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Research article

Examining consumer preferences for basic foodstuffs in a highly inflationary economic environment: The case of price-capped chicken breast fillet in Hungary

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ABSTRACT

In recent months, the European Union has experienced inflation that has not been seen for decades. Inflation and inflation expectations are crucial in economic and purchasing behaviour, as they influence consumption. Hungary had the highest inflation among the Member States of the European Union. To deal with this, the Hungarian government introduced price caps on certain basic foodstuffs. Chicken breast fillets are classified among these officially priced products, and based on per capita consumption in Hungary, poultry can be considered the most popular meat. The research aims to examine the preferences of Hungarian meat consumers regarding chicken breast fillets, considering their inflation expectations. Based on an online survey conducted in Hungary (n = 500), a latent profile analysis and an object case best-worst scaling approach were applied. Two-thirds of respondents are largely pessimistic about the future economic environment and the development of consumer prices. Best-Worst scores reveal that freshness, health impact and price are among the most significant considerations, while brand and place of origin are among the attributes considered least important. However, among the clusters distinguished based on inflation expectations, there are notable differences in assessing the importance of these attributes, which serve as the basis for managerial and policy implications.

1. Introduction

In recent months, price increases unseen for decades have become an important topic of conversation for economic experts and citizens seeking to maintain their daily livelihood. Economists and policymakers closely monitor inflation rates and aim to maintain price stability within a target range to foster sustainable economic growth and preserve macroeconomic stability. In the case of households, inflation can have wealth- [1,2] and redistributive effects [3,4]. Inflation erodes the purchasing power of money, leading to a decline in real wealth. As a result, consumers tend to reduce their spending and increase their savings to maintain their desired level of wealth.

European countries and decision-makers reacted to the unexpected inflationary environment in different ways. In response to the highest state inflation in the European Union, the Hungarian government introduced price caps on various basic foodstuffs. The policy

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was introduced by the government in January 2022, involving price caps on sugar, wheat flour (BL55), sunflower oil, UHT cow milk, pork (hock/thigh), chicken (breast, back/carcass), and in November, potatoes and eggs. The government capped the prices of seven basic food items at their price levels in October 2021 and September 2022, respectively. With this measure, the Hungarian government expected to slow inflation [5] and aimed to minimise the proportion of income individuals allocated to food expenditure. While consumer spending on food and non-alcoholic beverages in the European Union averages below 15 %, it reaches almost 20 % in Hungary, according to data from the Hungarian Central Statistical Office [6], which exceeds 30 % in the lower socioeconomic strata (based on income in the last deciles).

Based on per capita consumption in Hungary, poultry can be considered the most popular form of meat [6]. It is typically preferred by non-middle-aged consumers living in an urban environment [7]. Among poultry, Hungarian customers primarily purchase chicken breast fillets and bone-in chicken breasts [8]. Therefore, our research aims to examine the preferences of Hungarian meat consumers regarding chicken breast fillets concerning the latter's inflation expectations. It is important to understand what attributes consumers consider when buying chicken breast and how these change with rising inflation. It is important to understand how price is decisive for consumers in the current economic environment in the case of a basic product like chicken breast fillets.

The novelty of our study is that, to the best of our knowledge, no study has yet addressed consumer preferences regarding basic food products in this current inflationary environment. In Hungary and many European countries, the consumption of chicken meat, especially chicken breast, is significant. Thanks to this, the Hungarian government maximised the price of this product with a price cap. Regarding the structure of the study, the literature review with the theoretical background and material and method section is presented after the introduction. After this, the results and discussion section follows. Then, theoretical, political and managerial implications are formulated, and the limitations of the research and possible future research directions are described in the conclusions section.

2. Literature review

2.1. Consumer behaviour in an inflationary situation

Individuals make decisions regarding their food selections multiple times throughout the day. The context of behavioural economics relates to how different factors, from psychological, emotional and cognitive perspectives, influence these consumer decisions [9,10]. These factors can be classified into several groups: personal factors [11,12], social factors [13,14], geographical origin [11,15] or environmental protection concerns [16,17], etc. In addition, product prices are especially important in a high inflation environment [18,19]. Furthermore, the theory of bounded rationality suggests that consumers use heuristics and simplified decision-making processes to make decisions under uncertainty rather than optimising and analysing different based on complete information [20,21].

Inflationary situations and inflationary expectations play a crucial role in shaping consumer behaviour, particularly in relation to spending and saving decisions; for example, in the case of high inflation, people may begin to build reserves or, on the contrary, spend their money so that it does not erode further [22,23]. Consumers often engage in consumption smoothing during inflations and negative economic environment to maintain a stable spending pattern. This involves adjusting their expenditures across different categories and time frames to avoid large price changes and navigate economic fluctuations [24]. Consumer's product knowledge and financial literacy significantly influence how they make purchasing decisions. Product knowledge, higher education and numericity play a critical role in helping consumers better process inflationary information and, as suggested by rational choice theory, aligning their actions with rational economic behaviour [25,26].

The sociodemographic characteristics (e.g., age, gender, income) greatly influence consumer behaviour during inflationary episodes. Consumers from lower income groups may feel the effects of inflation more acutely and adjust their behaviour by focusing on essential foodstuffs and non-food goods. They could exhibit changes in brand loyalty and purchasing habits due to increased price sensitivity. It indicates that high inflation is often associated with increased income inequality and negatively impacts the economic well-being of the lower income and/or elderly groups [27,28].

2.2. The role of expectation and consumer behaviour

As mentioned, expectations about inflation play a crucial role in shaping economic behaviour, as they influence consumption, investment decisions and wage negotiations. Expectations of rising inflation may stimulate current consumption. Based on the Fisher equation and the intertemporal substitution effect, many authors suggest that the belief in and expectation of higher future inflation generates greater current spending when nominal interest rates are stuck at the zero lower bound [29,30]. Further, empirical studies show a positive, significant relationship between inflation expectations and consumption or spending responses [31–33]. Consumers in good financial condition may reduce their savings, as they expect the value of their savings to erode [22]. However, some authors say higher inflation expectations may lessen current consumption [34,35]. Consumers who are pessimistic about the future economic situation tend to distort their inflation expectations more strongly, which can lead to less spending, especially in the case of larger purchases [23].

From 2021 onwards, consumers in the European Union experienced rising inflation. According to Stokman [36], rising inflation expectations in the European Union slowed down private consumption growth. Still, fiscal and monetary policy responses to the challenges posed by COVID-19 and the energy crisis, such as low nominal rates, direct subsidies and credit moratoriums, also mitigated the depth of the economic downturn, helping to maintain economic stability during this period. However, the efficacy of measures such as the price cap implemented by the Hungarian government in mitigating inflation or influencing consumption patterns remains

uncertain, particularly in the context of a staple food item like chicken breast fillet.

2.3. Consumer preferences and behaviour in the case of chicken breast and chicken breast fillet

Since chicken breast is also among the products whose price has been capped, it is worth exploring consumers' consumption habits. Several international studies have previously examined consumer preferences for chicken meat, especially chicken breast fillets. From examining preferences for processed, higher-added-value foods made from chicken, Michel, Anders [37] found that Canadian consumers are willing to pay the highest price for pre-chilled, free-range chicken breast fillets free of added ingredients or preservatives. Analysing Slovenian poultry consumers, Vukasovic [38] found that customers primarily buy chicken from hypermarkets and supermarkets, which they consider healthier, safer and tastier than other types of meat. Furthermore, Slovenian customers consider chicken meat the cheapest type of meat, and the vast majority would buy domestic chicken meat if available. In the USA, consumers clearly prefer lighter-coloured chicken breasts, so poultry meat with a darker colour/shade (typically related to the feeding and age of the animal) is typically exported [39]. Like the present research, Ellison, Brooks [40] used BWS methodology to examine the perceived importance of the production process of various animal-derived foods (including chicken). The results suggested that American consumers prefer hormone- and GMO-free products. Korean consumers prefer meat from indigenous breeds, and those who buy such meat are less price-sensitive than those who buy meat from modern breeds of chickens [40]. Similar results were found in Ghana, where buyers in most consumer segments were willing to pay a premium for meat from indigenous chickens [41].

Analysing specifically consumer preferences for chicken breast, Napolitano, Castellini [42] in Italy concluded that the production method (especially organic production) plays a decisive role. Also examining organic chicken breast, Van Loo, Caputo [43] found that US consumers are willing to pay a higher premium for US organic certification in all consumer segments. In Australia, chicken breast buyers value locally produced products primarily because local foods are perceived to be of higher quality [44]. Using BWS methodology, Lister, Tonsor [45], based on a sample of American consumers, found that freshness and safety were among the most important product characteristics in all cases for the product types examined (ground beef, beef steak, chicken breast fillet and milk). However, price was extremely important in the case of chicken breast.

3. Methods

3.1. The process of the research and presentation of the sample

The online questionnaire was collected by a professional market research company, Szinapszis Market Research and Consulting Ltd. Data collection took place in December 2022 using the online platform Qualtrics. The questionnaire was optimised for mobile devices and consumers to reach more potential respondents. Compared to the Hungarian Central Statistical Office (HCSO) population data at the end of 2022 (Table 1), the sample is representative regarding gender and place of residence. Regarding the level of

Table 1
Presentation of sample.

Characteristics	Sample (n = 500)	Hungary (n = 9.599.744)
Gender (%)		
Female	53.0	51.8
Male	47.0	48.2
Age (%)		
18–29	17.6	13.3
30–39	17.0	12.9
40–49	18.8	16.3
50–59	15.0	13.5
60–	31.6	26.3
Place of residence (%)		
Village (fewer than 5000 inhabitants)	25.0	29.8
City (5000–100,000 inhabitants)	35.8	34.8
Large city (more than 100,000 inhabitants)	39.2	35.4
Level of education (%)		
Basic education	4.6	18.6
Secondary education	68.4	56.4
Higher education	27.0	25.0
Number of people living in one household		
Average number of people living in one household	2.5	2.3
*General income situation (1–5 Likert scale average)**		
A large, unexpected expense would be difficult for me to handle.	3.5	N/D
I'm just getting by financially.	3.2	N/D
In a given month, a gift intended for a wedding, birthday, or other event would burden me financially.	3.3	N/D
By the end of the month, I have no money left to spend.	3.1	N/D
Sometimes, I have unpaid bills.	1.7	N/D

*Note: '1': "does not describe you or your situation at all", and '5': "totally describes you or your situation" Source: Authors' composition based on survey and HCSO (2023) data.

education, those with basic education are underrepresented, which can be explained by the online nature of the query [46].

The structure of the questionnaire was as follows:

(1) assessment of the consumer behaviour of the respondent (e.g., What kind of meat do you usually eat? How often do you buy chicken breast fillets?);
(2) presentation of decision situations using the best-worst scaling (BWS) preference evaluation procedure, examination of preferences related to chicken breast fillets (details about the experimental design of the BWS are included in the following subsection);
(3) assessment of inflation expectations, following Białowolski [47]:
   - Compared with the past year, how do you expect consumer prices to develop next year? (1–5 scale, 1: 'increase more rapidly', 5: 'fall')
   - How do you expect the general economic situation in this country to develop over the next year? (1–5 scale; 1: 'get a lot better', 5: 'get a lot worse')
   - How do you expect the number of unemployed people in this country to change over the next 12 months? (1–5 scale; 1: 'increase sharply', 5: 'fall sharply');
(4) collection of sociodemographic data about respondents.

3.2. Methodology

3.2.1. Latent profile analysis (LPA)

Since the research aimed to examine the preferences of groups with different expectations about inflation, a clustering method was used with the help of the questions described in the previous subsection. A popular technique in the literature, latent profile analysis (LPA), was used. LPA assumes that the analysed sample members belong to subgroups/clusters with different characteristics and probabilities [48]. After standardising the input variables of the LPA analysis, four types of models ((1) Constrained variance, fixed covariance (EII); (2) Constrained variance, constrained covariance (EEE); (3) Freed variance, fixed covariance (VVI); (4) Freed variance, freed covariance (VVV)) were tested using the tidyLPA package of the R program [49,50]. Solutions with different numbers of classes and the selection of the optimal number of classes were compared based on the following aspects: (1) converged log-likelihood value; (2) Bayesian Information Criterion (BIC); (3) entropy value; and (4) the size of the cluster with the fewest persons [51–53].

3.2.2. Best-worst scaling (BWS)

Research often uses a stated preference approach to assess consumer preferences, which evaluates consumer decision-making in a hypothetical context. A commonly used method is the discrete choice experiment (DCE), where fictitious decision situations ask respondents to choose the most preferred option [54,55]. However, while the DCE can be an excellent alternative for assessing consumer preferences, there are other methods for analysing preferences that take a different approach. For example, the so-called best-worst scaling (BWS) is like DCE in several aspects, but a significant difference between the two methods is that BWS already considers the worst/least preferred/least important option when assessing preferences. Three cases of BWS can be distinguished: (1) object case, (2) profile case, (3) alternative case. All three types of BWS have been used in a variety of fields, with the object case being very popular [56,57] due to its relatively simple structure (easy to handle both in terms of experimental design and analysis) [58].

In this study, object case BWS were used, so the options in the decision situations were only attributes (the characteristics of the chicken breast fillet) (Table 2). The choice of method is mainly motivated by the specificity that in this research, preferences were only investigated through the evaluation of attributes rather than by creating hypothetical product options from them, using more complex preference evaluation methods (discrete choice experiment, alternative case best-worst scaling).

In the BWS survey, seven attributes were examined, the selection of which was based on the literature [45,59,60], and our experimental design was compiled based on these characteristics. The type of the design was balanced incomplete block design (BIBD), a widely used experimental design approach for object-case-type BWS. One of the characteristics of the BIBD arrangement is that the examined attributes appear at equal frequency in decision-making situations [61]. We identified a design with 7–7–3 (attributes, decision-making situation, number of attributes appearing in decision-making situations) parameters using the crossdes package of the R program [50]. An example of a decision-making situation is shown in Table 3.

To process the data associated with our BWS survey, the so-called "counting" approach was used, which is based on the calculation

Table 2
Attributes examined in the survey.

Attributes	Description
Price	Price-capped or discounted product
Impact on health	How healthy product is
Availability	Always available in-store
Freshness	When the product was manufactured/packaged/harvested
Taste	How good the product tastes
Brand	Who made/manufactured the product
Origin	Domestic or imported product.

of statistical indicators, avoiding the estimations of more complex models. First, the best-worst values were calculated (equation (1) aggregate form, equation (2) individual level form), followed by the determination of the standardised best-worst values (equation (3) aggregate form, equation (4) individual level form) [58].

$$B - W\ score_k = B_k - W_k, \tag{1}$$

where k denotes the attributes, B_k is the frequency of the appearance of the kth attributes as the "best" option, and W_k is the frequency of appearance of the kth attributes as the "worst" option.

$$B - W\ score_{n,k} = B_{n,k} - W_{n,k}, \tag{2}$$

where n denotes the respondent.

$$Standardized\ B - W\ score_k = \frac{B - W\ score_k}{Nf}, \tag{3}$$

where N denotes the number of respondents in the sample, and f denotes the frequency of appearance of the kth attributes in decision situations.

$$Standardized\ B - W\ score_{n,k} = \frac{B - W\ score_{n,k}}{f} \tag{4}$$

We used the ggplot2 package of the R program to graphically represent our results [62], and the structure of the study is illustrated in Fig. 1.

4. Results and discussion

4.1. Examining consumer behaviour and the inflation expectations of the respondents

The first step examined the types of meat the sample respondents consume and how often and where they buy chicken breast fillets. As Table 4 indicates, most of the respondents consume poultry and pork. Chicken is one of the most commonly consumed types of meat in the world [63], and its consumption is also dominant in Central and Eastern Europe [38,64], which can be explained by tradition and the relationship between chicken consumption and health. The beef consumption is also outstanding; more than half of respondents (53.6 %) consume this meat type. The consumption of sheep and goat is significantly less common among the respondents. However, 15 % of the respondents also consume other types of meat (e.g., fish or seafood) than the listed options.

Focusing on chicken breast fillets, almost 60 % of the respondents purchase this type of meat at least twice a month. The proportion of those who shop at least once a week is greater than 25 %. Chicken breast fillets are a common dietary choice worldwide, owing to their lean and versatile nature. Chicken breast fillet is favoured for its ease of preparation, high protein content and mild flavour [7,37,65,66]. Regarding the place of purchase, department stores/hypermarkets and discount stores/supermarkets clearly dominate. Quite a few people (3.5 % of respondents) purchase chicken breast fillets directly from the producer, and the proportion of online buyers is very small (1.4 %). In Hungary, people buy most of their products in discount stores, supermarkets, and hypermarkets [7,67]. In Slovenia, the primary place for procuring chicken meat and breast is also the hyper- or supermarket [38] due to lower price, availability, and perceived (higher) quality.

In Table 5, the respondents' answers regarding inflation expectations are presented. Respondents are typically pessimistic about the development of consumer prices and expect the general economic environment to deteriorate and the unemployment rate to rise. The literature is also divisive in this area: higher inflation expectations are claimed to lower [34] and increase consumption [31]. However, there is obviously an upper limit to purchasing and consuming food. Furthermore, it was confirmed that, notwithstanding the implementation of the price caps, consumers anticipate an increase in prices and a deterioration of the economic conditions. And the (expected) high-inflationary environment will impact more the economic well-being of the lower income and/or elderly groups [27,28].

4.2. Latent profile analysis (LPA) based on expectations about inflation

In the first step of our LPA analysis, we determined the optimal model type and number of clusters. Considering the different information criteria, we decided on a solution based on the three-cluster, constrained variance, and constrained covariance (EEE) model type (Table 6). The improvement in model fit supported by all information criteria can be observed only up to the three-class version. Entropy increases for the four-class case, which indicates a poorer model fit. As a result, we present the analysis of the three-class solution.

Fig. 2 shows the standardised mean values of the three clusters for the input variables (statements measuring expectations about inflation). The three delimited clusters have completely different inflation expectations. We call the first cluster *Optimists*, to which 22.4 % of the respondents belong. Their perception of inflation is relatively positive; they have the highest average value for two statements. *Optimists* feel most strongly that consumer prices will decrease next year, and the general economic environment will improve. The second cluster (including 66 % of respondents) is called the *Pessimists*, who, in contrast to *Optimists*, see the future much

Table 3
Example of a BWS decision-making situation.

Least important (X)	Most important (X)
Freshness (*When the product was manufactured/packaged/harvested.*)	
Availability (*Always available in store*)	
Origin (*Domestic or imported product*)	

Note: The introductory text for the decision-making situations was: "In this section, we want to find out what is important to you when you buy chicken breast fillets. In each of the seven cases, we ask you to indicate which attributes influence your choice the most and the least. There is no right or wrong answer. Your opinion is what matters to us."

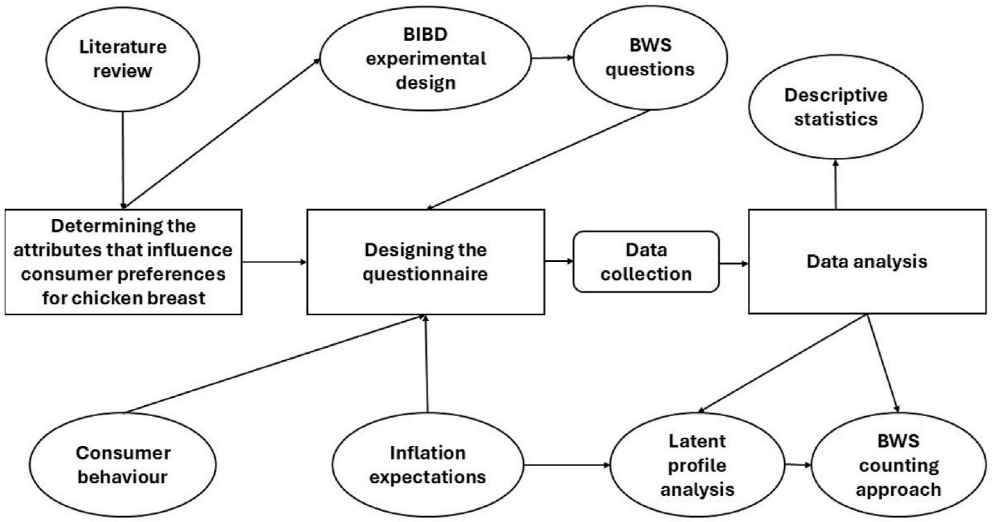

Fig. 1. The structure of the study map.

Table 4
The meat consumption behaviour of respondents.

Question	Sample (n = 500)
What kind of meat do you usually eat? (%)	
Poultry	97.4
Beef	53.6
Pork	91.4
Lamb or goat meat	12.6
Other	15.0
How often do you buy chicken breast fillets? (%)	
Less than once a month	16.2
About once a month	22.6
About twice a month	21.5
About three times a month	11.9
About once a week	19.3
Several times a week	6.2
I do not know	2.3
Where do you most often purchase chicken breast fillets? (%)	
Directly from the producer	3.5
On the market	6.2
At a butcher/meat shop	17.5
In a convenience store	5.3
In a discount store/supermarket	28.7
In a department store/hypermarket	36.6
Online	1.4
I shop elsewhere	0.8

Source: Authors' composition based on the survey

Table 5
Inflation expectations of respondents.

Question	Sample ($n = 500$)
Compared to the past year, how do you think consumer prices will change next year? (%)	
They will increase much more rapidly	57.0
They will increase at the same rate	26.4
They will increase at a slower rate	13.2
They will stay at about the same level	3.2
They will fall	0.2
How will the country's general economic environment develop next year? (%)	
It will get a lot better	1.8
It will get a little better	6.2
It will stay the same	15.0
It will get a little worse	26.6
It will get a lot worse	50.4
How will the number of unemployed people in the country change next year? (%)	
It will increase sharply	48.8
It will increase slightly	26.2
It will remain the same	20.8
It will fall slightly	3.4
It will fall sharply	0.8

Source: Authors' composition based on the survey

Table 6
Values of information criteria for different solutions.

	Log-likelihood	BIC	Entropy	Minimum class size (%)
Two-class solution	−1961.42	4003.62	0.89	29.40
Three-class solution	−1908.88	3923.41	0.85	11.60
Four-class solution	−1861.18	3852.87	0.86	9.60

Source: Authors' composition based on the survey.

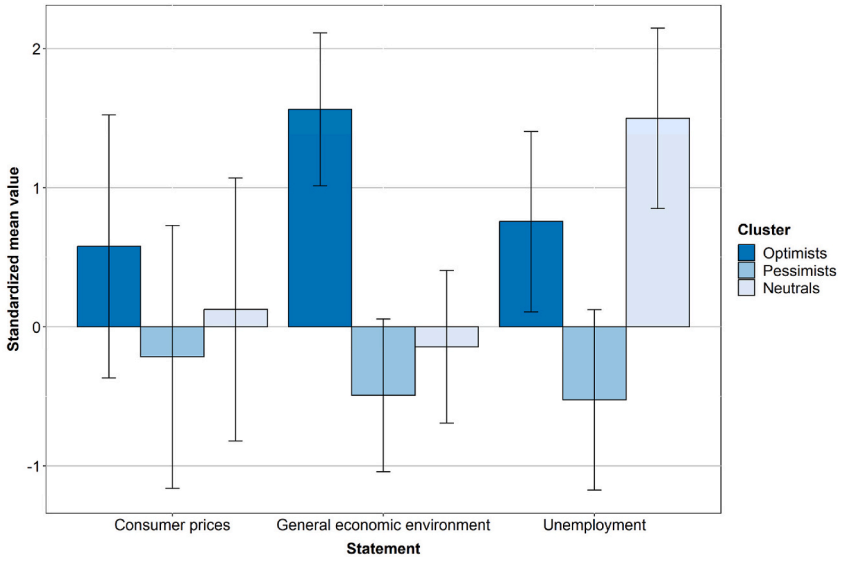

Fig. 2. Standardized mean values of clusters according to statements about inflation Note: Error bars represent ± 1 standard deviation. The categories on the x-axis represent the following statements: (1) "In comparison with the past year, how do you expect that consumer prices will develop in the next year?" (1: They will increase more rapidly., …, 5: They will fall.) (Consumer prices), (2) "How do you expect the general economic situation in this country to develop over the next year?" (1: It will get a lot better., …, 5: It will get a lot worse.) (General economic situation), (3) "How do you expect the number of people unemployed in this country to change over the next 12 months?" (1: It will increase sharply., …, 5: It will decrease sharply.) (Unemployment). A higher average value for each statement indicates stronger agreement (for easier interpretation, we used "reverse" coding for the statement about the general economic situation, i.e., a low value indicates a worse prediction, while a higher one indicates a better economic situation). Source: Authors' composition based on the survey.

more negatively regarding consumer prices, the general economic environment, and unemployment trends. Members of the third subgroup of the LPA analysis (11.6 % of respondents) report almost neutral opinions (for this reason, we named the cluster *Neutrals*) regarding inflation claims. The group members believe that consumer prices and the general economic situation will be almost like the current one in the coming year. However, members of the *Neutrals* expect a clear decrease in unemployment in the near future. The difference in the assessments of the examined claims between the clusters is statistically significant.[1] At the time of the survey, despite the capped prices, most respondents were pessimistic regarding the development of inflation. The informational environment and media coverage influence how people perceive and expect inflation to behave. For example, political news and web-search queries correlate with inflation perceptions and job searching [68]. Some authors [69] also suggest that expectations align with past perceptions rather than actual inflation trends. Furthermore, Azzam and Retabb [70] have proved that price caps can variably distort the preferences of members of different groups (e.g. nationality-based groups).

Based on Table 7, there is a significant difference between the clusters only in the case of age and income status. The income situation of *Optimists* is significantly better than that of *Pessimists*. Regarding *Pessimists*, members of the cluster report difficulty managing unexpected expenses, getting by financially, and the financial burden caused by the need to purchase gifts for various events. In addition, *Pessimists* include significantly fewer respondents under the age of 40 and considerably more respondents over the age of 60. The literature [71,72] shows that older people are generally more pessimistic about their economic future, even in better economic conditions and less inflationary environments. *Neutrals* are over-represented by those between 30 and 39, while there are significantly fewer respondents aged 60 and over.

4.3. Examination of preferences for chicken breast fillet based on a best-worst scaling (BWS) survey

After delimiting the clusters and describing their characteristics, the BWS survey data were analysed in aggregate (Fig. 3) and for the three subgroups (Fig. 4). Based on Fig. 3, freshness, health impact, price, and taste are among the most important attributes of the whole sample concerning the purchase of chicken breasts. Brand, place of origin and availability are less important attributes.

However, among the clusters differentiated based on inflation expectations (*Optimists*, *Pessimists*, and *Neutrals*), there are notable differences in assessing the importance of the attributes (Fig. 4). While for the *Optimists*, the second most important attribute after freshness is the effect on health; for the *Pessimists,* it is price, while for the *Neutrals,* it is taste. With all three clusters, these attributes (impact on health, price, and taste) are included in the order of importance following freshness. Since *Pessimists* are a large consumer group, price is an important decision attribute, and introducing a price cap may be justified. In this respect, price-capping chicken breast fillet is also justifiable, as it is a popular staple food in Hungary [8].

Examining previous research, the freshness of chicken breast is a primary concern for consumers, followed by food safety [45]. Since freshness is an important product property, retailers must pay attention to when products are placed on the shelf. Inflation can lead to uncertainty about the purchasing power of money, causing stockpiling behaviour [73]. Although this strategy does not make sense for perishable foods, freezing for later consumption can be an option for chicken breast fillets. Regarding the impact on health, it is characteristic of European and, therefore, Central and Eastern European consumers that chicken meat is considered safer (healthier and tastier) than other meat products [38]. Hungarian and non-Hungarian consumers [37,38,42,43] do not differ regarding the perceived impact on health; however, organic products are an important decision attribute in other countries, for example.

In terms of order of importance, at the end of the list (as in the case of the whole sample) for all three groups are brand, place of origin and availability. The only difference is that while *Pessimists* and *Neutrals* consider availability more important than place of origin, place of origin takes priority for the *Optimists*. None of the Hungarian consumer groups considers the brand and origin of the chicken breast to be important when shopping. This contrasts Hungarian and other European [38] and non-European consumers [40,41,44]. Hungarian consumers can be considered less price-sensitive regarding chicken breast fillets. Furthermore, with other products (mainly not staple foodstuffs), brand and origin are usually associated with a price premium for both Hungarian [11,74,75] and international consumers [76,77]. Lastly, it is no coincidence that availability is among the least important of the decision criteria since the availability of chicken breast fillets in stores did not cause problems even during the pandemic [78,79].

In addition to the average B-W values, Fig. 4 provides information on the standard deviation, thereby showing the uncertainty in the respondents' assessments of the attribute. While a low standard deviation accompanies the high average value of freshness and taste, the price assessment is more uncertain.

5. Conclusion

Inflation is an economic phenomenon that affects individuals' purchasing power and shopping behaviour. Compared to recent years, inflation has risen significantly in Europe and thus also in Hungary. In addition to the after-effects of COVID-19, the war between Ukraine and Russia, which directly affects agriculture and the energy supply chain, in addition to the ever-weaker Hungarian forint-euro exchange rate, has favoured further price growth [80–82]. The decline in the purchasing power of money has profound implications for how people shop and make purchasing decisions. This research investigates the effect of the current economic situation on consumer behaviour and habits regarding the purchase of chicken breast fillets and examines the factors influencing purchasing decisions for this basic food product. This analysis distinguished three consumer groups (Optimists, Neutralists, Pessimists) with

[1] Consumer prices: F-value = 32.02, df = 2, $p < 0.05$; General economic environment: F-value = 686.87, df = 2, $p < 0.05$; Unemployment: F-value = 390.77, df = 2, $p < 0.05$.

Table 7
Sociodemographic characteristics of the clusters.

Characteristic	Pessimists	Neutrals	Optimists	χ^2-value/F-value
Gender (%)				
Woman	66.4	14.0	19.6	4.67
Man	65.5	9.0	25.5	
Age (%)				
18–29	55.7^{-}	15.9	28.4	19.90*
30–39	54.1^{-}	20.0^{+}	25.9	
40–49	65.9	9.6	24.5	
50–59	73.3	9.3	17.4	
60–	74.7^{+}	7.0^{-}	18.3	
Place of residence (%)				
Village (<5000 inhabitants)	67.2	12.8	20.0	2.11
City (5000 −100,000 inhabitants)	67.0	12.3	20.7	
Large city (<100,000 inhabitants)	64.3	10.2	25.5	
Education (%)				
Basic education	60.9	13.0	26.1	0.98
Secondary education	65.5	12.3	22.2	
Higher education	68.2	9.6	22.2	
Average number of people living in the household (person)				
Average number of persons living in the household	2.5	2.7	2.6	0.92
General income situation (1–5 scale of agreement)				
Statement 1 (average)	3.6^{b}	3.4^{ab}	3.2^{a}	4.31*
Statement 2 (average)	3.3^{b}	3.0^{ab}	2.9^{a}	3.97*
Statement 3 (average)	3.4^{b}	2.9^{a}	3.0^{a}	6.48*
Statement 4 (average)	3.3	2.9	2.9	2.97
Statement 5 (average)	1.7	1.9	1.7	0.94

Note: Statements related to the general income situation are shown in Table 1.
*Significant at the 5 % level. The '+' sign in the superscript indicates that the value of the adjusted standardised residual is greater than 2 (χ^2-test). The '-' sign in the superscript indicates that the value of the adjusted standardised residual is less than −2 (χ^2-test). A different letter in the superscript indicates a significant difference between the groups at the 5 % level (analysis of variance, Bonferroni post-hoc test). Source: Authors' composition based on the survey.

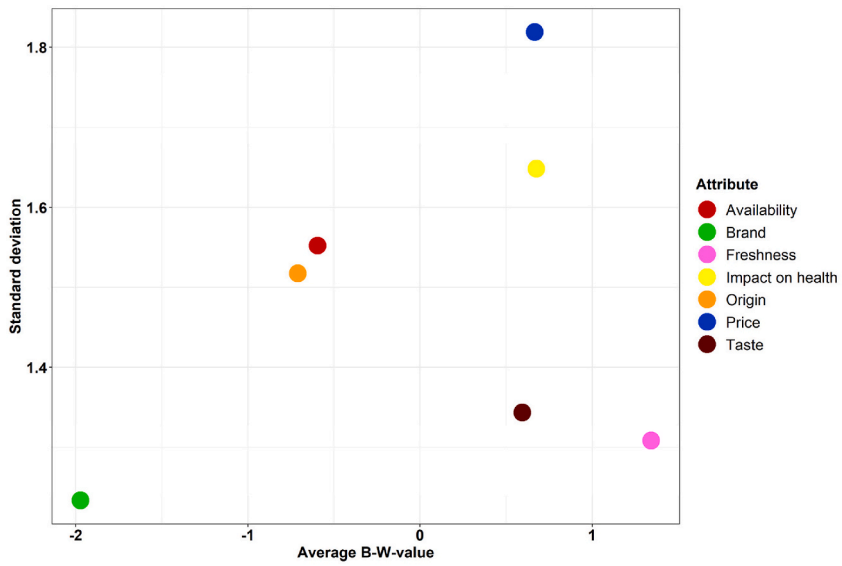

Fig. 3. Average B−W value and standard deviation for the examined attributes, aggregated.
Source: Authors' composition based on the survey

different inflation expectations and characteristics. The results might serve as a basis for theoretical, policy and managerial implications.

Therefore, as for *theoretical implications*, this study supports theories of behaviour economics that inflation expectations heavily influence consumption behaviour. The results align with the intertemporal substitution effect and the Fisher equation, suggesting that expectations of higher future inflation can either stimulate or reduce current spending, depending on consumer outlook. The clustering

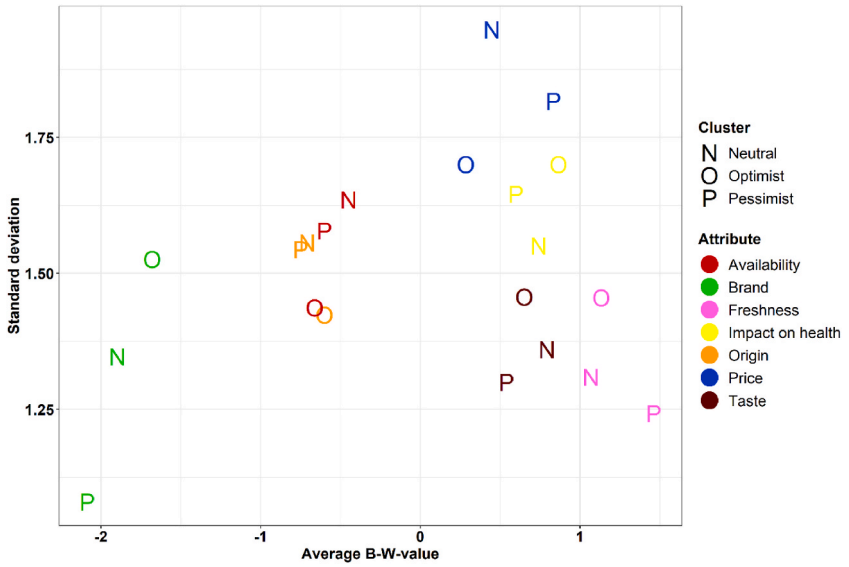

Fig. 4. Average B−W value and standard deviation for the examined attributes, cluster-specific.
Source: Authors' composition based on the survey

of consumers into optimists, neutrals, and pessimists reinforces the role of inflation perceptions in shaping economic decisions. The results are in parallel with the intertemporal substitution effect and the Fisher equation [29,30]; thus, the connection between expectations of higher future inflation and current spending depends on consumers' outlook, and it is worth segmenting different consumer groups. Moreover, the study highlights significant heterogeneity in consumer preferences and, thus, differences in customer decisions, emphasizing the need to further explore how inflation affects decision-making across different consumer groups with various sociodemographic characteristics.

The theory of bounded rationality in this complex and uncertain inflationary and economic environment could mean that consumers use simplified decision-making processes or heuristics in different purchasing decisions. Consumers might prioritize certain food attributes such as freshness or price-capped products due to the product's price, which allows them to make relatively simplified and quick decisions without engaging in detailed analysis. This is parallel with the concept that consumers are unable to process all the available information; thus, their choices are rather satisfactory than optimal. In this context, the implication of bounded rationality is that consumers rely on simplified strategies to navigate inflation uncertainty, focusing on easily accessible and understandable product attributes like price or freshness. Thus, there is a need for market players and policymakers to provide clear and direct information, thereby supporting consumer decision-making under a high inflationary environment.

For *policy implications*, results suggest that price is not the most important for consumers in the case of staple foods like chicken breast fillets. Even though the Hungarian government took several initiatives, including the capped price mechanism, to decrease the inflation for such products, several other attributes were more important. In addition, due to the intervention in market prices, the shortage of chicken breast fillets on the Hungarian store shelves often occurred. However, availability was almost neglected. These findings suggest that the policy initiative of capping the price of chicken breast fillets was insufficient in Hungary. Policy- or decision-makers, during inflationary periods, should consider more comprehensive interventions, such as stabilizing and protecting supply chains or supporting local producers to maintain price stability and enhance food security due to sufficient supply. Moreover, there is a diversity in consumer inflation, and economic expectations or financial situations and interventions (e.g., financial education) must be designed accordingly.

For *managerial implications*, our results clearly show how chicken breast fillets might be marketed in Hungary and other Central and Eastern European countries with similar consumer attitudes. Freshness is first and foremost the most preferred product attribute, indicating that shortening the time between the slaughterhouses and the shelf placement or final consumers, particularly reflecting on it with marketing tools, might be beneficial. Producers and retailers should prioritize ensuring and marketing freshness. Price obviously impacts consumers' preferences; therefore, offering discounts, promotions or loyalty programs (e.g., applications with benefits) on these products is also worth considering to retain and attract new customers. For staples like chicken breast fillets, private or state-owned label products at lower prices could also be a viable strategy, particularly as brand loyalty is less influential in such contexts. However, the impact on health and taste are attributes that are quite difficult for producers and retailers to have an impact on. However, given the importance of health considerations, producers could consider promoting chicken breast fillets' health benefits (e.g., high protein content), including hormone-free or organic options where applicable.

In a high inflation environment, and even in the presence of capped prices, brand and origin are not decisive decision criteria in purchasing basic food products such as chicken breast fillets. From all this, it can be concluded that companies do not need to emphasise the brand or origin in the case of basic products, and the use of official prices may be justified. As the brand was found to be the least important for consumers, it might be an opportunity for producers and retailers to cooperate, e.g., offering products under

private labelled brands at low prices. However, such claims warrant further investigation.

Some limitations of the study and future research directions should also be highlighted. Due to the sampling procedure and the sample size, the results cannot be generalised to the whole Hungarian population. It would be beneficial to expand the number of respondents in Hungary. Furthermore, research could be conducted in other countries where official prices were applied to basic food products. The chosen preference valuation procedure (BWS) is based on stated preference-type data derived from the presentation of a hypothetical situation, which is one of the main limitations – bias is invariably present. In addition, the choice of the clustering procedure and its use require several difficult decisions by the analyst (e.g., is the determination of the optimal number of clusters based only on objective indicators, and if so, on which one(s); and does it reflect the ease of interpretation of the results?). One future research direction would be extending the scope of the attributes under investigation, possibly in a different format (e.g., an alternative case BWS analysis with product alternatives formed from the attributes). In addition, it may be worthwhile to investigate preference heterogeneity using additional variables not included in the present research. Finally, it would be worth examining, with any of the above-mentioned methodological approaches, how the choices of Hungarians have changed over the past year regarding capped-price products, especially chicken breast fillets.

CRediT authorship contribution statement

Zalán Márk Maró: Writing – review & editing, Writing – original draft, Visualization, Validation, Investigation, Formal analysis, Conceptualization. **Áron Török:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Formal analysis, Conceptualization. **Péter Czine:** Writing – original draft, Visualization, Software, Methodology, Investigation, Formal analysis, Conceptualization.

Data availability statement

Data will be made available on request.

Ethics declaration

All participants provided informed consent to participate in the study. Ethical approval was obtained from the Ethics Committee of Corvinus University of Budapest.

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Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Zalan Mark Maro reports financial support was provided by Ministry of Culture and Innovation. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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