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# INFLATION EXPECTATIONS:

## Some observations from BSP's surveys

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## I. Introduction

Inflation expectations refer to economic agents' forecasts of future inflation. Central banks, particularly those that operate an inflation-targeting (IT) policy framework, have taken a keen interest in inflation expectations because of their important role in inflation dynamics. Expectations of future inflation can influence the consumption and savings decisions of households as well as the price-setting behavior of firms. For instance, expectations that future prices would increase could entice households to purchase sooner rather than later, translating to stronger current demand. In turn, firms could raise prices in response to the observed pick-up in sales. Moreover, if households continue to anticipate faster inflation in the future, clamor for wage hikes could emerge and further fuel the inflationary process. Inflation expectations, therefore, are an important determinant of actual inflation as they shape the decisions of economic agents.

Monetary authorities regard the expectations channel as a conduit for monetary policy transmission. They also place a premium on the management of inflation expectations as a key strategy to support price stability. Inflation expectations also serve as a yardstick for the evaluation of the credibility of an IT central bank.

Given the central role of inflation expectations in the IT framework, most IT central banks, including the Bangko Sentral ng Pilipinas (BSP), employ several surveillance mechanisms to measure inflation sentiments. This newsletter presents an overview of the different BSP surveys on inflation expectations and highlights some key observations from the results of these surveys.

## II. BSP's inflation expectations surveys

The BSP routinely monitors the inflation expectations of households, firms and professional forecasters through the Consumer Expectations Survey (CES), Business Expectations Survey (BES), and Survey of Professional Forecasters (SPF). The results of these surveys serve as inputs for monetary policy formulation.

The CES, first launched in Q3 2004, aims to capture consumers' sentiments on family income, their financial situation, and the country's economic condition for the current quarter, the next quarter, and the next 12 months. The survey samples about 5,000 households from the low-, middle-, and upper-income brackets, with an approximately equal proportion of respondents located in the National Capital Region (NCR) and Areas Outside NCR (AONCR). Samples are drawn from the Philippine Statistics Authority's (PSA) master sample, following the sampling design of the PSA's Labor Force Survey. The CES is conducted every quarter.<sup>2</sup>

The BES is another statistical tool that employs opinion-testing techniques to collect information from firms about business conditions in their own companies and their views on the business condition in their respective industries and the national economy. The BES utilizes a stratified random sampling design, drawing approximately 1,500 firms from the Bureau van Dijk's Top 7,000 Corporations in 2016, ranked based on total assets.

Firms are categorized by region (NCR and AONCR) and industry subgroups.<sup>3</sup> Similar to the CES, the BES is held quarterly starting Q2 2001.<sup>4</sup>

<sup>2</sup> For detailed notes on the CES, readers may refer to the BSP primer which is accessible at [www.bsp.gov.ph/Media\\_And\\_Research/Primers%20Faqs/CES\\_FAQ.pdf](http://www.bsp.gov.ph/Media_And_Research/Primers%20Faqs/CES_FAQ.pdf).

<sup>3</sup> For detailed notes on the BES, readers may refer to the BSP primer, which is accessible at [www.bsp.gov.ph/Media\\_and\\_Research/Primers%20Faqs/bes.pdf](http://www.bsp.gov.ph/Media_and_Research/Primers%20Faqs/bes.pdf).

<sup>4</sup> The BES has undergone several revisions. The BSP initiated the survey of business expectations in 1986. In Q2 2001, the BSP, with the assistance of the Asian Development Bank, enhanced the BES to harmonize it with other tendency surveys conducted in select Asian countries.

While the CES and BES do not focus entirely on inflation sentiments, both incorporate questions relating to inflation expectations. Among others, the CES has questions on inflation expectations (point forecasts) for the current quarter, next quarter, and next 12 months and derives the implied mean inflation expectation based on consumers' expectations of price trends of select consumer price index (CPI) items.<sup>5</sup> Likewise, the BES includes questions on firms' inflation forecasts for the current quarter, next quarter, and next 12 months.<sup>6</sup>

Meanwhile, the SPF is a monthly survey of private sector economists' inflation forecasts for the Philippines covering multiple forecast horizons (i.e., current quarter, next quarter, current year, year-ahead, and two-year-ahead).<sup>7</sup> The SPF has around 30 respondents and is conducted within two-weeks following the PSA's release of the CPI data.

The CES and BES were developed and are currently managed by the Department of Economic Statistics (DES) while the SPF is an initiative of the Department of Economic Research (DER).

### III. Some observations based on survey results

This section summarizes some observations on the distribution of inflation expectations based on the historical data collected from the CES, BES, and SPF.

#### *On households' inflation expectations from the CES*

A simple analysis of the distribution of the historical CES raw data on households' point forecasts suggests that a sizable share of the responses (about 50 percent) to the CES questions on inflation expectations for the current quarter, next quarter, and next 12 months fall within 2.0 – 4.0 percent (**Figure 1a**). The median inflation point forecasts for the different forecast horizons are around 3.0 percent. Moreover, across the different forecast horizons, about 25 percent of the responses fall below 2.0 percent, and about 25 percent are above 4.0 percent inflation rate.<sup>8</sup>

There appear to be no significant differences in inflation expectations of households belonging to different income groups (**Figure 1b**) for the next 12 months. The median inflation expectation across income classes is 3.0 percent. Results also show that 75 percent (third quartile) of the responses are below 4.0 percent, except for the low-income group, where the third quartile is at 4.2 percent.<sup>9</sup>

<sup>5</sup> Initially, the CES only captures the next 12-month inflation expectations based on consumers' forecasts for selected CPI items. Starting in Q2 2014, consumers' point forecasts for the next 12 months have been included in the CES. In Q1 2020, the survey questionnaire was further revised to include point forecasts for the current and next quarters.

<sup>6</sup> Since Q2 2013, the BES collected firms' inflation expectations for the current and the next quarters. In Q3 2019, the BES included a question on firms' inflation expectations for the next 12 months.

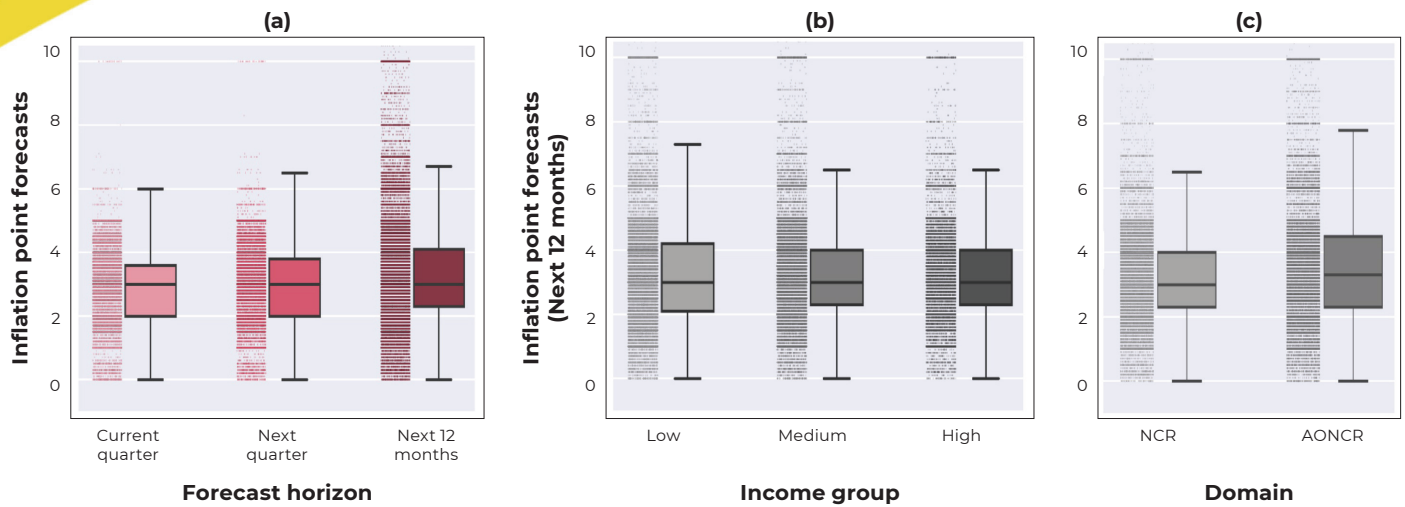
<sup>7</sup> Recently, the SPF included the economists' gross domestic product (GDP) forecasts.

<sup>8</sup> The interquartile ranges (IQR) for the historical CES data are as follows:

	1st Quartile	Median	3rd Quartile
Current quarter	2.00	3.00	3.60
Next quarter	2.00	3.00	3.80
Next 12 months	2.30	3.00	4.10

<sup>9</sup> Based on their average monthly income, households were grouped as follows: low-income class (less than Php 10,000), medium-income class (between Php 10,000 and Php 30,000), and high-income class (more than Php 30,000).

**Figure 1. Distribution of households' inflation point forecasts**



**Note:** Data for the current and next quarters refer to CES survey responses from the Q1 2020 to Q1 2022 survey rounds. Data for the next 12 months refer to CES survey responses from the Q2 2014 to Q1 2022 surveys. Starting Q2 2022, the computation of inflation rate point forecasts changed to the average of the expected range of inflation rate specified by the respondents. The inflation point forecasts (y-axis) were clipped to a 0 to 10 percent range. Outliers were included in the analysis but were not shown in the boxplots.

Source of basic data: DES

By geographic location, the median inflation point forecast for the next 12 months of households residing in AONCR appears to be higher by 0.3 percentage points at 3.3 percent compared with the median inflation point forecast of 3.0 percent of households in NCR (**Figure 1c**). In addition, 25 percent of responses from AONCR are well above the 4.5 percent (third quartile), exceeding the upper bound of the BSP's target range.

*On firms' inflation expectations from the BES*

Meanwhile, firms' inflation expectations appear to be higher compared with those of households. The median inflation expectations based on historical data are 3.8 percent for the current quarter and the next quarter, and 3.5 percent for the next 12 months (**Figure 2a**). The corresponding first quartile and third quartile

inflation expectations across all forecast horizons are also substantially higher than 2.0 percent and 4.0 percent, respectively.<sup>10</sup>

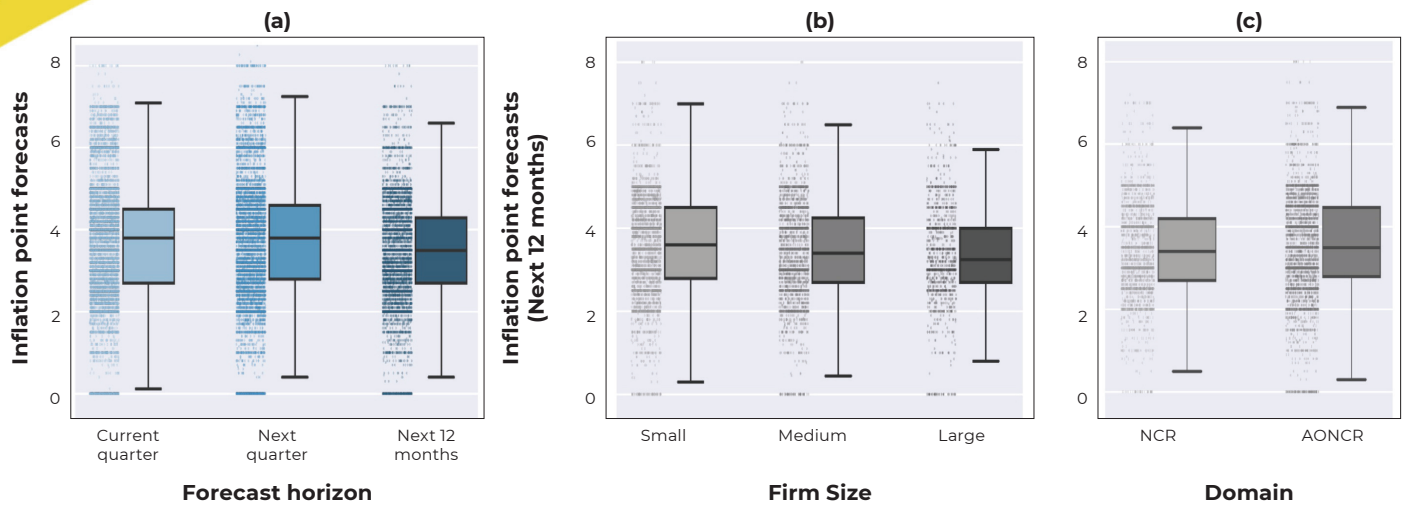
Based on firm sizes, small firms tend to have higher inflation expectations for the next 12 months compared with medium and large firms, with median inflation expectations at 3.6 percent, 3.4 percent and 3.2 percent, respectively (**Figure 2b**).<sup>11</sup> In addition, the third quartile for small and medium firms' responses is well above the 4.0 percent ceiling of the BSP's target range at 4.5 percent and 4.3 percent, respectively, compared with 4.0 percent for large firms. These observations possibly reflect the greater sensitivity of small firms to changes in their production costs. Franche and Lluberas (2009) found a significant positive correlation between firms' inflation expectations and their unit cost expectations.

<sup>10</sup> The IQR for the BES data are as follows:

	1st Quartile	Median	3rd Quartile
Current quarter	2.70	3.80	4.50
Next quarter	2.80	3.80	4.60
Next 12 months	2.70	3.50	4.30

<sup>11</sup> Firm sizes are determined based on the number of employees. Small firms have less than 100 employees, medium firms have between 100 to 499 employees, and large firms have 500 employees or more.

**Figure 2. Distribution of firms' inflation point forecasts**



Note: Data for the current and next quarters refer to all available and validated BES survey responses from the Q4 2018 to Q2 2022 survey rounds, while data for the next 12 months refer to BES data from the Q3 2019 to Q2 2022 surveys.

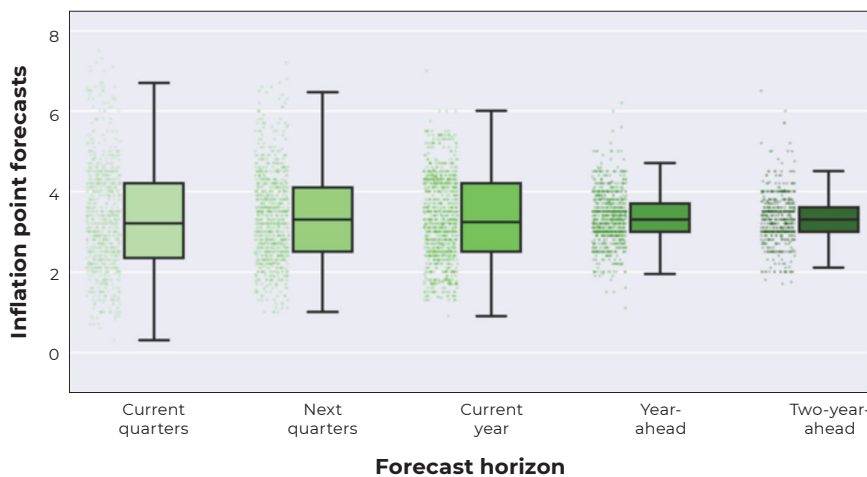
Source of basic data: DES

Furthermore, firms in AONCR reported slightly higher median inflation expectations for the next 12 months at 3.5 percent compared with those within NCR with a 3.4 percent median inflation expectation (**Figure 2c**). In addition, 25 percent of the AONCR firms' responses are well above the 4.0 percent ceiling of the BSP's target range, with the third quartile at 4.5 percent.

*On professional forecasters' inflation expectations from the SPF*

Inflation forecasts of private sector economists are well within the 2.0 to 4.0 percent inflation target range (**Figure 3**). The median inflation expectation of professional forecasters is 3.3 percent for the different forecast horizons except for the current quarter, which is at 3.2 percent.

**Figure 3. Distribution of professional forecasters' inflation point forecasts**



Note: Data refer to SPF survey responses during the January 2014 to August 2022 survey rounds.

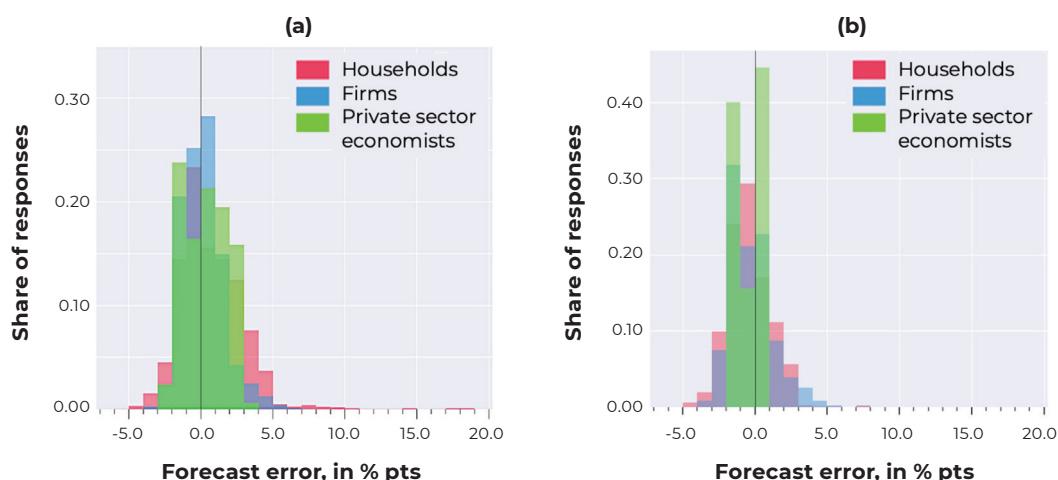
Source of basic data: DER

## On the accuracy of inflation expectations

How accurate are the inflation expectations from the CES, BES, and SPF? **Figure 4** provides a graphical representation of the forecast errors of individual point forecasts for the next 12 months or year-ahead inflation from these surveys.<sup>12</sup> All available data show that households have more dispersed errors compared to private sector economists and firms (**Figure 4a**). At the same time, the information suggests that households do not always overestimate inflation, with close to 50 percent of forecast errors falling below zero.

Analysis was also made for the period Q4 2019 to Q4 2020, when data is uniformly available across the three surveys, to reduce possible biases associated with differences in survey periods. For this shorter sample period, private sector economists appear to have more accurate forecasts than firms and households, with their errors clustered closer to zero.<sup>13</sup> Moreover, data for the shorter sample period continue to suggest that Philippine households do not always overpredict inflation as 66 percent of the responses have forecast errors below zero (**Figure 4b**).

**Figure 4. Histogram of forecast errors for the next 12-month inflation expectations**



Note: Figure 4a refers to computed forecast errors from the CES (Q2 2014 to Q3 2021), BES (Q3 2019 – Q3 2021), and SPF (December 2014 to December 2020). Figure 4b refers to computed forecast errors using a smaller and uniform sample period (i.e., CES and BES: Q4 2019 to Q4 2020 and SPF: December 2019 – December 2020).

Source of basic data: DER, DES and PSA

<sup>12</sup> Forecast errors are computed as the difference between the surveys' next 12 months/year-ahead inflation expectations and the corresponding actual inflation. For the CES and BES, the reference period for the next 12 months is as follows: Q1 survey round: February to January of the following year; Q2 survey round: May to April of the following year, Q3 survey round: August to July of the following year and Q4 survey round: November to October of the following year. While SPF collects data from professional forecasters every month, only the year-ahead inflation forecasts during the December survey round were included to standardize the analysis to the next 12-month forecast horizon.

<sup>13</sup> The lower computed mean absolute error (MAE) and root mean squared error (RMSE) of private forecasters compared to households and firms for Q4 2019 to Q2 2020 validate this finding.

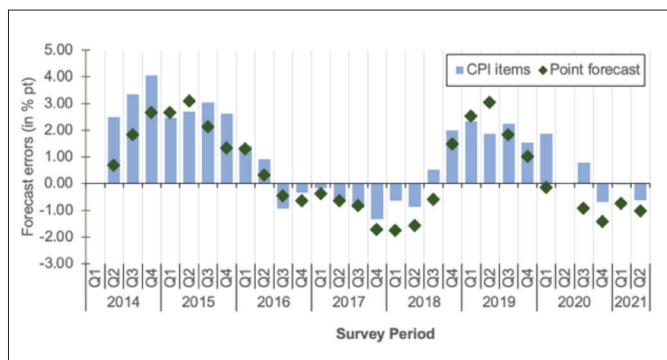
Period (Q4 2019 to Q2 2020)	MAE	RMSE
Households (point forecasts)	1.27	1.64
Firms	1.26	1.55
Private sector economists	0.90	1.08

As discussed in Section II, the CES also produces another measure of inflation expectations based on respondents' expectations of price changes of selected CPI items.<sup>14</sup> Comparison of the forecast accuracy of the CPI-derived inflation expectations and point forecasts of households using the MAE and RMSE for Q2 2014 - Q2 2021, when both series are available, indicates that households do not necessarily predict inflation more accurately based on the price changes of goods they frequently consume (**Figure 5 and Table 1**).

It could be noted that the CPI-derived inflation expectations have been available since Q1 2007. Prior to 2014, the forecast errors of the CPI-derived inflation expectations were substantially larger (**Table 1**). The data also seem to suggest the presence of a positive bias in the forecast errors for the next 12-month CPI-derived inflation

expectations before 2014 (**Table 1**). This bias may be expected as households tend to pay more attention to their own cost of living and experience with inflation (De Fiore et al. (2022)). Inflation was relatively high in the early IT years in the Philippines, with breaches of the upper end of the target band in 2005 - 2006 and 2008. Such may have influenced households' inflation expectations. However, from 2014 onwards, this bias was considerably reduced, coinciding with more favorable inflation outturns.<sup>15</sup> Several factors, such as the inclusion of reference inflation rates in the CES questionnaire beginning Q2 2014, some gains in the BSP's advocacy for economic and financial literacy, as well as possible better anchoring of inflation expectations with increased credibility of the BSP's IT framework, may have also influenced this observed improvement in forecast accuracy of the CPI-derived inflation expectations.

**Figure 5.**  
Forecast errors of households' inflation expectations for the next 12 months: CPI-derived and point forecasts



Source of basic data: DES and PSA

**Table 1.**  
Evaluation of households' forecast errors: CPI-derived and point forecasts

	MAE	RMSE
CPI-derived		
Q1 2007 – Q1 2014	4.2	4.7
Q2 2014 – Q2 2021	1.6	1.9
Point forecasts		
Q2 2014 - Q2 2021	1.4	1.6

<sup>14</sup> Households' inflation expectations derived from CPI items are computed as the weighted average of the differences per CPI item of (1) the proportion of households that expect prices to rise in the next 12 months multiplied by the mean inflation reported by those households and (2) the proportion of households that expect prices to go down for the next 12 months multiplied by the mean inflation reported by those households.

<sup>15</sup> Inflation was within target in 2014, 2017, 2019-2020, and below target in 2015-2016.

## IV. Conclusions

The BSP utilizes the CES, BES, and SPF to monitor inflation expectations. Based on their point forecasts, households do not always overestimate inflation. Moreover, households do not necessarily predict inflation more accurately based on the price changes of goods that they frequently consume. There has also been an observed improvement in the forecast accuracy of the CPI-derived household inflation expectations beginning in 2014. This improvement may be due to the inclusion of reference inflation rates in the CES questionnaire, some gains in the BSP's advocacy for economic and financial literacy, improved inflation environment, and better anchoring of inflation expectations with increased credibility of the BSP. Meanwhile, private-sector economists produce more accurate inflation forecasts compared with households and firms. Moving forward, the BSP will continue to monitor inflation expectations given its importance in shaping inflation dynamics.

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