



# Examining the determinants of consumer perception of inflation

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## Abstract

This study investigates the determinants of consumer inflation perception in 2023 using survey data from households in Morocco, Türkiye, and Italy. By integrating psychological variables such as media influence, peer influence, memory, and past inflation perceptions with socio-demographic factors (age, gender, education, professional status, and living standards), this paper offers a multidimensional view of how inflation is perceived. Using both multiple regression and ordered probit models, the analysis reveals common predictors—education, income level, inflation knowledge, and media exposure—while also identifying distinct country-specific patterns. In Türkiye, peer and media influence are dominant; in Morocco, consumer sentiment and memory play a stronger role; in Italy, media and memory are most influential. This study contributes to the literature by being among the first to systematically compare inflation perception determinants across countries using both socioeconomic and psychological variables. It demonstrates that inflation perception is not only an economic reaction but also a socially and cognitively embedded phenomenon, shaped by contextual and cultural differences. The findings offer important implications for inflation communication strategies: policymakers should tailor media messaging, financial education, and peer-led interventions to improve public understanding and trust in monetary policy.

**Keywords** Actual inflation · Perceived inflation · Cross-country comparison · Inflation psychology

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## Introduction

Inflation is one of the important economic performance metrics that have a profound effect on various aspects of an economy, from economic growth, consumption, and saving to the decision-making process of consumers, economic policymakers, and investors. Since the COVID-19 pandemic, inflation has emerged as a major global issue becoming more persistent and harder to control, while the gap between the inflation rates reported by official authorities and those perceived by consumers has significantly widened. Although moderate rates of inflation are usually good for an economy, their high and rapidly increasing rates may have a detrimental effect on the economy and society.

Inflation expectations<sup>1</sup> are the key variable in the models of inflation targeting but the perceptual biases that shape these expectations are largely ignored in the empirical literature on the subject. Traditional economic models generally assume that individuals form perceptions and expectations rationally, based on observable data and true model of the economy, so they do not make mistakes on average. However, these models often fail to account for the complex psychological, social, and contextual factors that influence how people perceive inflation in their daily lives, which in turn affect their expectations about future inflation.

Perceived inflation<sup>2</sup> refers to the inflation rate felt by consumers and households. It is measured based on household opinions on price change and is generally called Consumer Inflation Perceptions (CIP).<sup>3</sup> The Consumer Price Index (CPI)<sup>4</sup> is the most frequently used index to calculate official inflation rates. The discrepancy between perceived inflation and measured rates of inflation can lead to serious consequences that can affect the social, political, and economic stability of countries. In this respect, the perception of inflation serves as a critical link between subjective experience and rational expectation formation, with potentially significant implications for economic behavior. In fact, this study aims to investigate the possible links between individual socioeconomic and psychological characteristics and how people perceive inflation. A large amount of literature has been accumulated on the determinants of the gap between actual and perceived inflation. A significant portion of the existing research has explored the impact of explanatory factors such as living standards, residential location, professional status, age, marital status, psychological factors, and savings on perceived inflation. Nevertheless, there are some important factors to be addressed, such as media influence, peers' Influence, consumer sentiment index,<sup>5</sup> memory, and past perceptions of inflation (lagged perceived inflation).

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<sup>1</sup> Refers to the rate at which people expect prices to rise in the future. These expectations can influence individual behavior, such as spending or saving, which in turn can impact the economy.

<sup>2</sup> This is the inflation rate felt by consumers and households, which might differ from the actual inflation measured by authorities. It is based on individual perceptions and personal experience with price changes.

<sup>3</sup> This is a measure of how consumers perceive inflation in their daily lives, often assessed through surveys asking about price changes in the consumer's typical basket of goods.

<sup>4</sup> A commonly used measure of inflation, the CPI tracks the changes in prices of a basket of goods and services purchased by households. It is typically used to represent the cost of living.

<sup>5</sup> A measure that reflects the overall confidence of consumers in the economy.

Therefore, this study contributes to the current empirical literature on the subject by analyzing how these five variables, media influence, peers' Influence, consumer sentiment index, memory, and past perceptions of inflation, in addition to age, gender, marital Status, education, professional standing, income, savings, inflation knowledge, collectively influence one's Perception of inflation.

Although these variables are very important for understanding the underlying reasons behind perceived inflation, the data related to these variables are not readily available. Therefore, it is difficult to conceptualize and measure these variables. Thus, this task will be achieved by conducting a survey method. The data collected through surveys carried out remotely (via the Internet) using the ease and speed of contact offered by the Web, specifically in Türkiye, Morocco, and Italy, will be employed in the empirical part of this study. The data will be analyzed using two different models: a multiple regression model<sup>6</sup> in order to estimate the OLS<sup>7</sup> on perceived inflation and an ordered probit model<sup>8</sup> in order to see the coherence between the results with multiple regression, respectively.

To reveal the determinants of perceived inflation based on the household's socio-economic and psychological, this study aims to test the following four hypothesis regarding: (i) media positively influences consumer perception of inflation; (ii) peer and social circles are positively correlated with perceived inflation; (iii) the consumer sentiment index is negatively correlated with perceived inflation and (iv) memory and past perceptions of inflation (lagged perceived inflation) are negatively correlated with perceived inflation.

The selection of Türkiye, Morocco, and Italy as case studies is guided by their diverse economic conditions, inflation experiences, and cultural environments. Türkiye has faced high inflation and currency volatility in recent years, offering a relevant case for analyzing perceptions under sustained price instability. Morocco represents a middle-income country with moderate inflation and pronounced income inequality, allowing the study to explore how economic vulnerability shapes inflation sentiment. Italy, as a Eurozone member with relatively stable inflation but strong media and institutional influence, provides contrast in terms of public expectations shaped within a developed monetary policy regime. This tripartite selection enables a comparative perspective across varying levels of economic development, institutional trust, and social exposure to inflation, thereby enriching the study's contribution to cross-country inflation perception literature.

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<sup>6</sup> A statistical technique used to model the relationship between one dependent variable and two or more independent variables.

<sup>7</sup> A method used in regression analysis to estimate the relationship between variables. In this context, OLS is used to estimate the influence of various factors on perceived inflation.

<sup>8</sup> A type of statistical model used to analyze the relationship between an ordinal dependent variable (in this case, inflation perception categories like stable, moderately increasing, and sharply increasing) and independent variables.

## A brief review of the theoretical and empirical literature on determinants of perceived inflation

The determinants of the gap between perceived inflation and measured inflation have been a subject of longstanding interest among economists, policymakers, and researchers. This review sets the stage for our investigation into the microeconomic determinants of perceived inflation in both theoretical and empirical literature. In fact, various studies revealed many factors, such as psychological and socio-economic factors, that can be drawn from theoretical and empirical reviews.

### Review of the theoretical literature on the determinants of perceived inflation

This section examines the theoretical literature on the determinants of perceived inflation and their implications for economic decision-making. Understanding perceived inflation is crucial, as its divergence from actual inflation influences consumer behavior, economic policy, and societal stability. Perceived inflation reflects individuals' subjective interpretation of price changes, which often differs from official inflation rates like the Consumer Price Index (CPI). This gap arises because individuals rely on cognitive and external factors rather than direct observations when forming their inflation expectations.

Two key frameworks guide this discussion: **Prospect Theory**<sup>9</sup> and **Perception Theories**, both of which help explain how individuals process information, make decisions under uncertainty, and develop inflation perceptions.

#### Prospect theory

Developed by Kahneman and Tversky (1979), Prospect Theory provides an alternative to Expected Utility Theory<sup>10</sup> by addressing decision-making under uncertainty. Individuals evaluate outcomes relative to a reference point and exhibit **loss aversion**,<sup>11</sup> where losses are perceived more intensely than equivalent gains. Key features of Prospect Theory include **framing effects**,<sup>12</sup> which means the way information is presented influences choices, **loss aversion**, which means individuals prioritize avoiding losses over achieving gains, **status quo bias**,<sup>13</sup> which refers to the preference for maintaining current conditions rather than taking risks. In the context of

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<sup>9</sup> A theory of decision-making under uncertainty that explains how people perceive potential losses and gains. It is relevant for understanding how people interpret price changes and inflation.

<sup>10</sup> A traditional theory in economics that assumes individuals make rational decisions based on their expectations of future outcomes.

<sup>11</sup> A concept in Prospect Theory which suggests that losses are psychologically more significant than gains of the same size, influencing people's perception of inflation.

<sup>12</sup> The way information is presented can influence decisions and perceptions. In the case of inflation, how media reports inflation can impact people's perceptions of its severity.

<sup>13</sup> A tendency to prefer things to remain the same rather than change, even when the change might be beneficial. This bias can affect inflation perceptions when individuals resist adjusting their views on inflation despite economic evidence.

inflation perception, individuals are highly sensitive to losses in purchasing power. For example, rising prices on frequently purchased items (e.g., food, fuel) creates a disproportionate perception of overall inflation.

Cognitive biases<sup>14</sup> further distort perceptions. Tversky and Kahneman (1981) identify biases such as, **anchoring**,<sup>15</sup> which shows that Initial information (e.g., media reports) serves as a reference point, influencing subsequent perceptions. **Availability heuristic**<sup>16</sup> (Tversky and Kahneman 1973), which explains that individuals rely on easily recalled price changes, such as significant or recent price increases. Finally, **reference dependence**,<sup>17</sup> which highlights that past experiences or peer opinions shape perceived inflation (Tversky and Kahneman 1974).

These biases explain why perceived inflation often exceeds actual inflation, particularly in uncertain economic conditions.

### Perception theories

Perception theories, rooted in psychology, emphasize how individuals gather, process, and interpret information from their environment. The first one is **Gestalt Psychology**<sup>18</sup> (Wagemans et al. 2012), which explains that Individuals perceive objects as unified wholes rather than isolated parts. This holistic processing can lead to simplified inflation perceptions based on salient price changes. The second one is **Constructivism**,<sup>19</sup> which shows that perception is actively constructed based on prior knowledge, expectations, and top-down processing (Démuth 2013). For example, individuals who expect inflation are more likely to notice price increases, reinforcing their perceptions. The last one is **Ecological Psychology**,<sup>20</sup> which highlights that perception emerges through interaction with the environment. J.J. Gibson's theory (1979) of affordances<sup>21</sup> suggests that environmental cues, such as media reports or peer discussions, shape how individuals perceive inflation.

<sup>14</sup> Systematic patterns of deviation from norm or rationality in judgment, whereby inferences about other people and situations may be drawn in an illogical fashion, influencing inflation perceptions.

<sup>15</sup> The cognitive bias that describes the human tendency to rely too heavily on the first piece of information encountered (the "anchor") when making decisions. In inflation, the first report or a sudden price increase can anchor subsequent inflation expectations.

<sup>16</sup> A mental shortcut in which people judge the likelihood of an event based on how easily examples come to mind. If consumers recently experienced price hikes, they may overestimate inflation.

<sup>17</sup> Refers to how people perceive outcomes based on a reference point or comparison. In terms of inflation, it means that individuals evaluate price increases in the context of their previous experiences.

<sup>18</sup> A theory that suggests individuals perceive objects or events as unified wholes, not just as individual components. This can influence how people perceive inflation when they focus on certain price changes rather than the overall trend.

<sup>19</sup> A psychological theory that emphasizes that perception is actively constructed by the individual based on prior experiences and expectations.

<sup>20</sup> A theory that focuses on how perception emerges through direct interaction with the environment. In inflation, it suggests that individuals' perceptions are shaped by their daily experiences with prices and social cues.

<sup>21</sup> A concept from ecological psychology that refers to the perceived opportunities for action in an environment. In the case of inflation, media reports and peer discussions serve as affordances that help individuals interpret economic conditions.

## Linking theories to perceived inflation

Both Prospect Theory and Perception Theories highlight the role of cognitive biases and environmental factors in shaping inflation perceptions:

Media coverage of price increases can amplify perceived inflation through framing effects (McCombs and Shaw 1972).

Social proof, as discussed by Cialdini (1984), suggests individuals align their inflation perceptions with peers or authoritative figures.

Individuals overemphasize recent or frequent price changes due to the availability heuristic, reinforcing inflation perceptions.

Consumers focus on price increases rather than decreases, leading to exaggerated perceptions.

Media and peer influence serve as anchors, shaping subjective inflation expectations.

Loss aversion amplifies the psychological impact of price increases on frequently purchased items.

## Review of the empirical literature on the determinants of perceived inflation

This section reviews empirical studies examining the determinants of the gap between actual inflation and perceived inflation. The discussion highlights socioeconomic and demographic factors, cognitive and behavioral aspects, consumption patterns, financial circumstances, information search behavior, and individual uncertainty.

### Socioeconomic and demographic background

Empirical studies consistently reveal that individuals' socioeconomic and demographic characteristics influence their perceptions of inflation. Factors such as income, age, gender, and education play significant roles in shaping inflation sentiment. For example, households from disadvantaged socioeconomic backgrounds or with lower educational attainment are more likely to overestimate inflation due to financial distress and limited economic knowledge. Recent studies show that these factors have been exacerbated by the COVID-19 pandemic and its impact on household finances, with lower-income households disproportionately affected (Vazquez-Martínez et al. 2021).

### Cognitive and behavioral aspects

Cognitive biases and behavioral factors also impact how inflation is perceived. Ashton (2012) highlights biases like **attribution bias**, where individuals focus more on price increases than decreases, and **selective memory**, which emphasizes

negative experiences. Recent research underscores the role of **availability heuristics**<sup>22</sup> during economic shocks such as the COVID-19 pandemic, where individuals recall recent price hikes (e.g., in food, fuel) and overestimate inflation based on these salient events (Žurek and Rudy 2023). Sorić and Čizmešija (2013) demonstrate the role of heuristics, particularly the **availability heuristic**, where past hyperinflation experiences significantly influence current perceptions. For instance, Croatian households who lived through the 1990s hyperinflation exhibited heightened inflation sentiment.

Gündüz et al. (2020) underscore the role of **trust in official measures** and economic literacy. Their findings show that skepticism<sup>23</sup> towards official statistics leads to inflated perceptions, while students with higher economic knowledge estimate inflation more accurately. Additionally, financial distress and spending on durable goods<sup>24</sup> were linked to heightened price sensitivity, further influencing inflation perceptions.

### Consumption patterns and financial circumstances

Personal spending habits and financial circumstances significantly shape inflation perceptions. Recent findings highlight that in response to the COVID-19 crisis, individuals altered their consumption patterns, especially in essential markets like food and energy. The perception of inflation was higher in markets like meat and meat products, which had considerable price fluctuations due to disruptions in supply chains (Žurek and Rudy 2023).

Döhring and Mordonu (2007) find that frequently purchased goods—referred to as "out-of-pocket expenditures"—better explain inflation perceptions compared to aggregate indices like the HICP. Similarly, Hałka and Łyziak (2015) introduce the **Consumer Perception Price Index**, showing that items purchased more frequently have a disproportionate influence on inflation perceptions. These studies align with **Prospect Theory**, which emphasizes individuals' asymmetric response to price increases versus decreases.

The increase in energy prices since mid-2021, leading to a surge in inflation, has severely affected households, particularly low and middle-income households. The energy-driven inflation brought acute risks of exacerbating already existing inequalities, with low-income households experiencing the most significant impact. A recent report published by the European Commission in 2023 highlighted that rising energy costs have significantly influenced inflation perceptions among EU households (Fulvimari et al. 2023). The study concluded that households facing higher

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<sup>22</sup> Mental shortcuts that ease decision-making. They can lead to cognitive biases, especially in the perception of complex issues like inflation.

<sup>23</sup> The tendency for individuals to distrust official measures of inflation, which can lead to inflated personal perceptions of inflation.

<sup>24</sup> Goods that have a long life span, such as cars, appliances, and furniture. Their price changes can have a significant impact on inflation perceptions, especially during periods of economic uncertainty.

energy costs tend to report a much higher perception of inflation due to the immediate impact of these price increases on their daily lives.

### Information search behavior and individual uncertainty

Information search behavior and individual uncertainty play critical roles in shaping inflation perceptions. The rise of social media platforms as a primary source of information has further shaped public perception of inflation in recent years. Social media and digital news often amplify price concerns, contributing to inflated perceptions, particularly during economic crises like the COVID-19 pandemic and supply chain disruptions (Gregoric and Nowik 2024).

Ranyard et al. (2008) highlight the impact of **direct experiences** (e.g., personal shopping) and **indirect influences** (e.g., media, word-of-mouth). Their findings emphasize that limited economic understanding and media amplification of inflation news distort perceptions. Recent studies also point out that the spread of information via social media platforms has contributed to shaping consumer decision-making, particularly regarding inflation and purchasing behavior (Gregoric and Nowik 2024).

Hayo and Neumeier (2018) demonstrate that households with **higher economic knowledge** have more accurate perceptions of inflation, while uncertainty leads to systematic overestimation. Their research reveals that even households confident in their understanding of inflation often fail to estimate actual rates accurately.

Huber et al. (2023) examine German households and find a strong correlation between past inflation perceptions and future expectations, highlighting the role of socioeconomic factors and information sources. Their study underscores that frequent purchases and individual uncertainties significantly influence how households perceive inflation trends.

As a robust finding, literature from diverse countries with various methodologies contributes to a growing body of evidence that consistently reveals that individuals with an inaccurate memory of prices, low knowledge of inflation, and uncertainty disadvantaged socioeconomic and demographic background, characterized by factors such as low income and lower educational attainment, tend to feel biased inflation perceptions. In other words, inflation perception is affected by different socio- demographic factors, cognitive and behavioral aspects, personal consumption patterns, and the external environment of information and individual uncertainties.

To synthesize the insights gathered from the theoretical and empirical literature, the figure below presents the conceptual framework guiding this study. It illustrates how individual socioeconomic and psychological characteristics, alongside cognitive and contextual factors, shape households' perceptions of inflation. Independent variables such as age, gender, education, income, and inflation knowledge are expected to influence perceived inflation both directly and indirectly through mediating variables like memory and lagged perceived inflation. Additionally, the model incorporates moderating variables—including media influence, peers' influence, and the consumer sentiment index—which are hypothesized to affect the strength or direction of these relationships. This framework serves as the foundation for the empirical models estimated in the following section (see Fig. 1).

## Model specification, data collection, and methodology

In light of the literature review presented above, inflation perception is modeled as a function of age, professional status, living standard, education, marital status, savings, media influence, consumer sentiment index, and lagged perceived inflation. In the empirical model, the characteristics of individuals determined as explanatory variables to explain the individual Perceptions of inflation are as follows:

**Age:** since the behavior of young households differs from adults' behavior (Accardo et al. 2011). It can be assumed that people who experienced higher inflation rates before can estimate the current inflation based on their life experience better than younger age cohorts.

**Marital Status:** It might create a difference in households' inflation perceptions. There are five categories: single, married, separated, divorced, and widowed (OECD 2007). A married household that takes care of a family can feel price changes more than a single household that takes care of only itself. Therefore, it will be beneficial to understand how marital Status drives inflation perceptions (Hayo and Neumeier 2018).

**Gender:** Women might feel price changes differently than men due to the differences in consumer behavior (Fritzer and Rumler 2015).

**Level of Education:** A household with a significant level of education can understand the process of inflation and avoid high perceived inflation bias. The opposite is true for a low level of education. Therefore, it will be interesting to know how much financial education should be provided in order to increase the awareness of households towards inflation perceptions as well as the monetary policy efficiency (Arioli et al. 2017).

**Professional Status:** The latest affects the behavior of people, especially how they feel about inflation. There are four categories to take into consideration: employed, unemployed, discouraged workers, and retirees. Employed is considered as an individual who works at least one hour during the reference period. This later means the week before the survey is conducted. An unemployed person is an individual who is not employed but has looked for a job in the last four weeks and is ready to start work in two weeks. Discouraged workers are people who gave up on searching for a job and did not search for it in the last four weeks (George et al. 2012). Retirees are people who have finished their professional careers. A person who is not employed without an income will feel inflation in a different way than an employee with an income. The same is true for discouraged workers and retirees (Arion et al. 2018).

**Living Standard:** The interaction between living standards and perceived inflation has been analyzed in many literatures. Fischer proved that households feel price changes according to income changes. In fact, households perceive high inflation when the prices increase sharply compared to their real income. Adding to this, households with high incomes will perceive inflation less than households with low incomes (Fischer 1986). However, other literature assumes that high inflation perceptions vary with inflation and not income (Gärling et al. 2013). Therefore, it will be important to take living standards or income into account in order to check the contribution of income to inflation perceptions.

**Savings:** Rather than using house possession (Döhring et al. 2007), saving rates will reflect not only the house possession effect but also the household's consumption and purchase ability (Hayo and Neumeier 2018).

**Media Influence:** Media influence can shape public Perception of economic conditions and price changes. Media often highlights news related to price changes, which can either overestimate or underestimate households' inflation perceptions (Ansolabehere and Iyengar 1995).

**Peers' Influence:** When peers express concerns about price changes, it can affect their friends and shape the perceptions of other people around them to maintain reciprocity and consistency (Cialdini 1984).

**Consumer Sentiment Index:** A measure of households' confidence and sentiment about the overall economy, which can also affect perceived inflation (Gündüz et al. 2020).

**Memory:** When the household experienced an increase in prices, it stayed in his memory for longer. Therefore, the household might tend to feel the decrease or the stability of prices less, which might affect his inflation perception (Del Giovane et al. 2008).

**Inflation Knowledge:** A low knowledge of inflation concepts might lead to an overestimation of inflation perception (Del Giovane et al. 2008).

**Lagged Perceived Inflation:** It reflects household's past experiences. Households tend to base their actual perceptions of inflation on what they have observed in the recent past. For instance, if they previously perceived high price changes, they are more likely to continue perceiving high inflation, even if actual inflation has changed (Sorić and Čizmešija 2013).

## Operationalization of psychological variables

Key psychological constructs in this study were operationalized through direct survey questions designed to capture subjective experiences and attitudes.

- **Media Influence** was measured using the question: "*How often do you come across news or media coverage related to inflation in your daily life?*" with options ranging from *Frequently* to *Never*.
- **Peer Influence** was captured through: "*How much do you think your social circle's feeling of price changes influences your own perception?*" with responses from *Not at all* to *Significantly*.
- **Memory** was assessed using the item: "*How accurately do you remember past prices of goods and services?*" with accuracy levels from *Very accurately* to *Not at all accurately*.
- **Consumer Sentiment** was measured via the binary item: "*Do you trust the overall economy in your country?*" (Yes/No), complemented by questions on trust in official inflation data.
- **Inflation Knowledge** was gauged with: "*How would you rate your understanding of inflation?*" using a 5-point Likert scale from *Very Poor* to *Excellent*.

These questions were structured to minimize ambiguity and allow quantitative coding for regression analysis. The responses were later transformed into categorical or ordinal variables to fit the model structure and maintain consistency across respondents from different countries.

The key determinants will be represented in a multiple regression model in order to estimate the OLS on perceived inflation (quantitative values generated from the survey).

$$\begin{aligned} p \text{ inf } la = & \beta_0 + \beta_1 age + \beta_2 maritalsta + \beta_3 gender + \beta_4 educ \\ & + \beta_5 prost + \beta_6 livst + \beta_7 sav + \beta_8 media + \beta_9 peers \\ & + \beta_{10} c \text{ sin } dex + \beta_{11} memory + \beta_{12} know + \beta_{13} lp \text{ inf } la \end{aligned}$$

Another ordered probit model will be estimated in order to see the coherence between the results with multiple regression results.

$$\begin{aligned} P(Y_i = x) = & \Phi(\beta_0 + \beta_1 age + \beta_2 maritalsta + \beta_3 gender \\ & + \beta_4 educ + \beta_5 prost + \beta_6 livst + \beta_7 sav + \beta_8 media \\ & + \beta_9 peers + \beta_{10} c \text{ sin } dex + \beta_{11} memory + \beta_{12} know + \beta_{13} lp \text{ inf } la) \end{aligned}$$

where  $x$  is equal to 1 when prices are stable, equal to 2 when the prices are moderately increasing, and equal to 3 when prices are sharply increasing.  $j$  represents the respondents.  $P$  is the probability that the respondent will feel that prices are stable, moderately, or sharply risen.  $\Phi$  is the distribution function of the reduced centered normal distribution.

The sample size of the research is for a 95% confidence level and a 5% margin of error. Therefore, the sample size for each country should be at least 385 or more.

The data used for this study was collected from 404 participants in Türkiye, 458 participants in Morocco, and 468 participants in Italy. The sampling method<sup>25</sup> used is random sampling,<sup>26</sup> allowing each participant to have an equal chance of selection. It is random because the more data is received, the larger the sample size gets, with more answers to analyze and understand the sample's behavior, thereby obtaining a representative sample in order to minimize biases.

The data was generated via an online survey distributed through online platforms and social media in order to reach more participants. Besides, participants were encouraged to spread the survey with their friends and families to expand the sample size and its representativeness.

To minimize biases, participants were encouraged to share the survey with friends and family, leveraging the snowball sampling technique to enhance the diversity of responses. Efforts were made to collect accurate and complete responses by implementing mandatory response fields for critical questions, and duplicate responses were removed to ensure the data quality.

<sup>25</sup> The technique used to select participants for a study, which can influence the reliability and validity of the results.

<sup>26</sup> A method of sampling in which each individual has an equal chance of being selected, ensuring that the sample is representative of the population.

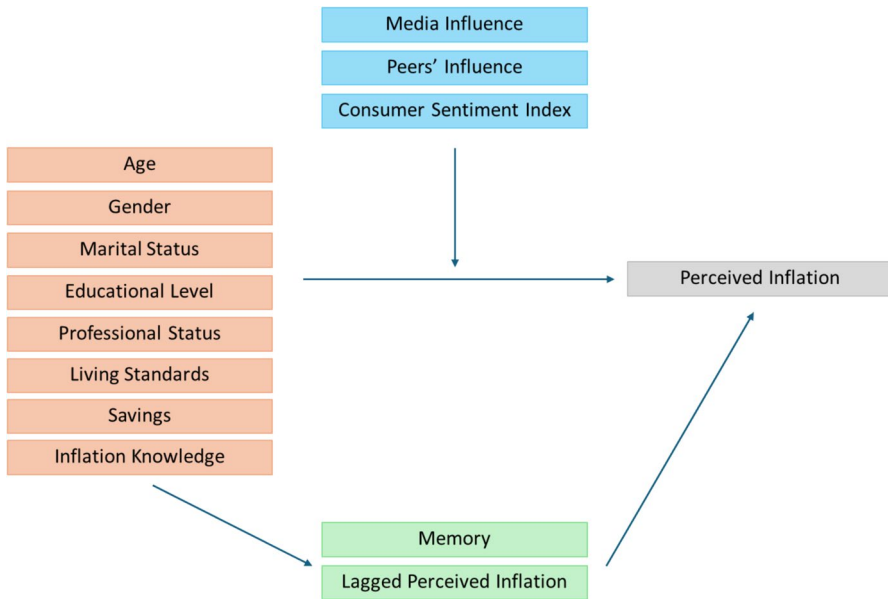


Fig. 1 Conceptual Framework of the Determinants of Perceived Inflation

## Empirical analysis of the determinants of perceived inflation

The empirical perceived inflation model given above is estimated using both OLS regression and ordered probit methods to explore the determinants of perceived inflation among households in Türkiye, Morocco, and Italy.

### OLS regression

Table 1 provides the OLS regression results. It presents the coefficients, the standard errors, the number of observations, F-statistic,<sup>27</sup> R-squared,<sup>28</sup> Adjusted R-squared,<sup>29</sup> Durbin Watson,<sup>30</sup> Mean–Variance Inflation Factor (VIF), p-value (chi-square), and the levels of significance.

<sup>27</sup> A statistic used in regression analysis to determine whether the model explains a significant portion of the variation in the dependent variable.

<sup>28</sup> A statistical measure that indicates the proportion of the variance in the dependent variable that is explained by the independent variables in the regression model.

<sup>29</sup> A modified version of R-squared that adjusts for the number of predictors in the model, providing a more accurate measure of model fit.

<sup>30</sup> A statistic used to detect the presence of autocorrelation (correlation of residuals) in regression models.

## Case of Türkiye

The regression analysis identifies several significant variables influencing perceived inflation. Compared to unemployed households, employed households perceive inflation as 9.19 units higher. This result is statistically significant with a p-value less than 0.05, indicating that employment status plays a critical role in shaping perceived inflation. Living standards also have a significant effect on perceived inflation. Households with an income between 34,000 TL and 51,000 TL perceive inflation as 11.60 units lower than households with an income of 17,000 TL or less. This result is statistically significant with a p-value less than 0.01. Similarly, households with an income higher than 51,000 TL perceive inflation as 23.08 units lower than households with an income of 17,000 TL or less, and this result is statistically significant with a p-value less than 0.05.

Peers' influence plays a substantial role in shaping perceived inflation. Households not affected by their social circle perceive inflation as 8.97 units lower than households significantly affected by their social circle, with a p-value less than 0.05. Additionally, households moderately affected by their social circle perceive inflation as 14.65 units lower compared to households significantly affected by their social circle, and this result is statistically significant with a p-value less than 0.01.

Lagged perceived inflation is another significant determinant. For each unit increase in past perceptions of inflation, there is a 0.68 unit increase in perceived inflation. This result is statistically significant with a p-value less than 0.01, highlighting the persistence of inflation perceptions over time.

The regression model itself is statistically significant, with an F-statistic of 7.75 and a p-value equal to zero. The R-squared value indicates that 36% of the variance in perceived inflation is explained by the model, while the adjusted R-squared provides a more conservative estimate at 31%. The Durbin-Watson statistic of 1.85 suggests no autocorrelation in the residuals, and the Mean VIF of 1.83 confirms low multicollinearity<sup>31</sup> between the explanatory variables. However, heteroscedasticity was detected in the model, and White's robust variance estimates<sup>32</sup> were employed to correct it and improve the reliability of the results.

## Case of Morocco

The regression analysis for Morocco highlights several significant variables influencing perceived inflation. Starting with marital status, married households perceive inflation as 5.02 units higher compared to single households. This result is statistically significant with a p-value less than 0.10, indicating that marital responsibilities may amplify sensitivity to price changes.

For education level, households with a high school education perceive inflation 0.49 units lower compared to households with a university education or above. This

<sup>31</sup> A situation where independent variables in a regression model are highly correlated with one another, potentially distorting the results.

<sup>32</sup> A method for adjusting standard errors to correct for heteroskedasticity in regression models.

result is statistically significant with a p-value less than 0.05, suggesting that lower educational attainment may reduce awareness or understanding of actual inflation trends.

Focusing on professional status, discouraged workers perceive inflation as 7.25 units higher compared to unemployed households. This result is statistically significant with a p-value less than 0.10, reflecting the heightened economic stress and price sensitivity among discouraged workers.

Regarding living standards, households earning between 3300 and 6600 MAD perceive inflation 3.87 units higher than households earning 3300 MAD or less. This result is statistically significant with a p-value less than 0.10. Similarly, households earning between 6600 and 9900 MAD perceive inflation 7.83 units higher compared to those earning 3300 MAD or less. This result is significant at the 5% level, highlighting the role of income brackets in inflation perceptions.

The saving variable also shows significance. Households saving between 20 and 30% of their income perceive inflation 8.53 units lower compared to households saving 10% or less. This result is statistically significant with a p-value less than 0.05, indicating that higher saving capacity may mitigate inflation sensitivity.

Media influence plays a notable role. Households who never check media perceive inflation as 9.44 units higher compared to households who frequently check media. This result is statistically significant at the 5% level, underscoring the importance of media exposure in shaping inflation perceptions.

The consumer sentiment index is also significant. Households who trust the overall economy perceive inflation 4.57 units lower compared to households who distrust the economy. This result is significant at the 10% level, reflecting the relationship between economic confidence and perceived inflation.

Finally, lagged perceived inflation emerges as a key determinant. Each unit increase in past perceptions of inflation leads to a 0.35 unit increase in current perceived inflation. This result is statistically significant at the 1% level, highlighting the persistence of past inflation experiences in shaping current perceptions.

The model fit is robust, with an F-statistic value of 5.11 and a p-value equal to zero, confirming the overall significance of the regression model. The R-squared value indicates that 22% of the variance in perceived inflation is explained by the model, with an adjusted R-squared of 17%. The Durbin-Watson statistic of 1.69 suggests no autocorrelation in the residuals, and the Mean VIF of 1.66 indicates low multicollinearity between the explanatory variables. To address heteroscedasticity, White's robust variance estimates were applied, ensuring the reliability of the regression results.

## Case of Italy

The regression analysis for Italy identifies several significant variables influencing perceived inflation. Starting with marital status, married households perceive inflation 10.36 units higher than single households, with a standard error of 3.58. This result is statistically significant at the 1% level. Similarly, divorced households perceive inflation 10.06 units higher than single households, with a standard error of 4.21, and this result is statistically significant at the 5% level.

For education level, households with primary school education or less perceive inflation as 9.73 units higher compared to households with university education or above, with a standard error of 4.36. This result is statistically significant at the 5% level, suggesting that lower educational attainment amplifies inflation perceptions.

Regarding living standards, households earning an income between 2300 and 3450 EUR perceive inflation 8.14 units higher than households earning less than the minimum wage, with a standard error of.

4.31. This result is statistically significant at the 10% level, highlighting the role of income brackets in perceived inflation.

For the memory variable, households who do not have accurate memory perceive inflation 8.95 units lower than households with very accurate memory, with a standard error of 4.41. This result is statistically significant at the 5% level, emphasizing the impact of memory accuracy on inflation perceptions.

Focusing on inflation knowledge, households with fair inflation knowledge perceive inflation 7.93 units higher than households with poor inflation knowledge, with a standard error of 3.72. This result is statistically significant at the 5% level. Additionally, households with good inflation knowledge perceive inflation 8.00 units higher compared to households with poor inflation knowledge, with a standard error of 3.34. This result is statistically significant at the 1% level, underscoring the link between knowledge and heightened sensitivity to inflation.

For lagged inflation, past perceptions of prices decrease perceived inflation by 0.11 units, with a standard error of 0.05. This result is statistically significant at the 1% level, demonstrating the persistence of past inflation perceptions in shaping current perceptions.

The model fit is validated with an F-statistic value of 2.13 and a p-value equal to 0.001, confirming the overall significance of the regression model. The R-squared value indicates that the explanatory variables explain 12% of the variance in perceived inflation, with an adjusted R-squared of 7%. The Durbin-Watson statistic of.

1.97 suggests no autocorrelation in the residuals, and the Mean VIF of 1.44 confirms low multicollinearity among the explanatory variables. Additionally, the chi-squared test<sup>33</sup> for homoscedasticity reveals no heteroscedasticity in the model.

## Ordered probit

Table 2 below presents the results obtained from ordered probit model for households in Türkiye. It shows the coefficients (probabilities), the standard error, the Wald Chi-square,<sup>34</sup> and the Pseudo R-squared.<sup>35</sup> The ordered probit model is a good choice for the nature of the dependent variable since perceived inflation is split into

<sup>33</sup> A statistical test used to assess the fit of observed data to a given model or distribution. It helps evaluate the significance of the relationships between variables.

<sup>34</sup> A statistical test used in regression models to assess the significance of individual coefficients.

<sup>35</sup> A measure used in models like probit and logit regression to evaluate the fit of the model, analogous to R-squared in linear regression.

**Table 1** OLS Regression

| Country   | TUR                       | MA             | IT              |
|---|---------------------------|----------------|-----------------|
| Variables   | Perceived inflation (OLS) |                |                 |
| <b>Age categories</b>   |                           |                |                 |
| ≤24   | ref                       | ref            | ref             |
| [25,64]   | 1.03 (3.80)               | − 2.58 (5.47)  | 6.52 (4.47)     |
| ≥65   | − 3.09 (11.16)            | 2.07 (10.40)   | − 4.5 (13.52)   |
| <b>Gender</b>   |                           |                |                 |
| Male  | ref                       | ref            | ref             |
| Female  | 0.30 (2.65)               | − 2.73 (2.62)  | 4.63 (2.85)     |
| <b>Marital status</b>   |                           |                |                 |
| Single  | ref                       | ref            | ref             |
| Married   | − 1.02 (3.51)             | 5.02 (3.61)    | 10.36*** (3.58) |
| Divorced  | − 0.60 (4.67)             | 10.15** (4.41) | 10.06** (4.21)  |
| <b>Education level</b>  |                           |                |                 |
| Primary school or less  | 4.34 (4.94)               | − 0.95 (4.72)  | 9.73** (4.36)   |
| High school   | − 2.48 (3.47)             | − 0.49* (3.00) | 1.94 (3.30)     |
| University or above   | ref                       | ref            | ref             |
| <b>Professional status</b>  |                           |                |                 |
| Employed  | 9.19** (3.78)             | − 0.27 (3.40)  | − 1.13 (3.63)   |
| Unemployed  | ref                       | ref            | ref             |
| Discouraged worker  | 2.94 (5.34)               | 7.25* (4.02)   | − 4.53 (4.25)   |
| Retired   | 5.72 (6.09)               | − 2.33 (6.13)  | − 8.37 (6.27)   |
| <b>Living standard</b>  |                           |                |                 |
| TUR: 17,000 or less MA: Less than 3300 IT: 1150 or less           | ref                       | ref            | ref             |
| TUR: [17000, 34000] MA: [3300,6600] IT: [1150, 2300]              | − 4.01 (3.60)             | 3.87 (3.69)    | 3.06 (4.43)     |
| TUR: [34000, 51000] MA: [6600,9900] IT: [2300, 3450]              | − 11.60** (4.54)          | 7.83* (4.17)   | 8.14* (4.31)    |
| TUR: Higher than 51,000 MA: Higher than 9900 IT: Higher than 3450 | − 23.08* (12.50)          | 3.57 (6.19)    | 2.51 (5.10)     |
| <b>Saving</b>   |                           |                |                 |
| 10% or less   | ref                       | ref            | ref             |
| 10–20% of income  | − 6.04 (3.77)             | − 3.31 (3.42)  | − 2.40 (4.05)   |
| 20–30% of income  | − 3.47 (3.98)             | − 8.53* (3.76) | − 4.84 (4.25)   |
| 30–40% of income  | − 4.02 (6.37)             | 1.62 (5.05)    | 4.31 (4.63)     |
| Higher than 40%   | 3.04 (7.82)               | − 6.91 (5.43)  | − 0.32 (5.33)   |
| <b>Media influence</b>  |                           |                |                 |
| Frequently  | ref                       | ref            | ref             |
| Occasionally  | 2.41 (2.96)               | 1.03 (2.87)    | − 2.10 (3.32)   |
| Never   | − 0.79 (6.92)             | 9.44** (3.70)  | 3.17 (3.86)     |
| <b>Peers' influence</b>   |                           |                |                 |
| No effect   | − 8.97* (5.10)            | − 6.35 (4.10)  | − 2.95 (4.60)   |
| Moderate effect   | − 14.65*** (3.77)         | − 3.48 (3.58)  | 0.21 (3.70)     |

**Table 1** (continued)

| Country                  | TUR                       | MA              | IT              |
|--------------------------|---------------------------|-----------------|-----------------|
| Variables                | Perceived inflation (OLS) |                 |                 |
| Significant effect       | ref                       | ref             | ref             |
| Consumer Sentiment Index |                           |                 |                 |
| Trust                    | − 3.44 (2.90)             | − 4.57* (2.54)  | − 3.06 (2.93)   |
| Distrust                 | ref                       | ref             | ref             |
| Memory                   |                           |                 |                 |
| Very accurate            | ref                       | ref             | ref             |
| Moderately accurate      | − 4.70 (4.59)             | 5.65 (3.65)     | − 4.59 (4.17)   |
| Not accurate             | − 3.29 (5.41)             | 0.26 (3.46)     | − 8.95** (4.41) |
| Inflation knowledge      |                           |                 |                 |
| Poor                     | ref                       | ref             | ref             |
| Fair                     | 3.80 (3.64)               | 2.96 (3.13)     | 7.93** (3.72)   |
| Good                     | 3.09 (3.44)               | 9.16*** (3.05)  | 8.00** (3.34)   |
| Lagged inflation         | 0.68*** (0.06)            | 0.35*** (0.05)  | − 0.11** (0.05) |
| Constant                 | 54.06 *** (8.48)          | 17.42*** (6.31) | 24.63*** (8.16) |
| Number of observations   | 404                       | 458             | 468             |
| F (27, 376)              | 7.75                      | 5.11            | 2.13            |
| Prob (F-statistic)       | 0.00                      | 0.00            | 0.001           |
| R-squared                | 0.36                      | 0.22            | 0.12            |
| Adjusted R-squared       | 0.31                      | 0.17            | 0.07            |
| Durbin-Watson            | 1.85                      | 1.69            | 1.97            |
| Mean VIF                 | 1.83                      | 1.66            | 1.44            |
| Chi-squared              | 145.79                    | 7.72            | 1.32            |
| Prob (Chi-squared)       | 0.00                      | 0.01            | 0.25            |

The level of significance: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

three categories: households who perceive price changes as stable, moderate, or sharp. Besides, the ordered probit model is robust to the assumption of normally distributed errors, assuming that it handles any shape of the data utilized. Additionally, this regression model will enable the comparison of the consistency of results with the multiple regression and will enhance the robustness of the findings.

### Case of Türkiye

The ordered probit analysis for households in Türkiye identifies several significant variables influencing perceptions of inflation. Starting with education, households with a primary school education or less are more likely to perceive prices as moderately or sharply increasing compared to households with a university education or above. This result is statistically significant at the 10% level, with a marginal effect indicating that having a primary education decreases the probability of perceiving prices as stable by 0.02 (significant at 5%).

For living standards, households earning an income higher than 51,000 TL are more likely to perceive prices as moderately increasing, with a probability increase of 0.26 (significant at 5%). Additionally, these households are less likely to perceive prices as sharply increasing, with a probability decrease of 0.41 (significant at 10%), compared to households earning less than the minimum wage.

Regarding savings, households saving between 30 and 40% of their income are less likely to perceive prices as sharply increasing, with a probability decrease of 0.13 (significant at 10%), compared to households saving less than 10% of their income. Households saving more than 40% of their income are less likely to perceive prices as stable, with a probability decrease of 0.02 (significant at 10%), compared to households saving less than 10% of their income.

For media influence, households who occasionally check media are less likely to perceive prices as sharply increasing, with a probability of 0.10 (significant at 1%), compared to households who frequently check media. These households are also more likely to perceive prices as stable, with a probability increase of 0.02 (significant at 5%).

Focusing on peers' influence, households who are moderately affected by their social circle are less likely to perceive prices as sharply increasing, with a probability decrease of 0.01 (significant at 1%), and more likely to perceive prices as stable, with a probability increase of 0.16 (significant at 1%).

For inflation knowledge, households with fair inflation knowledge are more likely to perceive prices as sharply increasing, with a probability increase of 0.13 (significant at 1%), and less likely to perceive prices as stable, with a probability decrease of 0.13 (significant at 1%), compared to households with poor inflation knowledge.

Finally, for lagged perceived inflation, households perceiving prices of the previous year as stable are more likely to perceive prices as stable, with a probability increase of 0.19 (significant at 1%). These households are also more likely to perceive prices as moderately increasing, with a probability increase of 0.25 (significant at 1%), and less likely to perceive prices as sharply increasing, with a probability decrease of 0.45 (significant at 1%), compared to households perceiving prices of the previous year as sharply rising.

The model fit, validated by a Wald Chi-square of 153.88, confirms the statistical significance of the regression model. The Pseudo R-squared of 0.26 indicates that 26% of the variance in perceived inflation is explained by the independent variables. Robust standard errors<sup>36</sup> were employed to address potential heteroskedasticity,<sup>37</sup> ensuring the reliability of the parameter estimates.

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<sup>36</sup> Adjusted standard errors that account for heteroskedasticity and provide more reliable confidence intervals in regression analysis.

<sup>37</sup> A situation in regression analysis where the variability of errors is not constant across all levels of the independent variables, potentially leading to biased estimates.

## Case of Morocco

The ordered probit analysis for households in Morocco identifies several significant variables influencing perceptions of inflation. For the age variable, households aged between 25 and 64 years old are less likely to perceive inflation as sharply increasing compared to individuals aged 24 or below, with a probability of  $-0.32$ . This result is statistically significant at the 5% level. Additionally, being aged between 25 and 64 increases the probability of perceiving prices as stable by  $0.10$  (significant at 5%) compared to being younger than 25.

Regarding the saving variable, households saving 20% to 30% of their income are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.07$  (significant at 10%), and more likely to perceive prices as stable, with a probability increase of  $0.08$  (significant at 10%) compared to households saving less than 10% of their income.

For peers' influence, households who are not affected by their social circle are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.15$  (significant at 1%), and more likely to perceive prices as stable, with a probability increase of  $0.13$  (significant at 1%), compared to households significantly affected by their social circle. Similarly, households who are moderately affected by their social circle are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.15$  (significant at 1%), and more likely to perceive prices as stable, with a probability increase of  $0.09$  (significant at 1%).

For the consumer sentiment index, households who trust the overall economy are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.08$  (significant at 5%), and more likely to perceive prices as stable, with a probability increase of  $0.07$  (significant at 1%), compared to households who distrust the overall economy.

Concerning inflation knowledge, households with good knowledge of inflation concepts are more likely to perceive inflation as sharply increasing, with a probability increase of  $0.08$  (significant at 5%), and less likely to perceive prices as stable, with a probability decrease of  $0.08$  (significant at 5%) compared to households with poor knowledge of inflation concepts.

For lagged perceived inflation, households who perceive past prices as stable are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.12$  (significant at 1%), and more likely to perceive prices as stable, with a probability increase of  $0.11$  (significant at 1%), compared to households who perceive past prices as sharply increasing. Additionally, households who perceive past prices as moderately increasing are less likely to perceive inflation as sharply increasing, with a probability decrease of  $0.08$  (significant at 10%), and more likely to perceive prices as stable, with a probability increase of  $0.06$  (significant at 10%).

The model fit, validated by a Wald Chi-square of  $62.37$ , confirms the statistical significance of the regression model. The Pseudo R-squared of  $0.07$  indicates that 7% of the variance in perceived inflation is explained by the independent variables. Robust standard errors were applied to address heteroskedasticity, ensuring the reliability of parameter estimates.

**Table 2** Ordered Probit

| Variables              | Perceived inflation |                   |                    | Stable             |                  |                   | Moderately increasing |                   |                    | Sharply Increasing |                   |                    |
|------------------------|---------------------|-------------------|--------------------|--------------------|------------------|-------------------|-----------------------|-------------------|--------------------|--------------------|-------------------|--------------------|
|                        | Ordered probit      |                   |                    | Marginal effect    |                  |                   |                       |                   |                    |                    |                   |                    |
|                        | TUR                 | MA                | IT                 | TUR                | MA               | IT                | TUR                   | MA                | IT                 | TUR                | MA                | IT                 |
| <b>Age categories</b>  |                     |                   |                    |                    |                  |                   |                       |                   |                    |                    |                   |                    |
| ≤ 24                   | ref                 | ref               | ref                | ref                | ref              | ref               | ref                   | ref               | ref                | ref                | ref               | Ref                |
| [25,64]                | -0.04<br>(0.22)     | -0.43**<br>(0.21) | -0.21<br>(0.17)    | 0.002<br>(0.01)    | 0.10**<br>(0.04) | 0.01<br>(0.05)    | 0.008<br>(0.04)       | 0.03<br>(0.03)    | 0.001<br>(0.01)    | -0.01<br>(0.05)    | -0.32**<br>(0.07) | -0.01<br>(0.06)    |
| ≥ 65                   | -0.26<br>(0.57)     | -0.18<br>(0.43)   | -5.99***<br>(0.12) | 0.02<br>(0.04)     | 0.04<br>(0.09)   | 0.75***<br>(0.06) | 0.05<br>(0.11)        | 0.02<br>(0.05)    | -0.30***<br>(0.02) | -0.07<br>(0.15)    | -0.06<br>(0.14)   | -0.45***<br>(0.07) |
| <b>Gender</b>          |                     |                   |                    |                    |                  |                   |                       |                   |                    |                    |                   |                    |
| Male                   | ref                 | ref               | ref                | ref                | ref              | ref               | ref                   | ref               | ref                | ref                | ref               | Ref                |
| Female                 | -0.12<br>(0.15)     | -0.11<br>(0.11)   | -0.18<br>(0.11)    | 0.006<br>(0.008)   | 0.03<br>(0.03)   | -0.05<br>(0.03)   | 0.02<br>(0.03)        | 0.001<br>(0.01)   | -0.01<br>(0.01)    | -0.03<br>(0.04)    | -0.03<br>(0.03)   | 0.06<br>(0.04)     |
| <b>Marital status</b>  |                     |                   |                    |                    |                  |                   |                       |                   |                    |                    |                   |                    |
| Single                 | ref                 | ref               | ref                | ref                | ref              | ref               | ref                   | ref               | ref                | ref                | ref               | Ref                |
| Married                | 0.23<br>(0.21)      | 0.25*<br>(0.16)   | 0.14<br>(0.14)     | -0.01<br>(0.01)    | -0.07<br>(0.05)  | -0.04<br>(0.04)   | -0.04<br>(0.04)       | 0.003<br>(0.008)  | -0.01<br>(0.01)    | 0.05<br>(0.05)     | 0.07*<br>(0.04)   | 0.05<br>(0.05)     |
| Divorced               | 0.15<br>(0.25)      | 0.23<br>(0.19)    | 0.003<br>(0.16)    | -0.008<br>(0.01)   | -0.06<br>(0.05)  | -0.001<br>(0.05)  | -0.03<br>(0.07)       | 0.003<br>(0.008)  | -0.0001<br>(0.01)  | 0.04<br>(0.06)     | 0.06<br>(0.05)    | 0.001<br>(0.06)    |
| <b>Education level</b> |                     |                   |                    |                    |                  |                   |                       |                   |                    |                    |                   |                    |
| Primary school or less | 0.52*<br>(0.31)     | -0.05<br>(0.20)   | 0.37**<br>(0.17)   | -0.02**<br>(0.009) | 0.01<br>(0.06)   | -0.10**<br>(0.04) | -0.09*<br>(0.05)      | 0.0003<br>(0.001) | -0.04<br>(0.02)    | 0.11*<br>(0.06)    | -0.01<br>(0.06)   | 0.14**<br>(0.06)   |
| High school            | -0.11<br>(0.18)     | -0.03<br>(0.12)   | 0.04<br>(0.13)     | 0.006<br>(0.01)    | 0.007<br>(0.03)  | -0.01<br>(0.04)   | 0.02<br>(0.04)        | 0.0002<br>(0.001) | -0.002<br>(0.01)   | -0.03<br>(0.05)    | -0.007<br>(0.03)  | 0.02<br>(0.05)     |
| University or above    | ref                 | ref               | ref                | ref                | ref              | ref               | ref                   | ref               | ref                | ref                | ref               | Ref                |

Table 2 (continued)

| Variables  | Perceived inflation |                |                 |               | Stable          |              |              |                | Moderately increasing |              |                |              | Sharply Increasing |              |     |     |
|--|---------------------|----------------|-----------------|---------------|-----------------|--------------|--------------|----------------|-----------------------|--------------|----------------|--------------|--------------------|--------------|-----|-----|
|  | Ordered probit      |                | Marginal effect |               | TUR             |              | MA           |                | IT                    |              | TUR            |              | MA                 |              | IT  |     |
|  | TUR                 | MA             | IT              | TUR           | MA              | IT           | TUR          | MA             | IT                    | TUR          | MA             | IT           | TUR                | MA           | IT  |     |
| Professional status                                  |                     |                |                 |               |                 |              |              |                |                       |              |                |              |                    |              |     |     |
| Employed   | 0.19 (0.20)         | 0.15 (0.15)    | -0.06 (0.14)    | -0.009 (0.01) | -0.04 (0.04)    | 0.02 (0.04)  | -0.04 (0.04) | 0.003 (0.006)  | 0.005 (0.01)          | 0.05 (0.05)  | 0.04 (0.04)    | -0.02 (0.05) | 0.04 (0.04)        | -0.02 (0.05) |     |     |
| Unemployed   | ref                 | ref            | ref             | ref           | ref             | ref          | ref          | ref            | ref                   | ref          | ref            | ref          | ref                | ref          | Ref | Ref |
| Discouraged worker                                   | -0.27 (0.29)        | 0.45*** (0.17) | -0.03 (0.16)    | 0.02 (0.02)   | -0.12*** (0.04) | 0.01 (0.05)  | 0.06 (0.06)  | -0.02 (0.02)   | 0.002 (0.01)          | -0.07 (0.08) | 0.13*** (0.05) | -0.01 (0.06) | 0.13*** (0.05)     | -0.01 (0.06) |     |     |
| Retired  | 0.14 (0.29)         | -0.10 (0.28)   | -0.21 (0.25)    | -0.007 (0.02) | 0.03 (0.09)     | 0.06 (0.08)  | -0.03 (0.06) | -0.007 (0.02)  | 0.01 (0.01)           | 0.03 (0.07)  | -0.02 (0.05)   | -0.01 (0.06) | -0.02 (0.05)       | -0.01 (0.06) |     |     |
| Living standard                                      |                     |                |                 |               |                 |              |              |                |                       |              |                |              |                    |              |     |     |
| TUR: 17,000 or less MA: 3300 IT: 1150 or less        | ref                 | ref            | ref             | ref           | ref             | ref          | ref          | ref            | ref                   | ref          | ref            | ref          | ref                | ref          | Ref | Ref |
| TUR: ]17000, 34000] MA: ]3300,6600] IT: ]1150, 2300] | -0.32 (0.20)        | 0.10 (0.16)    | 0.11 (0.17)     | 0.02 (0.009)  | -0.03 (0.05)    | -0.03 (0.05) | 0.06 (0.04)  | 0.0004 (0.003) | -0.01 (0.01)          | -0.08 (0.05) | 0.02 (0.05)    | 0.04 (0.06)  | 0.02 (0.05)        | 0.04 (0.06)  |     |     |
| TUR: ]34000, 51000]                                  | -0.18 (0.29)        | 0.09 (0.19)    | 0.21 (0.17)     | 0.008 (0.01)  | -0.02 (0.05)    | -0.06 (0.05) | 0.04 (0.06)  | 0.0003 (0.003) | -0.01 (0.01)          | -0.04 (0.07) | 0.02 (0.05)    | 0.04 (0.06)  | 0.02 (0.05)        | 0.04 (0.06)  |     |     |

**Table 2** (continued)

| Variables   | Perceived inflation |                  |                  |                 | Stable           |                 |                  |                    | Moderately increasing |                    |                  |                  | Sharply Increasing |     |     |     |
|---|---------------------|------------------|------------------|-----------------|------------------|-----------------|------------------|--------------------|-----------------------|--------------------|------------------|------------------|--------------------|-----|-----|-----|
|   | Ordered probit      |                  | Marginal effect  |                 | TUR              |                 | MA               |                    | IT                    |                    | TUR              |                  | MA                 |     | IT  |     |
|   | TUR                 | MA               | IT               | MA              | TUR              | MA              | TUR              | MA                 | IT                    | TUR                | MA               | TUR              | MA                 | IT  | MA  | IT  |
| MA:<br>[6600,9900]<br>IT: [2300,<br>3450]                               |                     |                  |                  |                 |                  |                 |                  |                    |                       |                    |                  |                  |                    |     |     |     |
| TUR: Higher than 51,000<br>MA: Higher than 9900<br>IT: Higher than 3450 | -1.47*<br>(0.87)    | 0.23 (0.28)      | -0.09<br>(0.20)  | -0.06<br>(0.07) | 0.15<br>(0.16)   | 0.03<br>(0.06)  | 0.26**<br>(0.09) | -0.005<br>(0.01)   | 0.003<br>(0.01)       | -0.41*<br>(0.25)   | 0.06 (0.08)      | -0.03 (0.07)     |                    |     |     |     |
| Saving  | ref                 | ref              | ref              | ref             | ref              | ref             | ref              | ref                | ref                   | ref                | ref              | ref              | ref                | ref | ref | Ref |
| 10–20% of income  | -0.25<br>(0.22)     | -0.16<br>(0.15)  | -0.05<br>(0.16)  | 0.04<br>(0.04)  | 0.01<br>(0.01)   | 0.01<br>(0.05)  | 0.05<br>(0.04)   | 0.002<br>(0.004)   | 0.001<br>(0.01)       | -0.06<br>(0.06)    | -0.04<br>(0.04)  | -0.01 (0.06)     |                    |     |     |     |
| 20–30% of income  | -0.08<br>(0.20)     | -0.28*<br>(0.16) | 0.17 (0.18)      | 0.08*<br>(0.04) | 0.004<br>(0.01)  | 0.02<br>(0.05)  | 0.01<br>(0.04)   | -0.002<br>(0.01)   | 0.003<br>(0.01)       | -0.02<br>(0.08)    | -0.07*<br>(0.04) | -0.02 (0.06)     |                    |     |     |     |
| 30–40% of income  | -0.50*<br>(0.28)    | 0.23 (0.25)      | 0.21 (0.17)      | -0.05<br>(0.05) | 0.03<br>(0.02)   | -0.05<br>(0.05) | 0.01*<br>(0.06)  | -0.02<br>(0.03)    | -0.01<br>(0.02)       | -0.13*<br>(0.08)   | 0.07 (0.08)      | 0.06 (0.07)      |                    |     |     |     |
| Higher than 40%   | 0.66*<br>(0.41)     | -0.24<br>(0.26)  | 0.06 (0.20)      | 0.07<br>(0.08)  | -0.02*<br>(0.01) | -0.02<br>(0.06) | -0.11*<br>(0.06) | -0.0001<br>(0.01)  | -0.005<br>(0.02)      | 0.13*<br>(0.06)    | -0.07<br>(0.07)  | 0.02 (0.07)      |                    |     |     |     |
| Media influence   | ref                 | ref              | ref              | ref             | ref              | ref             | ref              | ref                | ref                   | ref                | ref              | ref              | ref                | ref | ref | Ref |
| Frequently  | -0.39***<br>(0.16)  | 0.11 (0.12)      | -0.22*<br>(0.13) | -0.03<br>(0.03) | 0.02**<br>(0.01) | 0.07*<br>(0.04) | 0.08**<br>(0.03) | 0.00003<br>(0.003) | 0.01<br>(0.01)        | -0.10***<br>(0.04) | 0.03 (0.03)      | -0.08*<br>(0.05) |                    |     |     |     |

Table 2 (continued)

| Variables                | Perceived inflation |                 |              |                | Stable          |              |                |                | Moderately increasing |                 |                 |               | Sharply Increasing |    |    |  |
|--------------------------|---------------------|-----------------|--------------|----------------|-----------------|--------------|----------------|----------------|-----------------------|-----------------|-----------------|---------------|--------------------|----|----|--|
|                          | Ordered probit      |                 |              |                | Marginal effect |              |                |                |                       |                 |                 |               |                    |    |    |  |
|                          | TUR                 | MA              | IT           |                | TUR             | MA           | IT             |                | TUR                   | MA              | IT              |               | TUR                | MA | IT |  |
| Country                  |                     |                 |              |                |                 |              |                |                |                       |                 |                 |               |                    |    |    |  |
| Never                    | 0.22 (0.41)         | 0.22 (0.16)     | 0.03 (0.15)  | -0.008 (0.01)  | -0.06 (0.04)    | -0.01 (0.04) | -0.04 (0.07)   | -0.005 (0.009) | 0.01 (0.01)           | 0.05 (0.08)     | 0.06 (0.05)     | -0.08* (0.05) |                    |    |    |  |
| Peers' influence         |                     |                 |              |                |                 |              |                |                |                       |                 |                 |               |                    |    |    |  |
| No effect                | -0.02 (0.35)        | -0.50*** (0.18) | -0.16 (0.18) | 0.0006 (0.01)  | 0.13** (0.05)   | 0.05 (0.05)  | 0.004 (0.06)   | 0.02 (0.02)    | 0.01 (0.01)           | -0.005 (0.07)   | -0.15*** (0.02) | -0.01 (0.06)  |                    |    |    |  |
| Moderate effect          | -0.73*** (0.21)     | -0.37*** (0.14) | 0.03 (0.15)  | 0.03*** (0.01) | 0.09*** (0.03)  | 0.01 (0.04)  | 0.01*** (0.03) | 0.02 (0.02)    | 0.004 (0.01)          | -0.01*** (0.04) | -0.15*** (0.05) | -0.02 (0.05)  |                    |    |    |  |
| Significant effect       | ref                 | ref             | ref          | ref            | ref             | ref          | ref            | ref            | ref                   | ref             | ref             | Ref           |                    |    |    |  |
| Consumer Sentiment Index |                     |                 |              |                |                 |              |                |                |                       |                 |                 |               |                    |    |    |  |
| Trust                    | -0.05 (0.15)        | -0.29*** (0.11) | -0.03 (0.11) | 0.002 (0.008)  | 0.07*** (0.03)  | -0.01 (0.03) | 0.01 (0.03)    | 0.008 (0.007)  | -0.002 (0.01)         | -0.01 (0.04)    | -0.08** (0.03)  | 0.01 (0.04)   |                    |    |    |  |
| Distrust                 | ref                 | ref             | ref          | ref            | ref             | ref          | ref            | ref            | ref                   | ref             | ref             | Ref           |                    |    |    |  |
| Memory                   |                     |                 |              |                |                 |              |                |                |                       |                 |                 |               |                    |    |    |  |
| Very accurate            | ref                 | ref             | ref          | ref            | ref             | ref          | ref            | ref            | ref                   | ref             | ref             | Ref           |                    |    |    |  |
| Moderately accurate      | -0.08 (0.32)        | 0.02 (0.17)     | -0.12 (0.17) | 0.004 (0.02)   | -0.005 (0.04)   | 0.03 (0.05)  | 0.02 (0.06)    | -0.001 (0.01)  | 0.01 (0.01)           | -0.02 (0.08)    | 0.007 (0.05)    | -0.04 (0.06)  |                    |    |    |  |
| Not accurate             | 0.30 (0.39)         | -0.28* (0.17)   | -0.10 (0.16) | -0.01 (0.02)   | 0.08* (0.04)    | 0.03 (0.05)  | -0.05 (0.07)   | 0.002 (0.01)   | 0.01 (0.01)           | 0.07 (0.09)     | -0.08 (0.05)    | -0.04 (0.06)  |                    |    |    |  |
| Inflation knowledge      |                     |                 |              |                |                 |              |                |                |                       |                 |                 |               |                    |    |    |  |
| Poor                     | ref                 | ref             | ref          | ref            | ref             | ref          | ref            | ref            | ref                   | ref             | ref             | Ref           |                    |    |    |  |

**Table 2** (continued)

| Variables                  | Perceived inflation |                    |                   | Stable             |                   |                    | Moderately increasing |                   |                   | Sharply Increasing |                   |                   |
|----------------------------|---------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-----------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
|                            | TUR                 | MA                 | IT                | TUR                | MA                | IT                 | TUR                   | MA                | IT                | TUR                | MA                | IT                |
| Country                    | Ordered probit      |                    |                   | Marginal effect    |                   |                    |                       |                   |                   |                    |                   |                   |
| Fair                       | -0.50***<br>(0.18)  | 0.18 (0.14)        | 0.41***<br>(0.14) | 0.03**<br>(0.01)   | -0.05<br>(0.04)   | -0.13***<br>(0.04) | 0.01***<br>(0.04)     | 0.002<br>(0.005)  | -0.02**<br>(0.02) | -0.13***<br>(0.05) | 0.05 (0.04)       | 0.15***<br>(0.05) |
| Good                       | 0.02 (0.19)         | 0.29**<br>(0.13)   | 0.48***<br>(0.13) | -0.0007<br>(0.008) | -0.08**<br>(0.03) | -0.15***<br>(0.04) | -0.003<br>(0.04)      | -0.003<br>(0.007) | 0.03**<br>(0.01)  | 0.004<br>(0.04)    | 0.08**<br>(0.04)  | 0.18***<br>(0.05) |
| Lagged perceived inflation |                     |                    |                   |                    |                   |                    |                       |                   |                   |                    |                   |                   |
| Stable                     | -0.56***<br>(0.25)  | -0.43***<br>(0.16) | 0.79***<br>(0.14) | 0.19***<br>(0.05)  | 0.11***<br>(0.04) | -0.27***<br>(0.05) | 0.25***<br>(0.05)     | 0.007<br>(0.013)  | 0.02*<br>(0.01)   | -0.45***<br>(0.07) | -0.12**<br>(0.05) | 0.25***<br>(0.04) |
| Moderate                   | 0.14 (0.17)         | -0.26*<br>(0.14)   | 0.48***<br>(0.13) | -0.005<br>(0.006)  | 0.06*<br>(0.03)   | -0.18***<br>(0.05) | -0.03<br>(0.04)       | 0.013<br>(0.01)   | 0.03**<br>(0.01)  | 0.03<br>(0.04)     | -0.08*<br>(0.04)  | 0.14***<br>(0.04) |
| Sharpe                     | ref                 | ref                | ref               | ref                | ref               | ref                | ref                   | ref               | ref               | ref                | ref               | Ref               |
| Cut point 1                | -3.28<br>(0.48)     | -1.61<br>(0.31)    | 0.20 (0.31)       |                    |                   |                    |                       |                   |                   |                    |                   |                   |
| Cut point 2                | -1.56<br>(0.46)     | 0.06 (0.30)        | 1.06 (0.31)       |                    |                   |                    |                       |                   |                   |                    |                   |                   |
| Probability                | 153.88              | 62.37              | 88.24             | 0.03               | 0.21              | 0.40               | 0.24                  | 0.56              | 0.30              | 0.73               | 0.23              | 0.30              |
| Wald Chi-square            |                     |                    |                   |                    |                   |                    |                       |                   |                   |                    |                   |                   |
| Pseudo R-squared           | 0.26                | 0.07               | 0.09              |                    |                   |                    |                       |                   |                   |                    |                   |                   |

The level of significance: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

## Case of Italy

The ordered probit analysis for households in Italy identifies several significant variables influencing perceptions of inflation. Starting with age, households aged 65 or above are less likely to perceive prices as sharply increasing compared to households aged 24 or below, with a probability of  $-0.45$ . This result is statistically significant at the 1% level. Additionally, being aged 65 or above increases the probability of perceiving prices as stable by 0.12 (significant at 1%), decreases the probability of perceiving prices as moderately increasing by 0.30 (significant at 1%), and decreases the probability of perceiving prices as sharply increasing by 0.45 (significant at 1%) compared to being younger than 25.

For education level, households with a primary school education or less are more likely to perceive prices as sharply increasing, with a probability increase of 0.14 (significant at 5%), and less likely to perceive prices as stable, with a probability decrease of 0.10 (significant at 5%), compared to households with university education or above.

For media influence, households who occasionally check media are less likely to perceive prices as sharply increasing, with a probability decrease of 0.08 (significant at 10%), and more likely to perceive prices as stable, with a probability increase of 0.07 (significant at 10%), compared to households who frequently check media.

Regarding inflation knowledge, households with fair knowledge of inflation concepts are more likely to perceive prices as sharply increasing, with a probability increase of 0.15 (significant at 1%), and less likely to perceive prices as stable, with a probability decrease of 0.15 (significant at 1%) compared to households with poor inflation knowledge. Similarly, households with good knowledge of inflation concepts are more likely to perceive prices as sharply increasing, with a probability increase of 0.18 (significant at 1%), more likely to perceive prices as moderately increasing, with a probability increase of 0.03 (significant at 5%), and less likely to perceive prices as stable, with a probability decrease of 0.15 (significant at 1%) compared to households with poor knowledge of inflation concepts.

For lagged perceived inflation, households who perceive the prices of the previous year as stable are more likely to perceive prices as sharply increasing, with a probability increase of 0.25 (significant at 1%), less likely to perceive prices as stable, with a probability decrease of 0.27 (significant at 1%), and more likely to perceive prices as moderately increasing, with a probability increase of 0.02 (significant at 10%) compared to households who perceive prices of the previous year as sharply increasing. Additionally, households who perceive the prices of the previous year as moderately increasing are more likely to perceive prices as sharply increasing, with a probability increase of 0.14 (significant at 1%), less likely to perceive prices as stable, with a probability decrease of 0.18 (significant at 1%), and more likely to perceive prices as moderately increasing, with a probability increase of 0.03 (significant at 5%) compared to households who perceive prices of the previous year as sharply increasing.

The model fit, validated by a likelihood ratio chi-square (LR Chi2) of 88.24 and a p-value of 0, confirms the statistical significance of the regression model. The

Pseudo R-squared of 0.07 indicates that 7% of the variance in perceived inflation is explained by the independent variables included in the model.

### Interpretation of effect sizes

While the analysis above emphasizes statistical significance, the practical magnitude of certain variables also warrants attention. Among the strongest predictors, employment status stands out in Türkiye, where being employed increases perceived inflation by 9.19 units compared to being unemployed—a substantial shift with real behavioral implications. Likewise, lagged perceived inflation consistently shows strong effects across all models: a one-unit increase in past perceived inflation leads to a 0.68 unit increase in Türkiye and 0.35 in Morocco, highlighting the persistence of inflation expectations. In terms of psychological factors, peer influence shows the largest practical impact. For example, in Türkiye, households significantly influenced by peers reported perceived inflation nearly 9 to 14 units higher than those who are not or moderately influenced. Similarly, media influence has a marked effect in Morocco, where those never exposed to inflation-related media reported perceived inflation 9.44 units higher than frequent consumers. These variables do not only achieve statistical significance but also demonstrate considerable real-world influence, affirming their relevance in shaping inflation psychology and behavior.

### Conclusion

This study provides a comprehensive analysis of the determinants of perceived inflation across households in Türkiye, Morocco, and Italy, based on data derived from two regression models.<sup>38</sup> The findings reveal that perceived inflation deviates significantly from actual inflation, and the factors influencing this perception vary across the three countries (see Table 3).

Key drivers of perceived inflation include age, marital status, education level, professional status, living standards, savings, media influence, peers' influence, consumer sentiment, memory, inflation knowledge, and lagged perceived inflation. However, the influence of these variables differs among the countries studied. For example, while education level, media influence, and inflation knowledge are significant in all three countries, their specific impacts vary. Households' perceptions in Türkiye are influenced strongly by education and professional status, whereas households' perceptions in Morocco are shaped by a broader set of factors, including age, marital status, and consumer sentiment. In Italy, variables such as lagged perceived inflation and media exposure play a more pronounced role.

The study highlights the importance of socioeconomic and psychological factors in shaping households' inflation perceptions. For instance, households with

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<sup>38</sup> Statistical methods used to determine the relationships between dependent and independent variables. This study employs multiple regression models to understand the determinants of perceived inflation.

higher incomes in Türkiye perceive lower inflation due to financial stability, while in Morocco and Italy, higher incomes correlate with higher inflation perceptions, possibly due to increased consumption. Similarly, age and marital status significantly influence perceptions; older individuals in Italy are more likely to perceive price stability, while married households in Morocco and Italy are more sensitive to inflation due to greater financial responsibilities.

Since media influence plays a significant role in shaping inflation perceptions in Türkiye, Morocco, and Italy, recent studies, particularly those focusing on emerging markets, supports the findings by emphasizing the role of digital media in shaping inflation perceptions. Social media platforms amplify both the negative and positive effects of inflation perception, influencing consumers' expectations and behavior during economic crises like COVID-19 (Cho et al. 2023). Social media, through its rapid dissemination of information and opinions, creates both a social liability and a social support system, affecting how individuals interpret inflationary trends. Media coverage significantly influences public expectations and perceptions of inflation, reinforcing the comparative aspect of inflation perceptions across different economic contexts (Badarinza and Buchman 2009).

The findings of this study contribute to psychological and economic theories by providing a more nuanced understanding of how inflation perceptions are shaped by cognitive and social factors. From a psychological perspective, the study aligns with Prospect Theory, particularly in relation to loss aversion, as households tend to perceive higher inflation when they are exposed to frequent or salient price increases. Additionally, the study's findings on media influence and peer effects provide empirical support for Social Proof Theory, which suggests that individuals' economic perceptions are shaped by the behavior and opinions of those around them (Cialdini 1984). From an economic standpoint, the study extends traditional inflation expectations models by integrating psychological factors, such as memory and consumer sentiment, that influence how people perceive inflation, even when actual economic conditions may be stable.

Policy implications include the necessity for targeted public education programs on inflation dynamics, particularly for households with lower educational attainment. Additionally, enhancing transparency in economic policies and fostering trust in institutions, such as central banks, can mitigate inflation perception biases. Media also plays a crucial role; providing accurate and balanced economic news can help households form more realistic inflation expectations.

Building on these insights, more specific and actionable recommendations can be drawn. First, central banks should actively collaborate with media organizations to improve public communication. This includes using simplified messaging, infographics, and real-time data dashboards to communicate inflation developments more clearly, particularly during economic crises. Second, financial education campaigns targeting adults and students should integrate content on inflation mechanics, real vs. perceived price changes, and how inflation is measured. This could reduce misperceptions among low-education groups who are more vulnerable to cognitive biases. Third, government agencies and local authorities can leverage peer networks to disseminate accurate inflation narratives. For example, community-based financial literacy programs or social influencer partnerships can be used to counter

misinformation and normalize realistic inflation expectations within trusted peer groups. These approaches not only mitigate the gap between perceived and actual inflation but also enhance the credibility of monetary institutions and the effectiveness of policy transmission.

While taking into account the financial literacy education, the findings strongly support the development of targeted financial literacy initiatives aimed at reducing inflation perception bias. Since low levels of inflation knowledge were associated with exaggerated perceptions across all three countries, particularly among lower-educated groups, educational policies should address this gap directly. National education systems could incorporate inflation literacy into economics curricula at the secondary and tertiary levels, focusing on the difference between perceived and actual inflation, the role of media framing, and how official inflation is

calculated. In parallel, adult education programs and public campaigns could use short-format videos, interactive apps, and influencer-driven content to reach broader audiences—especially in countries like Türkiye and Morocco, where peer influence and media impact were strongest. Partnerships between central banks, schools, NGOs, and tech platforms could make these efforts scalable and culturally tailored. By demystifying inflation, such initiatives would help individuals make more informed economic decisions and improve public trust in monetary policy.

This study opens the door to several targeted and methodologically grounded future research directions. First, future work could employ longitudinal survey designs to analyze how perceived inflation evolves over time, particularly after significant economic events or policy shifts. Such designs would allow researchers to examine causal effects and test the persistence of memory or lagged perceptions revealed in this study. Second, mixed-methods approaches—combining quantitative surveys with qualitative interviews or focus groups—could provide richer insight into the psychological and emotional mechanisms underlying perceived inflation, particularly related to media exposure and peer influence. Third, experimental and quasi-experimental designs (e.g., randomized control trials) could be used to test the impact of financial literacy interventions or media framing on inflation perceptions, helping identify effective policy tools. Fourth, future studies could use cross-country structural equation modeling (SEM) to investigate mediating and moderating relationships between socioeconomic status, trust in institutions, and perception of inflation. Finally, incorporating high-frequency data (e.g., Google Trends, social media sentiment) could offer real-time insights into public inflation expectations, particularly in response to media shocks.

In terms of research questions, several arise from this study: How durable are inflation perceptions formed during crises? To what extent can trust in government or central banks mitigate exaggerated inflation perceptions? Are there nonlinear effects between savings behavior and perception accuracy? How does the mode of payment (e.g., digital vs. cash) shape the salience of price increases? Addressing these questions would deepen our understanding of how households process inflation-related information and respond behaviorally, offering critical inputs for economic policy design.

**Table 3** Summary of Significant Variables Effect

| Variable                              | Effect in Türkiye   | Effect in Morocco  | Effect in Italy  |
|---------------------------------------|---|--|--|
| Education: Primary or less            | More likely to perceive prices as sharply increasing  | More likely to perceive prices as stable, less likely to perceive prices as sharply increasing | More likely to perceive prices as sharply increasing   |
| Living standards: High income         | More likely to perceive prices as moderately increasing   | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable | More likely to perceive prices as sharply increasing   |
| Savings:30%-40%                       | Less likely to perceive prices as sharply increasing  | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable | Less likely to perceive prices as sharply increasing   |
| Media influence: Occasionally         | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable  | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable |
| Peers' influence: Moderately affected | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable  | More likely to perceive prices as sharply increasing, less likely to perceive prices as stable | More likely to perceive prices as sharply increasing   |
| Inflation knowledge: Fair             | More likely to perceive prices as sharply increasing, less likely to perceive prices as stable  | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable | More likely to perceive prices as sharply increasing, less likely to perceive prices as stable |
| Lagged perceived inflation: Stable    | More likely to perceive prices as stable, more likely to perceive prices as moderately increasing, less likely to perceive prices as sharply increasing | Less likely to perceive prices as sharply increasing, more likely to perceive prices as stable | More likely to perceive prices as sharply increasing, less likely to perceive prices as stable |

Despite these contributions, there are several limitations to this study. First, the data collection method was based on an online survey, which may have introduced biases related to internet access, digital literacy, and self-selection among participants. Certain demographic groups with limited access to digital platforms may have been underrepresented. Second, while the sample sizes in each country were sufficient for statistical analysis, they may not fully capture the diversity of experiences within each country, particularly in rural or economically disadvantaged areas. Lastly, the study relied on self-reported data, which may be subject to response biases such as social desirability or inaccurate recall of inflation experiences. These limitations should be considered when interpreting the findings and suggest that future studies could benefit from using alternative data collection methods, such as face-to-face interviews or integrating qualitative insights.

In conclusion, understanding the drivers of perceived inflation requires a multidisciplinary approach that considers socioeconomic, psychological, and behavioral dimensions. By addressing these factors, policymakers can develop more effective communication strategies and monetary policies to align public perceptions with economic realities, fostering greater confidence in the economy.

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**Availability of Data and Materials** The data used in this research was collected through a survey. The data collection process was conducted with the necessary approvals from the university, ensuring compliance with ethical and institutional guidelines. The dataset is available upon reasonable request, subject to confidentiality and privacy considerations.

## Declarations

**Conflict of Interest** The author declares that there are no competing interests related to this research.

**Ethical statement** This study was conducted in accordance with the relevant ethical guidelines and regulations. The research was approved by the Scientific Research and Publication Ethics Committee of Ibn Haldun University (Approval Number: 2024/01-10, Date: 18.01.2024). All research procedures involving human participants were performed following these ethical standards.

**Informed consent** Informed consent was obtained from all participants involved in this study. Prior to participation, all respondents were informed about the purpose of the study, the voluntary nature of their involvement, and their right to withdraw at any time. The survey included a declaration of consent, which was acknowledged by all participants before completing the survey. This ensured that participants were fully aware of the study's procedures and gave their consent freely.

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