

Box 3.3

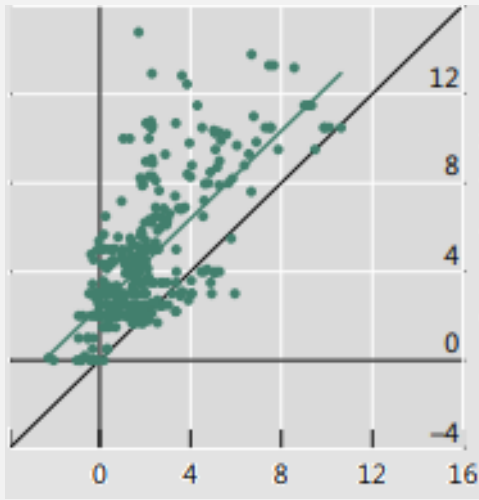
Consumer Inflation Expectations

Inflation expectations, which reflect the forecasts of economic agents about how much prices will increase or decrease in the upcoming period, play an important role in the decision-making mechanisms of these agents. Moreover, inflation expectations are of key importance for central banks in terms of their role in the monetary transmission mechanism and in determining monetary policy decisions. Inflation expectations of economic agents can be measured by conducting surveys of market participants (professionals), firms or consumers. Consumers' inflation expectations stand out because they affect a wide range of economic choices, from consumption or saving decisions, to wage and labor force participation decisions, and from investment behavior to the currency chosen to build portfolios.

While forming inflation expectations, economic agents can often take the inflation they perceive as a reference. Perceived and expected inflation rates can be obtained from market data by applying various statistical methods, as well as by asking directly through surveys. Studies conducted using survey-based indicators show that there may be biases in both perceived inflation (De Fiore et al., 2022, ECB, 2023) and expected inflation (D'Acunto et al., 2019; Ehrmann et al., 2015). It has also been reported that, in the case of consumers, there may be wide differences between perceived and expected inflation and measured inflation (ECB, 2023). For example, while the eurozone inflation rate was 1.6% in the period between 2004 and 2018, the inflation rate perceived by consumers was 9% according to survey studies conducted by the European Commission (Arioli et al., 2017). De Fiore et al. (2022) study analyzed perceived and headline inflation data for Germany, Canada, the UK, Japan, New Zealand, South Korea and India after 2004. The points below the darker diagonal line in Chart 1, i.e. the 45-degree line, represent consumers who perceive inflation below the actual inflation, while the points above it represent those who perceive higher inflation than the actual inflation. The higher and farther away a point is from the 45-degree line, the higher is the perceived inflation compared to headline inflation. The fact that the points in the graph are mainly above the 45-degree line shows that the inflation perceived by consumers is higher than measured in the countries in question. Despite these biases, since inflation expectations have a subjective nature, survey-based measures of consumer inflation expectations provide important information on heterogeneity among consumers. In addition, recent studies show that the use of information on the heterogeneity of consumer inflation expectations and the distribution of expectations enhances the forecast performance of the New Keynesian Phillips curve (Coibion et al., 2018; Meeks and Monti, 2023).

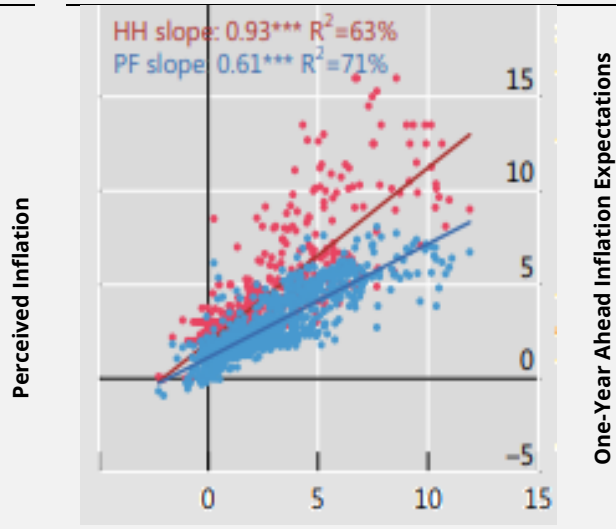
On the other hand, when the inflation expectations of consumers and market participants (professionals) are compared, the expectations of consumers are higher than those of market participants. In Chart 2, inflation realizations are compared with the inflation expectations of professionals and consumers. Consumer expectations are more sensitive to inflation realizations and are distributed over a wider range (De Fiore et al., 2022). The academic literature ascribes this situation to the fact that there is an upward bias in inflation perceived by consumers (Chart 1), and that market participants are experts in finance and economics and have professional obligations. Therefore, market participants formulate their expectations in a more forward-looking fashion, using their expert knowledge and taking into account economic conditions and central bank actions (De Fiore et al., 2022).

Chart 1: Inflation Perceptions of Consumers in Other Countries* (%)



Headline Inflation

Chart 2: Comparison of Inflation Expectations of Consumers and Market Participants in Other Countries* (%)



Headline Inflation

Source: De Fiore et al. (2022).

* Perceived and actual inflation data for Canada, Germany, Japan, India, New Zealand, South Korea and UK since 2004. The dark diagonal line is the 45-degree line, the points above the line indicate that the perceived inflation is higher than the measured one.

Source: De Fiore et al. (2022).

* Inflation expectations and actual inflation data since 2004 for Brazil, Canada, Germany, Japan, India, New Zealand, Philippines, South Africa, South Korea, Sweden, UK and USA. Blue dots indicate market participants (PF), red dots indicate consumers (HH).

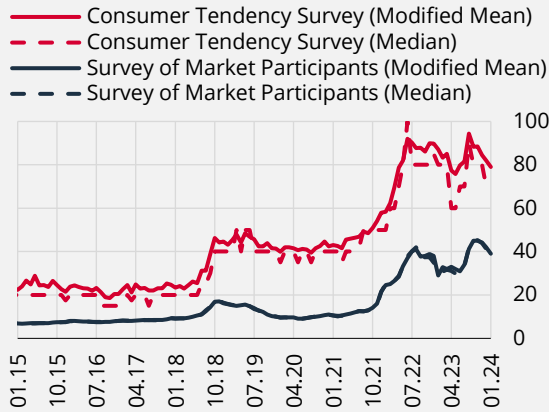
In this box, consumer inflation expectations in Türkiye are analyzed using micro data from the Consumer Tendency Survey conducted jointly by the CBRT and TURKSTAT. In this framework, firstly, aggregated data statistics such as mean and median of point estimates on the basis of participants are examined, and then the elements that may be overlooked in these aggregated statistics are shared in the light of micro data. Regarding the level of inflation expectations of consumers in the Consumer Tendency Survey, "By how many percent do you expect consumer prices to go up/down in the next 12 months? Please give a single figure estimate." is included. In Chart 3, the average and median values¹ of consumer inflation expectations calculated using the answers given to the question are compared with the relevant values of inflation expectations of the Survey of Market Participants. The first remarkable point is that, considering these statistics, as is also true in other countries, the average consumers' inflation expectations is systematically higher than those of market participants. The difference between the inflation expectations of market participants and consumers in Türkiye has been widening since August 2018, along with the rise in inflation.

When inflation realizations and average inflation expectations are compared, it appears that consumers always set their inflation expectations above the realization, unlike the professionals in the Survey of Market Participants (Chart 4). The course of consumer inflation expectations in the last quarters of 2018 and 2021, when inflation increased rapidly, is noteworthy. In these periods, consumers' inflation expectations increased with the rise in inflation, and expectations followed a downward course with the decrease in inflation. However, despite the recent rise in inflation, both the

¹ The Consumer Tendency Survey also asks the qualitative question about inflation expectations: "How do you expect consumer prices to change in the next 12 months compared to the last 12 months?". In the survey, "By what percentage do you think consumer prices increased/decreased in the last 12 months? Please give an estimated rate." question is also asked about the perceived inflation rate. The highest answer that can be given to these questions has been increased from 200 to 300 as of January 2023. In order to limit the effect of this change on trends, answers of 200 or more were accepted as 200. Micro data is analyzed by excluding inconsistent answers in the Survey. Finally, the remaining answers were trimmed from the right and left at the level of 2.5 percent.

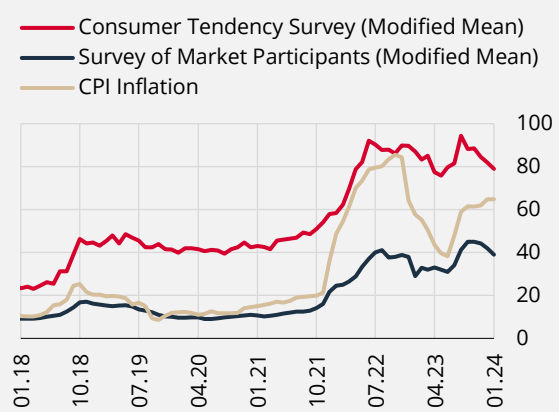
average and median values of consumer inflation expectations are declining as of September 2023. In addition, as of November, the decline in market participants' expectations began to accompany consumer expectations. Despite the favorable decline, the average and median values of consumer expectations continue to have higher values compared to market participants' expectations and Inflation Report forecasts.

Chart 3: Consumer Tendency Survey and 12-Month-Ahead Inflation Expectations of the Survey of Market Participants (%)



Source: CBRT, TURKSTAT.

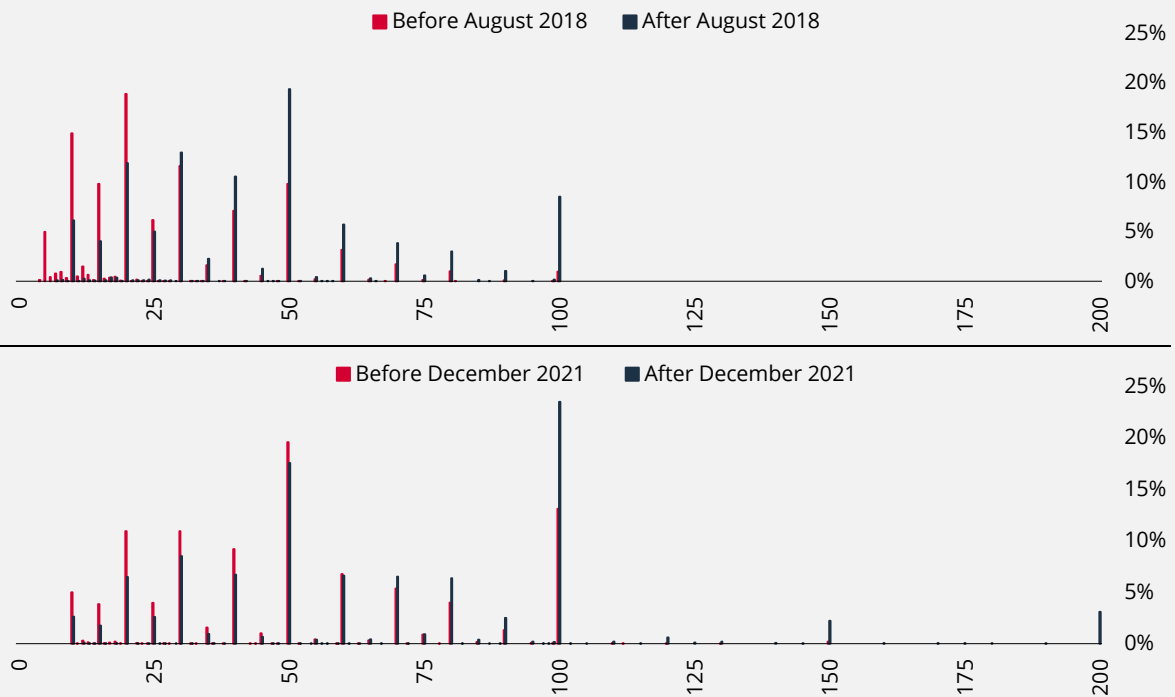
Chart 4: 12-Month-Ahead Inflation Expectations and CPI Inflation (%)



Source: CBRT, TURKSTAT.

The mean and median values of consumer inflation expectations increase significantly in August 2018, December 2021 and July 2023, when sharp increases in inflation were recorded. In order to better understand the movements in these indicators, the change in the distribution of consumer inflation expectations is shown in Chart 5 for August 2018 and December 2021, using micro data. With the increase in inflation, consumers update their inflation expectations upwards and the distribution shifts to the right.

Chart 5: Differentiation in the Distribution of Consumer Tendency Survey Inflation Expectations*

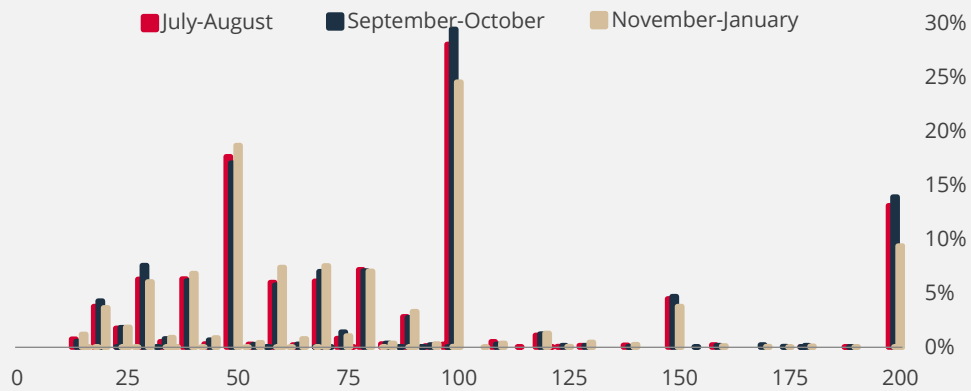


Source: CBRT, TURKSTAT.

* Distributions for the before and after periods were created using data from all months including 6 months before and after the relevant periods.

Here, it would be appropriate to place special emphasis on the July period of 2023 both because it is a more recent period and because it helps illuminate the delayed and cumulative effects of the recent tightening in monetary policy. In this regard, expectation distributions are examined in Chart 6 in three periods between July 2023 and January 2024, July-August, September-October and November-January. July 2023 was characterized by exchange rate movements, as well as minimum wage and tax hikes and administered price adjustments, which are outside the scope of monetary policy (Inflation Report 2023-III, Zoom-In 2.2). In the July-August and September-October periods, when inflation realizations also increased, a deterioration was observed in the distribution of consumer expectations, and the distribution shifted to the right, indicating higher inflation expectations. However, as the lagged and cumulative effects of the tightening in monetary policy became more evident, the distribution shifted to the left after November 2023, indicating lower inflation expectations. This is also depicted in the data aggregated in Chart 3: As of September, a decrease was observed in the mean and median values of consumer expectations.

Graph 6: Differentiation in the Distribution of Consumer Tendency Survey Inflation Expectations in the Second Half of 2023 (%)



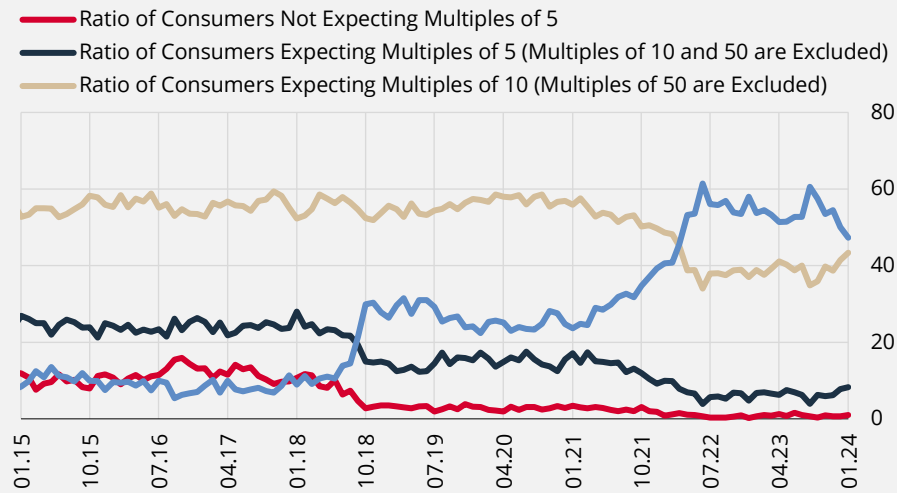
Source: CBRT, TURKSTAT.

A detailed examination of the numbers used by consumers to express their inflation expectations provides important results regarding the reliability of aggregated statistics and the perception of inflation uncertainty. The responses of the Consumer Tendency Survey participants are concentrated around certain numbers. For example, at the beginning of 2021, 25% of the participants estimated 50% and multiples for inflation expectations, while this rate increased to 60% in 2022. When determining inflation expectations, consumers use rounded values expressed as 5, 10, 50 and multiples more often than other numbers. To express predictions that they are not sure about, respondents tend to give an approximate number that is imprecise and may include other nearby numbers. This behavior is referred to as the "rounding effect" in the context of uncertainty in the semantic literature, and Krifka (2002) described this behavior as round numbers imply rounded estimates. Additionally, Binder (2017) constructed an expectation uncertainty index using the proportion of consumers who rounded their survey responses and revealed that this index moves in tandem with other macroeconomic uncertainty indices.

The proportion of respondents who answered 5, 10, 50 and multiples in the Consumer Tendency Survey indicated in Chart 7 shows that the increase in inflation in Türkiye as of 2018 also increased uncertainty by affecting expectations. In addition to uncertainty, the fact that participants set their estimates in multiples of large values reduces the information value of the average and median values of inflation expectations. Expectations, which were initially stated in multiples of 5, began to be stated more frequently as multiples of 10 and above by 2018, and they began to be stated more often as multiples of 50 by the end of 2021. This trend, similar to Binder (2017), shows that the tendency to respond with multiples of large values increases in parallel with the increase in the inflation level and the increase in uncertainties. In addition, when looking at the period after July 2023, inflation

expectations started to be given in multiples of lower values again as of September 2023, in parallel with the recent improvement in expectations shown in Charts 3 and 6.

Chart 7: Ratio of Consumers Expecting Inflation in Multiples of 5, 10 and 50 (%)



Source: CBRT, TURKSTAT.

In spite of the recent rise in consumer inflation, due to the monetary tightening implemented since June 2023, both the level of inflation expectations and the tendency of respondents to respond in multiples of large values have started to decline, which became more evident as of September. Despite this favorable development, the level of consumer expectations and uncertainty indicators have not yet reached the desired levels. The CBRT will continue to closely monitor the inflation expectations of economic agents through micro data.

References

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