

THE IMPACT OF SENTIMENT AND TROPES IN MEDIA COMMUNICATION ON THE FORMATION OF ECONOMIC PERCEPTION

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Purpose: This study analyses the impact of expert comments on inflation forecasts among Polish university students. The survey, conducted from April 2023 to February 2024, aimed to assess how positive and negative expert comments influence qualitative and quantitative perceptions of inflation in the context of rising prices. It involved 412 participants, including 326 women, 83 men and three people who did not specify their gender.

Design/methodology/approach: The methodology of the study involved the use of a priming technique by screening a video to standardise participants' understanding of the economic situation. They were then randomly allocated to two groups: one receiving positive comments from experts (Group P) and the other receiving negative comments (Group N). Inflation forecasts were collected both before and after the commentary, allowing analysis of changes in perceptions depending on the tone of the commentary.

Findings: The survey results indicate that expert comments had a significant impact on inflation forecasts. Participants who received positive feedback were more likely to adopt optimistic forecasts, anticipating lower inflation or inflation stabilisation. In contrast, those who encountered negative comments were more likely to forecast faster price increases. Negative feedback had a stronger effect on changing inflation expectations, highlighting an asymmetric information processing effect in which negative news triggers more significant changes than positive news.

Research limitations/implications: The study contributes to a better understanding of how expert opinions shape public inflation expectations, highlighting the need for careful formulation of economic messages. Policy makers and media professionals should be aware of the important role that expert commentary plays in shaping public attitudes towards inflation. The results also have broader implications for economic communication, suggesting that balanced messages are crucial to the effective management of inflation expectations.

Originality/value: The results of the study are a valuable contribution to the field of economic psychology, particularly in the context of communication strategies in times of economic uncertainty. They show how the emotional nature of language influences the perception of content and the reception of media messages, and thus the final decisions of consumers.

Keywords: inflation, behavioral economics, media communication, cognition, language pragmatics.

Category of the paper: Research paper.

1. Sentiment in media communication: definition and mechanisms of influence

The concept of sentiment, widely used in both linguistics and behavioural finance, has a complex and multilayered meaning, making its accurate capture require an interdisciplinary approach. In the literature, *sentiment* is often equated with emotions and moods that influence the decisions made by market participants. Sentiment is often used to describe market sentiment (market sentiment), which can be positive (upward) or negative (downward) (Blazquez, Domenech, 2017). Over the years, researchers have tried to capture the nature of sentiment using various analytical techniques, including text analysis. Modern approaches to sentiment analysis often use Big Data tools, which allows for a more precise understanding of changing sentiment in real time (Blazquez, Domenech, 2017). Textual sentiment refers to the emotional overtones contained in textual content. This can include news articles, social media posts and other user-generated content. Textual sentiment analysis can be reduced to sentiment analysis. It includes the classification and evaluation of emotions expressed in texts.

According to Sanjiva Ranjan Das (2022), textual sentiment analysis can be classified as a data mining method based on tools drawn from linguistics and the psychology of language. When studying sentiment, researchers extract, classify and attempt to evaluate the opinion expressed in various source texts.

In the literature, there are many approaches to classifying emotions that are used in sentiment analysis. A study by Bollen, Mao and Zeng (2011) identified emotions such as calmness, confidence or alertness to predict market behaviour. Other studies, such as those by Saurabh and Dey (2020) focused on emotions such as love, sadness, joy, anger, fear or stress, which they identified as “psychometric words.” Ekman's model of basic emotions working with Paul Ekman's key theory of emotion psychology is another popular model used to analyze emotions in texts, identifying basic emotions such as fear, anger, sadness, disgust, surprise and joy.

In addition to linguistics and the psychology of emotions, the branch of science that studies sentiment is behavioral finance, which deals with the topic of how emotions and sentiment affect investment decisions. Researchers such as Pedro Reis and Carlos Pinho (2020) point out that “sentiments explain movements in financial markets, especially during periods of irrational panic or unwarranted optimism”. In the context of sentiment, the influence of the media in shaping the economic perceptions of audiences cannot be overstated either. The media play a key role in shaping sentiment through the process of information selection. The characteristics of the texts published by media channels can influence market sentiment due to the fact that the media reflect emotions that are not easily quantified, which makes textual sentiment analysis a unique challenge.

2. Priming in media communication: definition and mechanisms of media priming influence on perception

Priming and framing are two key mechanisms by which the media influence audiences, shaping their perception and interpretation of information. Framing is a psychological mechanism that involves singling out a particular topic from among many others and focusing the audience's attention on it when evaluating events or public figures. This process is based on frequent repetition of specific information and exposing it in such a way that it is easily accessible to the audience. According to Shawn Soroka and Stephen McAdams (2022), through priming, the media can shape the hierarchy of topics, which affects the perception of the importance and value of the information conveyed by a media channel. According to the researchers, a fundamental aspect of torching is the repetition of information. Frequent coverage of certain topics makes them readily available in the audience's memory, leading to the perception that they are more relevant. The media can therefore direct the public's attention to specific problems or events, thereby changing perceptions of reality.

In the article *Priming and the influence of news media on public opinion* authors Larry M. Bartels and Robert Ferguson (2020) discuss the mechanisms by which the media influence public opinion through the process of priming. The authors emphasize that priming refers to the media's ability to influence which issues are perceived as important by the public. By selectively exposing certain issues, the media can shape how audiences perceive given thematic strands. Bartels and Ferguson point out that the media not only influence what issues are considered important, but can also change how those issues are judged by the public.

The priming mechanism, although recognised as one of the key tools of media influence on audience perception, is often criticised for simplifying the process of evaluating topics. In reality, audiences do not always react in a predictable way to repeated messages - their reactions are modulated by previous experiences, social context and individual attitudes towards the issues discussed. Therefore, while priming helps to prioritise topics, its effectiveness is not universal and depends on many variable factors. Priming influences the criteria by which audiences judge public figures or social issues. When the media expose economic issues, they become the main criterion for evaluating politicians or government actions. With priming, the media can even change the standards by which audiences evaluate the environment. For example, frequent emphasis on national security can cause voters to view politicians through the prism of their approach to the issue, which influences electoral decisions and selective evaluation criteria.

3. Overview of research and articles

Modern financial markets are largely shaped by factors that go beyond traditional economic models based on rationality and predictability. In *Animal Spirits*, George A. Akerlof and Robert J. Shiller (2009) introduce the concept, which refers to irrational psychological factors that influence economic decisions. This theory suggests that emotions, moods and narratives have a significant impact on economic decisions, often leading to phenomena such as speculative bubbles and financial crises. Therefore, understanding the mechanisms involved in the impact of the sentiment contained in media messages on the recipient of those messages can provide answers to the question of how the media influences the perception of risk associated with investment decisions. Given the dynamic global social and political environment, examining the mechanics of financial decision-making in a volatile environment conducive to irrational decision-making becomes central to the analysis of contemporary economic behaviour. These aspects are particularly relevant in the context of studying the impact of media narratives on consumer decisions and strategies of economic actors, especially in the era of technologisation of most interpersonal communication processes, as well as media or mass communication processes.

Similar conclusions to the authors of *Animal Spirits* were reached by Robert J. Shiller in his book *Narrative Economics* (2019). According to Schiller, it is primarily narratives and stories that play a key role in shaping economic perceptions and market decisions. The author explores how popular stories influence economic behaviour while contributing to economic phenomena. According to Shiller, narratives spread like viruses. This is why they are so effective in influencing the moods of consumers and investors, and thus entire economic systems. In this context, Shiller also emphasises the role of the media in shaping economic perceptions.

The findings on the impact of narratives on financial markets and the real estate sector highlight the importance of narratives as a mechanism for manipulating consumers' economic behaviour. This approach provides a basis for analysing the impact of the sentiment perceived in media messages on strategic and market decisions. In this context, the researcher emphasises the impact of the dynamics of change in the environment, as well as the role of story structure taking into account thematic and emotional context.

Daniel Kahneman, with his prospect theory and the introduction of the dual-system thinking model, adds a new dimension to the discussion on the impact of non-rational factors on individuals' economic perceptions. Economic decisions are often influenced by two types of thinking: fast, intuitive, and slow, analytical. In his book *Thinking, Fast and Slow*, Kahneman (2011) describes how these two systems shape consumer behaviour and decision-making. Fast thinking, which is more susceptible to emotions and priming, often leads to irrational decisions that can have significant economic consequences. In the context of media sentiment, emotional narratives can trigger the fast thinking system, resulting in decisions based on intuition rather than rational analysis. Understanding these processes is crucial for evaluating how media can shape economic perceptions.

Shiller's concept of narrative focuses on the mechanism of the spread of stories, which, like viruses, can influence market decisions. According to critics, this approach over-generalises the manipulative impact of stories, ignoring local cultural conditions and specific perception mechanisms. In this context, Kahneman's approach seems more accurate, pointing to a two-system model of thinking in which quick, intuitive reactions can be both a catalyst for cognitive errors and an effective tool under time pressure. In comparing these two optics, it is worth noting that while both theories offer interesting conclusions, a fuller understanding of economic decisions requires combining both perspectives and taking into account the specific decision-making context.

The concept of *nudges* or subtle prompts influencing consumer decisions, is the central theme of the book *Nudge* by Richard H. Thaler and Cass R. Sunstein. The authors explore how small changes in information presentation can influence behaviour without taking away freedom of choice. In the context of managing media messages, well-crafted communications can promote more conscious and effective economic decisions. Research on the impact of narrative and sentiment on consumer decisions and market strategies demonstrates how *nudges* can be applied in practice to improve market efficiency and support economic stability.

Scientific articles investigating the impact of communication and priming on financial markets and economic decision-making highlight the key role of media message management in the economic context. The article titled *Transparency and Deliberation Within the FOMC: A Computational Linguistics Approach* by Hansen, McMahon, and Prat (2021) shows how different forms of communication by the Federal Open Market Committee (FOMC) influence financial markets, particularly inflation expectations and investment decisions. The researchers conclude that transparency and clarity in communication help shape stable expectations, which

are crucial for effective inflation forecasting. At the same time, complex and conflicting messages can lead to increased uncertainty and market volatility. To gather data for verification, the researchers used advanced linguistic analysis techniques to study FOMC communications. Additionally, they applied sentiment analysis tools to identify positive, neutral, and negative aspects of the messages. Beyond linguistic content, they examined the correlation between the language used in the communications and market reactions, such as changes in stock prices, interest rates, and inflation expectations. It was found that increased transparency in FOMC communications leads to more predictable market reactions. The tone and linguistic structure of the messages have a direct impact on inflation expectations and investment decisions. Messages with a positive tone often result in increased market optimism. The study results show how crucial thoughtful media message management is in influencing economic perceptions. The article demonstrates that both the form and content of communications can significantly affect investment and consumer decisions. Clear and consistent messages can help maintain stable inflation expectations, while complex and conflicting information can lead to uncertainty and erroneous forecasts.

Similarly, in the article *News and Narratives in Financial Systems: Exploiting Big Data for Systemic Risk Assessment*, authors Nyman, Kapadia, Tuckett, Gregory, Ormerod, and Smith (2020) examine how media narratives and sentiment affect financial systems and how they can be used to assess systemic risk. This study fits into the broader context of analyzing the impact of emotions and priming on how market participants perceive economic conditions. The data analysis conducted for the article included large text datasets, such as newspaper articles, analyst reports, and other media communications regarding finance, collected over several years. The key findings from the analysis relate to the impact of narratives and sentiment in media communications and their influence on risk perception among market participants. Emotionally charged narratives can lead to abrupt market reactions, contributing to volatility and financial instability. The authors emphasize the role of big data in shaping economic perceptions. According to the researchers, the use of big data techniques allows for a better understanding of the dynamics of narratives and their market impact. Additionally, the ability to track changes in the tone and themes of narratives provides valuable insights into potential systemic risks. The researchers also highlighted the importance of sentiment and priming in media, which can act as tools for predicting future market events. The positive or negative tone of narratives is undoubtedly significant in the context of estimating investor expectations and financial decisions.

In a similar vein, the article *The Impact of News Sentiment on Housing Prices: Evidence from China* by Zhou and Huang (2020) investigates how media sentiment affects real estate prices in China. The article introduces a new perspective by focusing on sellers rather than consumers purchasing goods or services. The authors analyze how media sentiment can shape sellers' decisions regarding pricing and investment strategies. After comparing communications containing positive and negative sentiment, the researchers concluded that positive media

sentiment leads to an increase in real estate prices. Sellers, perceiving optimistic narratives, are inclined to raise prices, expecting higher demand. On the other hand, negative sentiment in media communications can lead to price reductions or transaction slowdowns, as sellers adjust to expectations of lower demand and higher risk, which are determined by consumer sentiment. The article by Zhou and Huang demonstrates that media and their emotional content influence strategic decisions of sellers in the real estate sector. Media sentiment acts as a form of priming that leads to changes in pricing and investment strategies. Sellers react to media narratives by adjusting their actions to changing market expectations.

Summarizing the views presented on the impact of media sentiment and narratives on economic decisions, it should be said that they show the complexity of this problem, while it should be emphasized that they also show some important differences. Akerlof and Shiller in *Animal Spirits* and Shiller in *Narrative Economics* emphasize that irrational, emotional narratives can lead to market disorders such as speculative bubbles, pointing to the strong but one-sided influence of narratives on markets. On the other hand, Kahneman in *Thinking, Fast and Slow* introduces a more nuanced approach, suggesting that a two-track thinking system - fast, emotional versus slower, analytical - mitigates this influence, pointing to a more complex decision-making mechanism. Thaler and Sunstein in *Nudge* offer a contrasting perspective, suggesting that rather than creating chaos, properly constructed media messages can gently shape consumer decisions, promoting more informed and rational choices. The articles by Zhou and Huang and Nyman and co-authors acknowledge the impact of narratives and sentiment on markets, but differ in their assessment of the strength of that impact, with Zhou and Huang focusing on short-term effects, while Nyman examines long-term systemic risks. As a result, each of these works brings different insights into how the media shapes economic decisions, from narrative manipulation to the potential for improving decisions through well-informed media coverage.

4. Method Description

The study was conducted between April 2023 and February 2024 among self-supporting students from Polish universities who are not analysts. A total of 412 participants took part in the study, including 326 women, 83 men, and 3 individuals who did not specify their gender. The age of the respondents was between 18-30 years (Figure 1).

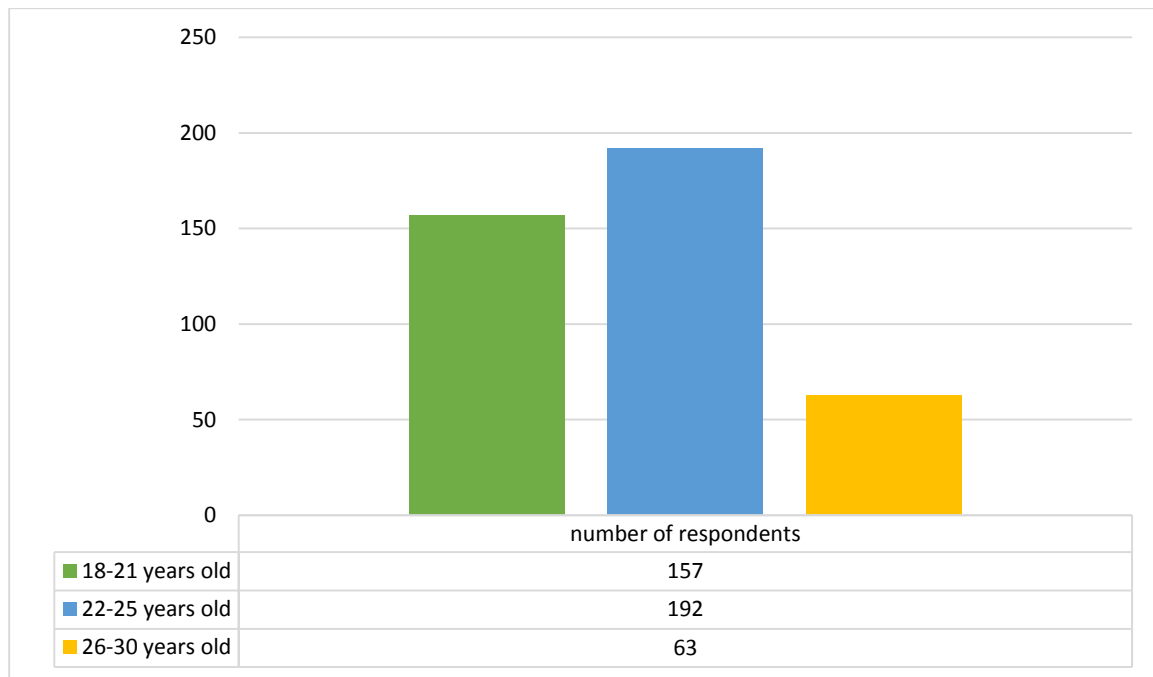


Figure 1. Number of study participants by age group.

Source: Own elaboration based on data collected in the original study.

Participants were first asked to complete a demographic survey. Due to the dynamic economic situation in Poland during the study period, characterized by rising inflation, participants were shown a video. The material aimed to equalize the cognitive understanding of the economic environment and neutralize media information presented in Polish media. As a result, all participants, through the application of priming, responded to the questions from the same cognitive baseline.

After watching the video, participants received a message that, in addition to describing the economic situation and its prospects both domestically and internationally, provided information about an inflation rate close to the inflation target of 2.1%. After reading the message, participants estimated the inflation rate both qualitatively and quantitatively. In the qualitative assessment, participants could choose one of the following options:

In your opinion, over the next 12 months, will prices:

- rise faster than they are now,
- rise at the same pace,
- rise more slowly than they are now,
- remain unchanged,
- decrease.

In the next step, participants were randomly assigned to read an expert commentary—either a positive version (Group P) or a negative version (Group N). They then had the opportunity to modify their estimated inflation rate.

5. Results

Regarding the qualitative estimation of inflation, it can be concluded that depending on the expert commentary read (positive vs. negative sentiment), the analysis showed statistically significant differences in the change of option selection during the second assessment (Table 1).

Table 1.

Mann-Whitney U Test (with continuity correction) for qualitative inflation forecasts in relation to the type of expert commentary (N valid Group P = 208; N valid Group N = 201)

| Variable | Z | p | Z | p |
|---------------------------------|-------|------------|--------|------------|
| Change in qualitative inflation | -9.86 | p < 0.0001 | -10.31 | p < 0.0001 |

Source: Own elaboration based on data collected in the original study.

In the overall sample, 3 participants did not respond to the qualitative assessment of inflation changes. The positive commentary was read by 208 participants, while 201 participants read the negative commentary.

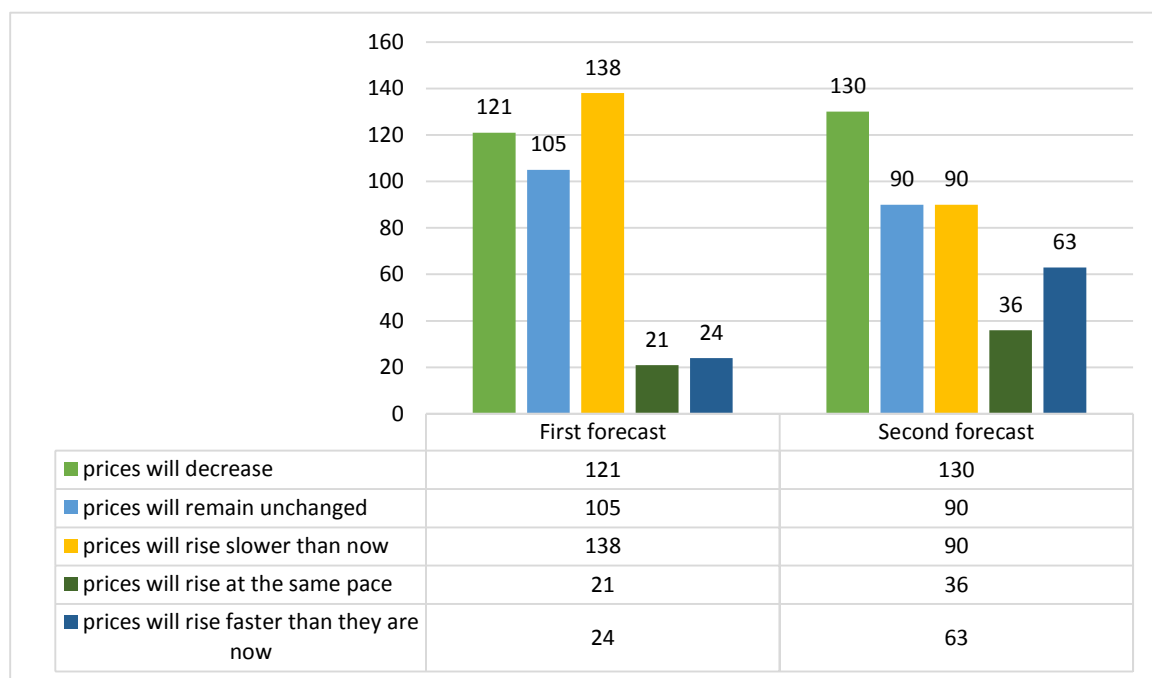


Figure 2. Qualitative inflation estimation considering the first and second forecasts.

Source: Own elaboration based on data collected in the original study.

In the initial inflation estimation, 121 participants indicated that prices would decrease, while 24 participants chose the option "prices will rise faster than they are now". After reading the expert commentary, the number of participants who believed prices would decrease increased to 130, while the number of those who thought prices would rise faster than now increased to 63 (Figure 2).

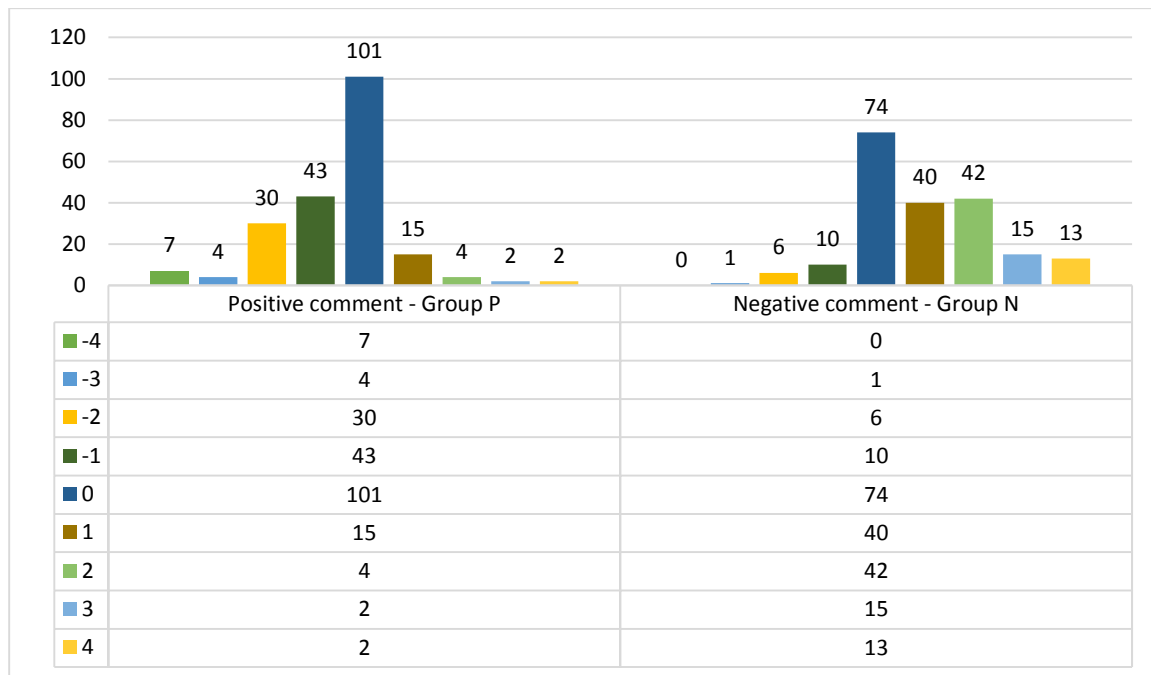


Figure 3. Distribution of results for changes in qualitative inflation depending on the nature of the expert commentary.

Source: Own elaboration based on data collected in the original study.

For the positive commentary, 101 participants (48.56% of Group P) maintained the same opinion after reading it, meaning they did not change their view. In the case of the negative commentary, 74 participants (36.81% of Group N) held the same opinion. Additionally, the analysis showed that among those who read the positive expert commentary, 84 participants (40.38% of Group P) selected an option indicating a slower inflation rate or no inflation during the second assessment. Among those who read the negative commentary, only 17 participants (8.46% of Group N) made a more optimistic assessment than in their first choice (Figure 3).

In terms of worsening the inflation forecast, 23 participants (11.06% of Group P) in the group that read the positive commentary chose such an option. In contrast, in the group that read the negatively toned expert commentary, 110 participants (54.73% of Group N) did so (Figure 3).

Among those who received the positive commentary, 58 participants (27.88% of Group P) made a qualitative change of one level compared to the first indication, while 49 participants (23.56% of Group P) made a change of 2 or more levels. In the group that read the negative commentary, 50 participants (24.87% of Group N) made a one-level qualitative change compared to the first indication, while 77 participants (38.31% of Group N) made a change of 2 or more levels.

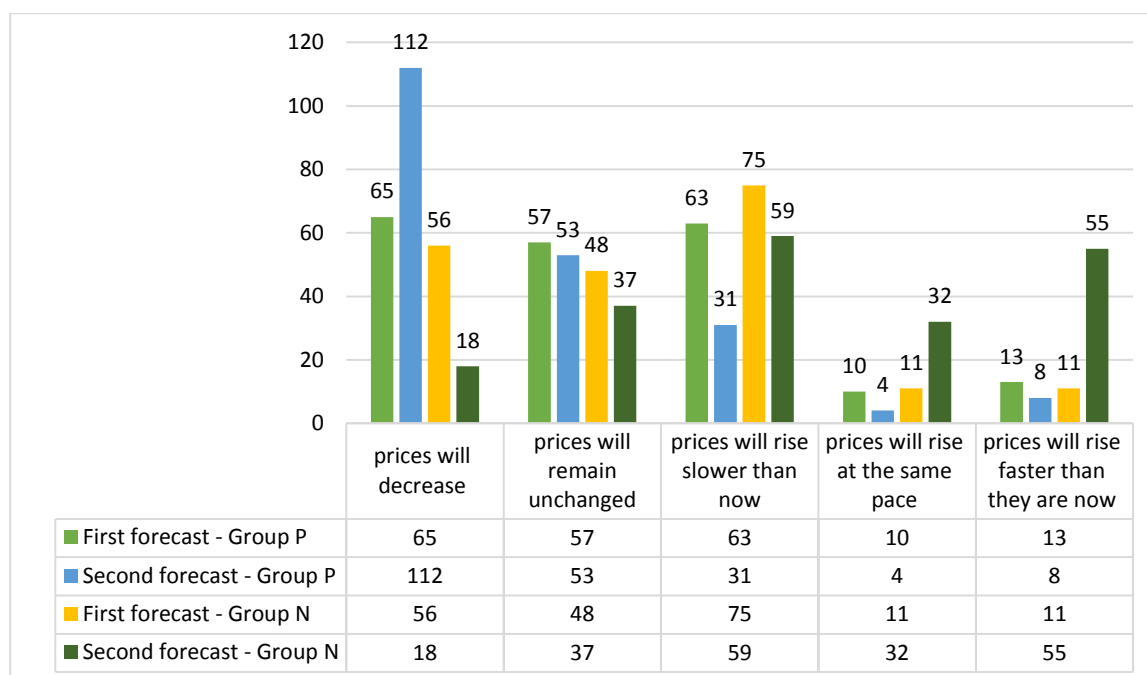


Figure 4. Number of participants selecting each qualitative forecast variant before and after reading the expert commentary, considering the tone of the expert commentary.

Source: Own elaboration based on data collected in the original study.

Comparing the first and second qualitative inflation estimations, the largest percentage change in Group P was noted for the forecast "prices will decrease within 12 months". In Group N, the largest change occurred for the forecast "prices will rise faster than they are now" (Table 2).

During the first inflation estimation, the option "prices will decrease within 12 months" was indicated by 65 participants in Group P and 56 participants in Group N. After reading the commentary, the number of participants selecting this option in Group P increased to 112, reflecting a 72.31% rise. In Group N, the number of participants dropped to 18, a 67.86% decrease compared to the first estimation (Figure 4, Table 2).

For the option "prices will rise faster than they are now," 13 participants in Group P and 11 participants in Group N selected it during the first estimation. After reading the commentary, 8 participants in Group P selected this option, a 38.46% decrease compared to the first estimation. In Group N, the number of participants increased to 55, a 500% increase compared to the initial choice (Figure 4, Table 2).

Table 2.

Dynamics of changes in choices considering the division into Group P and Group N (%)

| Forecast | Group P forecast 2/1 | Group N forecast 2/1 | Overall forecast 2/1 |
|---------------------------------------|-------------------------|-------------------------|-------------------------|
| Prices will rise faster than now | 61.54% | 500.00% | 262.50% |
| Prices will rise at the same pace | 40.00% | 290.91% | 171.43% |
| Prices will rise more slowly than now | 49.21% | 78.67% | 65.22% |
| Prices will remain unchanged | 92.98% | 77.08% | 85.71% |
| Prices will decrease | 172.31% | 32.14% | 107.44% |

Source: Own elaboration based on data collected in the original study.

Table 3.

Share of each inflation forecast variant overall during the first and second forecast with a division into Group P and Group N

| Forecast | First forecast | | | Forecast after expert commentary | | |
|---------------------------|----------------|---------|---------|----------------------------------|---------|---------|
| | Group P | Group N | Total | Group P | Group N | Total |
| Prices will: | | | | | | |
| rise faster than now | 6,25% | 5,47% | 5,87% | 3,85% | 27,36% | 15,40% |
| rise at the same pace | 4,81% | 5,47% | 5,13% | 1,92% | 15,92% | 8,80% |
| rise more slowly than now | 30,29% | 37,31% | 33,74% | 14,90% | 29,35% | 22,00% |
| remain unchanged | 27,40% | 23,88% | 25,67% | 25,48% | 18,41% | 22,00% |
| decrease | 31,25% | 27,86% | 29,58% | 53,85% | 8,96% | 31,78% |
| Total | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% |

Source: Own elaboration based on data collected in the original study.

Considering the first inflation estimation, the highest percentage of choices (33.74% overall) was noted for the option "prices will rise more slowly than now", with 37.31% of participants in Group N and 30.29% in Group P selecting this option. The choice of this option in the second estimation decreased by 34.78% overall and accounted for 22.00% of all responses (Table 2, Table 3).

In the forecast following the expert commentary, the highest overall percentage of choices (31.78%) was recorded for the option "prices will decrease within 12 months". During the first estimation, 29.58% of all participants chose this option.

6. Research conclusions

The conducted research clearly demonstrates a significant impact of expert commentary on students' inflation forecasts. The analysis reveals that both positive and negative comments substantially influence inflation perceptions, as confirmed by statistical analysis. The Mann-Whitney U test identified significant differences in the changes in inflation forecasts depending on the type of commentary, with both positive and negative comments showing a strong effect on predictions, with p-values below 0.0001.

After reviewing the positive commentary, the majority of participants (84 individuals) predicted a lower inflation rate or no inflation at all, indicating a tendency towards an optimistic view of the economic situation under the influence of positive stimuli. Conversely, the negative commentary had a more pronounced effect, leading a larger number of participants to revise their forecasts towards a more pessimistic outlook. Specifically, 110 participants believed that prices would rise faster than they currently do, highlighting the stronger influence of negative messages on forecast adjustments.

The study results also illustrate how different inflation forecast variants shift under the influence of commentary. For instance, the number of participants predicting a price decrease rose from 65 to 112 following the positive commentary, while it dropped from 56 to 18 after

the negative commentary. Similar shifts were observed across other forecast options, underscoring the significant role expert commentary plays in shaping perceptions of future inflation trends.

The interpretation of these results is grounded in several psychological mechanisms. Availability heuristics suggest that the most recent information, such as expert commentary, dominates perceptions of the economic situation. The priming effect, stemming from prior exposure to a neutral video and an inflation message, may have influenced how participants processed subsequent information. The authority effect highlights the strong impact of expert opinions on participants' attitudes, while the emotions triggered by the commentary—whether positive or negative—significantly shape their inflation forecasts.

Additionally, the asymmetry in information processing, where negative messages have a stronger impact than positive ones, further explains why negative comments led to more significant changes in inflation forecasts. Negative information tends to be processed more deeply, which may account for its stronger influence on inflation perception compared to positive commentary.

These findings emphasize the importance of understanding the influence of expert messages on inflation forecasts and highlight the need for careful formulation of economic information in the media. Effective management of inflation perception requires consideration of both positive and negative messages and their potential impact on public attitudes and economic decisions.

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