity/service

P_{Ri} = Reported price of the ith commodity/service

W_{Ri} = Assumed weight of the ith commodity/service

Then

$$Bias = \sum W_{T_i} P_{T_i} - \sum W_{R_i} P_{R_i}$$

This can be decomposed as follows:

$$Bias = \sum (P_{T_i} - P_{R_i}) W_{T_i} + \sum (W_{T_i} - W_{R_i}) P_{R_i}$$

3.2.1 The Price Effect

To quantify the 'price effect', if any, an alternative source of information on prices of major items is needed. To that end, prices implicit in the Household Integrated Economic Survey (HIES) and, in the case of basic services, tariff differential by various utilities serve the purpose. Similarly, the source of data on consumption patterns is also the HIES.

Before an attempt is made to quantify the 'price effect', the consumer price index for different groups of items is presented in Table 3, as of February 2016.

Table 3: CPI of groups of consumer items (2007-08 = 100)

	Group	Weight (%)	CPI (Feb 2016)
1	Food and Non-Alcoholic Beverages	34.83	214.99
2	Alcoholic Bev and Tobacco	0.41	337.57
3	Clothing and Footwear	7.57	224.97
4	Housing, Water, Electricity, Gas and Fuels	29.41	185.49
5	Housing Rents	21.8	174.32
6	Furnishing and Household Equipment Maintenance	4.21	218.83
7	Health	2.19	184.18
8	Transport	7.2	174.05
9	Communication	3.22	130.57
10	Recreation and Culture	2.02	194.38
11	Education	3.94	210.15
12	Restaurants & Hotels	1.23	259.39
13	Miscellaneous	2.76	230.15
14	Overall CPI	100	202.98

Source: PBS

The following exercises are undertaken for determining if there is a price effect:

(i) The CPI/SPI is based on un-weighted average of the prices of commodities/services in a number of cities. Ideally, the cities should be given weights corresponding to the respective shares in urban population of Pakistan. This is essential to properly reflect the prices faced by the households in different locations.

(ii) Comparison of prices in the HIES for the latest year, 2013-14, of survey and prices reported by PBS.

(iii) The group with the largest weight and a price index significantly below the overall CPI is housing. Rental information from HIES is used to see if there is any downward bias. This is essential because housing is a heterogeneous bundle of services. The rent varies by location, size, and quality. In effect, the price of a typical

bundle of housing has to be derived from a rent hedonic function. This is not done by PBS.

(iv) Similarly, the price index of electricity, gas, and fuel can be cross-checked with prices charged by distribution companies.

3.2.1.1 Un-weighted versus Weighted Price

Earlier research by Pasha and Ghaus[28] had demonstrated that, especially in food prices, there is significant variation by location. They identify the relationship between city size and price as being cubic in nature. Lower prices are observed more in small towns.

These findings are largely confirmed from the latest data on prices. The weighted average of price of agricultural items tends generally to be above the un-weighted average price of the 17 cities on which data is reported by PBS, as shown in table 4. This is the case with 14 out of the 17 food items mentioned in Table 4.

Overall the understatement of the CPI in absolute terms is 4.3 points, as of February 2016. This is equivalent to 2.1 percent in percentage terms.

[28] Pasha, H. A., & Pasha, A. G. (2002). Cost of Living Index by City of Pakistan. *Social Policy and Development Center, Pakistan. (Research Report 43)*.

Table 4: Un-weighted and weighted price index of major consumer items (2007-08 = 100)

S.No.	Items**	Un-weighted	Weighted	Difference
	Food			
1	Milk, Fresh	259.3	265.2	5.9
2	Wheat Flour	217.8	223.2	5.4
3	Beef	260	271.2	11.2
4	Mutton	260	274.6	14.6
5	Vegetable Ghee	136	136.2	0.2
6	Cooking Oil	132.1	133.6	1.5
7	Rice (Broken)	156.7	162.9	62
8	Cigarettes	339.4	339.9	0.5
9	Poultry	148.7	145.1	-3.6
10	Bread	211.2	217.4	6.2
11	Sugar	223.69	223.9	0.3
12	Pulses	261.6	283	21.4
13	Tea	282.7	284.1	1.1
14	Curb	250.7	270.7	20
15	Onion	247.6	244.6	-3
16	Potatoes	123.4	124.1	0.7
17	Tomatoes	115	112.2	-2.8
	Non-Food			
18	Electricity Charges	238.1	238.1	0
19	Petrol	144.2	144.2	0
20	Telephone	128.4	128.4	0
21	Gas Charges	158.1	158.1	0
22	Long Cloth	216.5	216.4	0
23	Lawn	226.5	251.1	24.6
24	Firewood	283.3	316.1	32.8
	TOTAL			425.3***

* *Weighted Price by relative city population size of the 17 cities covered by PBS*

**Presented in descending order of weight by group

*** *Sum of weighted difference*

Source: PBS

3.2.1.2 PBS versus HIES Prices

The focus is on food prices. The HIES gives the expenditure on each food item along with the quantity consumed. This enables determination of the price. Data is available for 2013-14, which is projected to 2014-15.[29]

The results of the comparison in the case of 11 items are presented in Table 5. HIES prices are higher in nine out of the 11 cases. In fact, in some items the HIES prices are substantially higher. It is 24 per cent in beef, 36 per cent in rice and as much as 58 per cent in the case of poultry. This tends to confirm that prices used by PBS for the CPI tend to be understated.

[29] *On the basis of half of the historical rate.*

Overall, the impact in absolute terms is 8.7 points. This is equivalent to 4.3 percentage points.

Table 5: Variation in price index of major items price level (2007-08 = 100)

	Weights	Items	PBS	HIES	Difference	
1	20.37	Milk Fresh	254.3	261.8	2.5	50.92
2	12.69	Wheat Flour	217.8	219.9	2.1	26.64
3	7.41	Beef	260	284	24	177.84
4	7.41	Mutton	260	276.9	16.9	125.22
5	4.82	Rice (Basmati)	156.7	192.5	35.8	172.56
6	4.12	Poultry	148.7	206.8	58.1	239.37
7	3.54	Bread	211.2	213.2	2	7.08
8	1.92	Curd	250.7	240	-10.7	-20.54
10	1.65	Onions	247.6	248.8	1.1	1.81
11	1.46	Potatoes	123.4	120.8	-2.6	3.8
12	1.37	Tomatoes	115	115.5	0.5	0.68
					872.6	

Source: PBS

3.2.1.3 Housing Rent

As mentioned earlier, housing has various characteristics and it is difficult to construct a housing rent index without a proper rent hedonic function. In fact, as shown in Table 6, the housing rent index is estimated at over 9 percent below the overall CPI.

There is little likelihood that rents have fallen in real terms since 2007-08, especially at the lower end of the income scale. The fall in housing standards during the last years is described in the box below. Therefore, the change in rents reported in the HIES is likely to be accurate measure of rental prices, given the fall or little improvement in the quantity or quality of housing consumed.

According to the HIES of 2013-14, the housing rent has gone up by 84 per cent after 2007-08 on average for all urban households. Projection up to Feb 2016 yields an index value of 206.8, as compared to 184.2 by PBS. This raises the overall CPI in absolute terms by just over 7 points, or by 3.4 percent.

Housing Conditions in Urban Areas

The numbers below demonstrate that there has been a decline in the quantity and quality of housing in Pakistan. The number of reasons per housing wait has fallen by 11 percent. The share of pucca structures has declined from 68 percent to 55 percent.

Indicator	**2008-09**	**2010-11**	**2012-13**
Housing Tenure Share (%)			
Own	78.2	75.7	75.3
Rent	14.8	16.7	17.8
Other	7.0	7.4	6.9
Total	100.0	100.0	100.0
Size (No of Rooms)	2.88	2.84	2.57
Material for Rent Share (%)			
RCC/RBC	68.2	59.5	54.6
Other	31.8	40.5	45.4
Total	10.0	100.0	100.0
% with Access			
Electricity	97.7		98.3
Gas/Oil	77.9		84.0
Drinking Water	62.0		56.0

Table 6: Rent index for housing HIES for urban Pakistan (Rs. per month)

	Low (1^{st} Quintile)	Middle (3^{rd} Quintile)	High (5^{th} Quintile)	Total
2007-08	1166	1918	5410	3450
2013-14	2469	4007	9675	6354
2016, February*	284.6			7118
House Rent Index, Feb 2016 with 2007-08 = 100	244.1			206.8
Weight (%)	14.5			21.8
Difference**	10.11			7.08

**by projection at 2/3rds of the historical growth rate*

***in comparison with the reported rent index of 174.32 in percentage terms*

3.2.1.4 Fuel and Lighting

The price level of items in the fuel and lighting group appears to have been overstated by PBS, as shown in Table 7. The price of electricity reported is higher because the fuel charges adjustment (FCA) has not been added to the tariff. Following the decline in fuel costs, the FCA has become negative at over Rs. 4 kWh. The price indices of motor spirit and kerosene oil are also lower because the base year price has been overestimated by PBS.

The overall impact is negative 4.2 points as shown in Table 7. This is a reduction of 2 percent in the CPI.

Overall Price Effect

The magnitude of the different price effects is summarized below:

Table 7: Different types of price impact

CPI in Feb 2016	203	
Changing Un-weighted Price to Weighted Price by City Size	4.3	2.1
Using HIES prices instead of reported PBS prices	8.7	4.3
Using HIES rents	7.1	3.4
Using prices for electricity, Gas and Motor Fuel quoted by Distribution Companies	-4.2	-2
Total Price Effect	15.9	7.8
Revised CPI in Feb 2016	218.9	

3.2.2 The Weights Effect

We turn now to the quantification of the impact of change in weights of different groups of consumer goods/services.

3.2.2.1 HIES vs. PBS weights

The first exercise is to compare HIES weights with PBS weights of 2007-08 for urban households. This is done in Table 8. The magnitude of the impact is relatively small at 2.2 points or just over 1 percent.

Table 8: Impact of changing PBS weights to HEIS weights (2007-08)

	HIES	PBS	Diff	Price Level	Contribution
Food & Non-Alcoholic Beverages	36.87	34.83	2.04	214.99	438.58
Alcoholic Beverages & Tobacco	0.91	1.41	-0.5	337.57	-168.78
Clothing & Footwear	4.71	7.57	-2.86	224.47	-641.98
Housing & Electricity	28.06	29.41	-1.35	185.49	-250.41
Furnishing & Maintenance	0.96	4.21	-3.35	218.83	-733.08
Health	2.83	2.19	0.64	184.18	117.88
Transport & Communication	6.26	10.42	-4.13	160.61	-663.32
Miscellaneous	17.45	9.95	9.5	223.51	2123.34
					222.23

Source: PBS

3.2.2.2 Changing Base Year

The impact of changing the base year from 2007-08 to 2013-14 with HIES weights is examined in Table 9. It appears that the effect is small at 1 point or 0.5 per cent.

Table 9: Changing base year from 2007-08 to 2013-14

	2007-08	2013-14	Diff	Price Level	Contribution
Food & Non-Alcoholic Beverages	36.87	37.02	0.15	214.99	32.24
Alcoholic Beverages & Tobacco	0.91	0.75	-0.16	337.57	-54.01
Clothing & Footwear	4.71	5.89	1.18	224.47	264.84
Housing & Electricity	28.06	24.73	-3.33	185.49	-617.68
Furnishing & Maintenance	0.86	0.86	0	218.83	0
Health	2.83	2.55	-0.28	184.18	-51.57
Transport & Communication	6.29	6.55	0.26	160.61	41.76
Miscellaneous	19.45	21.63	2.18	223.51	487.25
					102.87

Source: PBS

3.2.3 Overall Effect

We are now in a position to determine the combined 'price' and 'weight' effects on the overall CPI. The result is presented below.

Overall effect	
	Feb-16
CPI	203
Overall Price Effect	15.9
Overall Weight Effect	3.2
Total Effect	19.1
%	9.4
Revised CPI	**222.1**

It appears that the true estimate of the annual rate of inflation in the CPI is 11 percent between 2007-08 and Feb 2016. The reported inflation rate is 9.6 percent. Therefore, the rate of inflation appears to have been understated by 15 percent.

3.3 Rate of Inflation by Income Level

The SPI of PBS tends to imply less inflation for the lowest quintile of household as shown below in Table 10. In fact, the CPI reveals that the price index is the lowest for the top quintile. However, the difference among quintiles is relatively small. Both indices highlight that the highest price index is in the case of the fourth quintile.

Table 10: SPI and CPI by income quintiles

	SPI by Quintiles - Feb 2016		CPI by Quintiles - Feb 2016 *	
Quintiles	SPI (2007-08 = 100)	% Deviation from Average	CPI	% Deviation from Average
1	207.13	-4	203.89	0.44
2	214.24	-0.69	266.24	1.6
3	215.07	-0.31	205.57	1.25
4	219.05	1.54	206.02	2.19
5	216.43	32	200.67	-1.13
	215.73		202.98	

**Estimated by projection from August 2015*

Source: PBS

Implementation of the methodology for the lowest income group yields the results given in Table 11. The price index in February 2016 is higher by 27.1 points, equivalent to over 13 per cent higher price level. The rate of annual inflation on average between 2007-08 and February 2016 is estimated at 11.5 per cent. This is in comparison to the reported inflation rate of 9.7 per cent. Therefore, the rate of inflation faced by the poor is higher than that estimated by PBS by 19 per cent. The price level in Feb 2016 for the poor households is 5.4 per cent higher than the price level for all urban households.

Table 11: 'Price' and 'Weight' effects on the CPI of the lowest quintile

	Impact	
	Points	%
CPI in Feb 2016	**203.9**	
Price Effects	**-22.1**	**10.8**
· Changing un-weighted price to weighed price by city size	9.2	4.5
· Using HIES prices instead of reported PBS price	8.2	4
· Using HIES rents	9.9	4.9
· Using prices for electricity, Gas and Motor fuel quoted by Distribution Co.	-5.2	-2.6
Weight effects	**5**	**2.5**
· HIES vs. PBS Weights	3.4	1.7
· Changing base year from 2007-8 to 2013-14	1.6	0.8
Total Effect	**27.6**	**13.3**
Revised CPI for Feb 216	**231**	

3.4 Regional Variation in Inflation

3.4.1 Rural vs. Urban

The CPI constructed by PBS has pre-dominantly an urban bias. The rural population, which accounts for the majority, has been ignored. Is the inflation rate higher or lower for rural households?

This question can only partially be answered. There is inadequate data on rural prices of goods and services across the country. However, the impact of difference in consumption patterns via the weights can be quantified from HIES. The difference between urban and rural weights is shown in Table 12.

Table 12: Weights of rural and urban households

	Urban	Rural	Diff	Price Level*	Contribution
Food & Non-Alcoholic Beverages	36.87	47.89	11.02	214.99	2369.19
Alcoholic Beverages & Tobacco	0.91	0.98	0.07	337.57	23.63
Clothing & Footwear	4.71	6.06	1.35	224.47	303.03
Housing & Electricity	28.06	18.07	-9.99	185.49	-1853.05
Furnishing & Maintenance	0.86	0.75	-0.13	218.83	-28.44
Health	2.83	4.05	1.22	184.18	224.7
Transport & Communication	6.29	6.12	-0.17	160.61	-27.3
Miscellaneous	19.45	16.08	-3.37	223.51	-753.23
Total	100	100			258.53

The basic difference in consumption patterns is the higher share of expenditure on food in rural areas versus higher share of housing rent and utilities in urban areas. The difference in the price is 2.6 points, with the level being somewhat higher in rural areas. This implies a relatively small difference in the price of just over 1 per cent between the two areas. However, this does not include any 'price effect'.

3.4.2 City and Provincial Level

The SBP presents estimates of city-wise rate of inflation in its monthly publication, "Inflation Monitor". The data on prices is obtained from the PBS. We have used city-wise population weights to derive inflation rates at the provincial level.

The estimates have been derived for June 2014 and December 2014 respectively in Table 13. The rate of inflation was relatively high, on a year-to-year basis, the former month and low in the latter month.

There appears to be substantial variation in the rates of inflation by location. At the city level, Islamabad has the highest rate of inflation, followed by Lahore. It is somewhat lower in smaller

cities. The range of inflation rate in June 2014 is from a minimum of 6 per cent to a maximum of almost 15 per cent.

The results at the provincial level also reveal considerable variation in the rate of inflation. For example, the highest inflation in June 2014 was observed, Khyber Pakhtunkhwa and Punjab. The range is 2.3 per cent points, with a minimum of 9 per cent and a minimum rate of 6.7 per cent in the four provinces.

Table 13: City-wise and province-wise inflation

City	Weight	Population (000)	Weight	Rate of inflation (YoY Dec 2014)	% June 2014
Islamabad	0.0207	529	1	7	14.6
Punjab	0.477	12180	1.00*	6	9
Rawalpindi		1410	0.1158	7.7	10
Lahore		5143	0.4222	8	10.1
Gujranwala		1133	0.093	3.3	7
Sialkot		422	0.0346	4.7	7.2
Faisalabad		2009	0.1649	4.2	9.3
Multan		1197	0.0983	4	6.7
Sargodha		458	0.0376	3.3	7.6
Bahawalpur		408	0.0335	3.4	7.2
Sindh	0.4352	11112	1	5	8.2
Karachi		9339	0.8404	5.6	8.5
Hyderabad		1167	0.105	2.2	6
Sukkur		336	0.0302	1.1	7.6
Larkana		270	0.0244	2.4	9.7
KPK	0.0404	1031	1	4.1	9.2
Peshawer		983	0.9534	4.1	9.3
Bannu		48	0.0466	3.7	7.6
Balochistan	0.0267	683	1	1.4	6.7
Quetta		656	0.8272	0.9	6.3
Khuzdar		118	0.1728	3.6	8.6
PAKISTAN	**1**	**25535**		**4.3 (5.4)****	**8.2 (8.7)****

**Within Province*

***Weighted rate of inflation*

Source: PBS

Conclusion & Recommendations

The following key conclusions emerge from the analysis conducted above.

I. **The price level of CPI for all urban households in February 2016 is understated by 9 percent**

II. **The price level for the lowest quintile of households is 13 percent higher than the overall CPI in February 2016**

III. **Poor households have faced an annual inflation rate since 2007-08 which is almost two percentage points higher than the overall CPI reported by PBS. Other households have been exposed to 1.5 percentage points more inflation on average annually than that reported by PBS**

The understatement of the rate of inflation faced by the poor is very unfortunate. The consequence is under-adjustment in income supplements under the BISP or in minimum wages. Clearly, the fact that the poor have experienced more inflation due to a disproportionate rise in food prices and housing rents indicates that the incidence of poverty has probably increased faster than is perceived to be the case.

There is significant scope for improvement in inflation reporting by the PBS. Our major recommendations are as follows:

i) There is need for more inflation indices to be constructed to fully portray the taxonomy of inflation in Pakistan. Specially, PBS needs to prepare the following indices on a monthly basis:

- CPI for Urban households by Quintiles
- CPI for Rural households by Quintiles
- CPI for Province, Urban and Rural separately
- CPI for industrial workers
- CPI for all households by Quintile

The last index will act as the most aggregative measure of inflation in the country.

ii) For rural prices, the number of location of survey will have to be increased to include more 'mandi' towns at the rural-urban interface and in rural areas.

iii) There appears to be a serious problem of understatement of inflation in housing rents. Based on a sufficiently large numbers of properties, each month a national rent hedonic function will need to be estimated. The rent can then be worked out for pre-specified bundles of housing from the equation.

iv) The time has come to move to a new base year, which is more recent. If HIES for 2014-15 has not been undertaken or finalize, then the results of the 2013-14 should be used.

v) There is no reflection of quality, especially in food items, in the methodology. There is need to ensure that the sample of markets nationally includes markets catering for different income groups. Higher quality prices should be used for upper income households and lower quality prices for poorer households.

vi) The retail price should include all levies and taxes. For example, the fuel charges adjustment should be included in the electricity prices.

vii) We have highlighted large inconsistencies between WPI and CPI of some consumer goods. PBS needs to check these price estimates.

We are generally concerned about the findings that the rate of inflation has been significantly understated by the PBS, especially for the poor. There is an urgent need for a group of experts to examine in-depth the methodology used by PBS for collecting data on prices and weights and construction of individual price indices. The recommendations made above could also be implemented to remove any bias or lack of coverage in price indices of Pakistan.

Appendix

The broad concept of why there is a need to make a basket of goods and services for the measurement of CPI, and how does the PBS arrive at the basket in Pakistan have already been discussed in the section titled: "whose inflation is it anyway?" This appendix sheds brief light on the current composition of the CPI index, and the other ancillary details.

Under the existing methodology, the CPI is based on prices of 487 items of goods and services from 76 urban markets across 40 cities. The prices noted are actual prices, taken from urban retail stories and service establishments. Theoretically, the CPI is recomposed every few years to reflect the changes in consumption pattern and the changes in items commonly consumed. This exercise is called the rebasing of an index. The main characteristics of previous index methodologies are highlighted in the table below.

History and Characteristics of Rebasing in Pakistan

Base years	1969-70	1975-76	1980-81	1990-91	2000-01	2007-2008
Number of items	202	357	464	460	375	487
Number of cities	12	12	25	25	35	40
% of total urban population	57	57	63	63.13	65	67
Number of markets	28	28	65	61	71	76

The technical committee responsible for the re-composition of CPI in 2007-2008 comprised of the following:

1. Vice Chancellor, PIDE/Chief Economist Chairman
2. Economic Advisor, Finance Division, Islamabad Member
3. Chairman, Department of Economics, QAU, Islamabad Member
4. Joint Chief Economist (Macro), P & D Division, Islamabad Member
5. Director General, Federal Bureau of Statistics, Islamabad Member
6. President, FPCCI, Islamabad Member
7. Economic Advisor, State Bank of Pakistan, Karachi Member
8. Director, AERC, University of Karachi Member
9. Representative of Social Policy Development Centre, Karachi Member
10. Director, Punjab Institute of Economic & Research, Lahore Member
11. Representative of Member All Pakistan Trade Union, Karachi Member
12. Representative of Controller, Research Support Network, Islamabad Member
13. Deputy Director General (Prices), FBS Member/ Secretary

This committee was responsible for the design of the survey, for identifying tentative cities and items based on which a questionnaire was prepared for the Family Budget Survey, and finalizing/approving the final cities, items and weights to be assigned thereof. Once the new index is made, it is tested parallel to the existing index, following which the results are presented to the Economic Coordination Committee., whose approval is needed to adopt the new index.

In terms of cities, the cities selected under existing methodology are classified in four strata. These are

1. Large Cities having population ≥500,000
2. Medium Cities having population 100,000 to 500,000
3. Small Cities having population 50, 000 to 100,000
4. Small Cities with population less than 50,000

The names and number of cities covered under each strata (in existing CPI structure), along with the number of markets from each city are tabled below.

Cities covered under current CPI

Strata-I		Strata-II		Strata-III		Strata-IV	
City	Markets	City	Markets	City	Markets	City	Markets
1-Islamabad	4	1-Jhelum	1	1-Vehari	1	1-Mithi	1
2-Rawalpindi	6	2-Sialkot	1	2-Mianwali	1	2-Bannu	1
3-Lahore	7	3-Sargodha	1	3-Attock	1	3-Loralai	1
4-Gujranwala	1	4-Jhang	1	4-Waziraba	1	4-Gawadar	1
5-Faisalabad	2	5-D.G.Khan	1	5-D.I.Khan	1	5-D.M.Jama	1
6-Multan	3	6-Bahawalp	1				
7-Karachi	13	7-Bahawaln	1				
8-Hyderabad	4	8-Sahiwal	1				
9-Peshawar	3	9-R.Y.Khan	1				
10-Quetta	2	10-Mzafarg	1				
11-Sukkur	2						
12-Nawabshah	1						
13-Larkana	1						
14-Mirpurkhas	1						
15.Dadu	1						
16-Mardan	1						
17-Abbottabad	1						
18-Mingora	1						
19-Khuzdar	1						
20-Turbat	1						

From the perspective of income groups, the coverage and scope of existing CPI is based on five income quintiles. These income quintiles were determined on the basis of data collected under Household Integrated Economic Survey (HIES) in consultation with PIDE and approved by the Technical Committee.

Income Quintiles (2007-08)	
1	Upto Rs. 8000/-
2	Rs. 8001/- to Rs. 12000/-
3	Rs. 12001/- to Rs.18000/-
4	Rs. 18001/- to Rs.35000/-
5	Above 35000/-

After the finalization of cities, the Family Budget Survey (FBS) was used to assess the percentage expenditure of households on commodities for each quintile in each city. While the detailed questionnaire is too long to be reproduced here, the following table showcases the broad structure of the questionnaire.

Structure of FBS questionaire	
Section 1.	Identification Particulars
Section 2 Part A.	Household Composition & Demographics
Section 2 Part B.	Employment & Income
Section 3 Part A.	Monthly Consumption expenditure of the Household on Non-Durable Goods & Services
Section 3 Part B.	Yearly Consumption Expenditure of the Household on Durable & Non-Durable Goods & Services
Section 4 Part A	Income Received from Zakat, Usher, Remittances, & other Sources
Section 4 Part B.	Amount Paid Out in Transfers by HH members
Section 4 Part C.	Property, Business, Loans And Credits
Section 5.	Balance Sheet for Income & Expenditure

The items under each sub-basket and the average weight of each basket arrived at under the existing methodology is shown in the following table.

Items & sub-baskets under current CPI basket and its budget shares			
Group No.	Commodity Groups	No. of Items	Average Weights (%)
1	Food & Non-Alcoholic Beverages	127	34.84
2	Alcoholic Beverage, Tobacco	6	1.41
3	Clothing & Footwear	59	7.57
4	Housing, Water, Electricity, Gas and Other Fuels	36	29.41
5	Furnishing & Household Equipment Maintenance	69	4.21
6	Health	39	2.19
7	Transport	43	7.2
8	Communication	12	3.22
9	Recreation & Culture	39	2.03
10	Education	16	3.94
11	Restaurants & Hotels	6	1.23
12	Miscellaneous Goods & Services	35	2.76
	Total	**487**	**100**

Once the new basket is prepared, the PBS's field officers collect prices through personal visits as per fixed time schedule (see table below). These prices are taken from fixed shops at fixed markets, with the aim of getting the prices of getting the same items of the same quality. The PBS takes four quotations from each market, following which it calculates city average, and then national average price for each commodity. Once the index has been made on the basis of Laspeyre's formula, subsequent changes in prices are used to recalculate the index on monthly basis to arrive at monthly and annual inflation rates.

Schedule of monthly price collection across CPI sub-baskets		
Group No.	Commodity Groups	Date of price collection
1	Food & Non-Alcoholic Beverages	11-14 of each month
2	Alcoholic Beverage, Tobacco	
3	Clothing & Footwear	1-3 of each month
4	Housing, Water, Electricity, Gas and Other Fuels	
5	Furnishing & Household Equipment Maintenance	4-6 of each month
6	Health	
7	Transport	7-10 of each month
8	Communication	
9	Recreation & Culture	
10	Education	
11	Restaurants & Hotels	
12	Miscellaneous Goods & Services	

References

- Abbas H, Beg S, Choudhry M Ali (2015) Inflation Expectations and Economic Perceptions in a Developing Country Setting, unpublished draft, Accessible at http://dsqx.sbp.org.pk/ccs/survey%20information/paper.pdf, Accessed on March 20, 2015
- Akmal, M. & Abbasi, M.U (2010) Ramadan Effect on Price Movements: Evidence from Pakistan, SBP Working Paper Series No. 32
- Business Recorder (2015a) Inflation index rebasing: why it means and why it matters, Accessible at: http://www.brecorder.com/company-news/235:pakistan/1153207:inflation-index-rebasing-what-it-means-a-why-it-matters/, Accessed on March 20, 2016
- Business Recorder (2015b) Issues in measuring consumer price inflation, Accessible at http://www.brecorder.com/br-research/44:miscellaneous/5190:issues-in-measuring-consumer-price-inflation/, Accessed on March 20, 2016
- Dawn (2015) Protest against petrol price hike, Accessible at http://www.dawn.com/news/1218239m, Accessed on March 20, 2015
- Donovan P (2015) The Truth about Inflation, Routledge, New York
- Gallup (2011, 2012, & 2015) Opinion Polls on Social Behavior: Most important national problem
- Jefferson M, White AD, Rostow W, Mann T (1977) Inflation, Calder, London
- Khan M, Schimmelpfennig A (2006) Inflation in Pakistan: Money or Wheat? SBP-Research Bulletin Volume 2, Number 1, 2006
- Pasha H, Hasan MA, Khan AH, Rasheed MA (1995) What Explains the Current High Rate of Inflation in Pakistan, The Pakistan Development Review 34: 4 Part III (Winter 1995) pp. 927—943
- Qazi M, Khan AA, Hyder K (2007), Determinants of Recent Inflation in Pakistan, Social Policy and Development Center, Karachi
- Riazuddin R (2008), An Exploratory Analysis of Inflation Episodes in Pakistan, Lahore School of Economics, Special Edition, September 2008
- Saghir P (2015), Issues related to collection of price data, presentation given at national consultative workshop for CPI rebasing co-organised by PBS and the World Bank in February 2015
- Saletore R.N (1973) Early Indian Economic History, Curzon Press, London
- Sherani S (2008), Pakistan's Macroeconomic Situation, Lahore School of Economics, Special Edition, September 2008
- Walt V (2008) The World's Growing Food-Price Crisis, Time Magazine, Accessible at http://content.time.com/time/world/article/0,8599,1717572,00.html, Accessed on March 20, 2015
- Zaidi A (2005) Issues in Pakistan Economy, Oxford University Press, Karachi

About the Authors

Dr. Hafiz A. Pasha

Dr. Hafiz A. Pasha is Professor Emeritus at the Lahore School of Economics and the Beaconhouse National University. He has served from 2008 to 2011 as Chairman of the Advisory Panel of Economists to the Planning Commission, Convener of the Economic Advisory Council of the Prime Minister of Pakistan and Chairman of the Tax Advisory Council of Federal Board of Revenue.

Earlier, Dr. Pasha held a number of important public appointments. He served as the Federal Commerce Minister, Federal Minister for Finance and Economic Affairs, Deputy Chairman/Federal Minister of the Planning Commission, and Education Minister in three governments.

Dr. Pasha has a M.A. from Cambridge University, U.K and PhD from Stanford University, U.S.A. He was awarded in 2005 the Congressional Medal of Achievement by the Philippines Congress. In 2012, he received the Engro Lifetime Achievement Award for excellence in the field of Social Sciences. He was nominated in 2012 as one of the top 100 Educators in the world by IBC, Cambridge, England.

Wasim Saleem

Wasim Saleem is a PhD candidate from Pakistan Institute of Development Economics, Islamabad. He was awarded a gold medal for MPhil in Business Economics from Beaconhouse National University (BNU). He is a lecturer in Economics at BNU. He also teaches in many renowned universities of Pakistan viz, the Lahore School of Economics, Bahria University, and University of Central Punjab.

His main area of expertise is Microeconomics, Econometrics, Public Finance, Energy Economics, Regional Integration and Trade policy, and Quantitative Methods in Research. He also co-authored many research reports and article on the above mentioned areas.

Sohaib Jamali

Sohaib Jamali is the founding Research Editor of Business Recorder's independent research wing *(BR Research)* – a department he co-founded in 2009. At BR Research, which focuses on domestic economic reform agenda, Sohaib has researched and supervised on matters related to developmental issues, public policy, macroeconomics and corporate/industrial affairs.

Sohaib also works as an external consultant for Pakistani think tanks, focusing on democracy, governance, and private sector development. He is also associated as a freelance features writer for *FDI Intelligence* – a FDI specialist division of The Financial Times group. Prior to 2009, he has worked for Geo TV, Thompson Reuters and brokerage AKD Securities.

He holds an MA in Philosophy, Politics, & Economics from the University of York (UK) after completing his MBA from Institute of Business Management (Karachi, Pakistan). Sohaib is also a C.A. Intermediate from the Institute of Chartered Accountants of Pakistan. His main areas of interest revolve around politics and philosophy of development, broadly conceived.

Ali Salman

Ali has a vast experience of working as a consultant economist for major international development organisations and non-profits in Pakistan and other countries. He is author of more than thirty independent studies, reports and monographs on wide range of topics including regional trade, public finance, economic reforms, competition policy, innovation policy, private sector development, corporate governance, international development, and youth policy.

Ali is a visiting fellow at Institute of Economic Affairs, London; an alumnus of International Academy of Leadership, Germany and Atlas Leadership Academy, USA. He is also affiliated in advisory capacity with several international organisations such as Istanbul Network for Liberty; Association for Freedom Research, Turkey; and Free Enterprise and Democracy Network, USA. He is the founder of Policy Research Institute of Market Economy, an economic policy think tank in Pakistan.