MANAGEMENT
2025, Vol. 29, No. 1
www.management-poland.com
DOI: 10.58691/man/205912

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Does attribute and goal framing affect the willingness to pay for consumption goods in realistic shopping settings?

Abstract

Research background and purpose: The aim of this study is to examine the influence of attribute and goal framing on the valuation of consumption goods in realistic (out-of-lab) shopping settings.
Design/methodology/approach: The study employs experimental economic methods, conducting four field experiments with a total of 1602 shopping center customers as participants. In each experiment, willingness to pay (WTP) for consumer products was measured, while framing conditions (positive vs. negative) were manipulated.
Findings: Although the experiments involved two different types of products (durable and fast-moving) and two different valuation procedures (hypothetical and real-payment), their results were remarkably consistent: neither attribute framing nor goal framing had an impact on WTP for the presented products.
Value added and limitations: To the best of the author's knowledge, this study is the first to investigate the impact of attribute and goal framing on WTP using field experiment data. In light of both this study and the existing literature, it can be concluded that the framing effect may be more likely to appear in assessment tasks than in the context of eliciting consumer WTP for private goods.

Keywords: *framing effect, attribute framing, goal framing, field experiment, willingness to pay*

Jel Classification: C93, D91

Received: 2025-01-29; **Final review:** 2025-05-15; **Accepted:** 2025-06-04

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1. Introduction

The framing effect is a cognitive bias in which the way information is presented affects the decision made (see Piñon & Gambara, 2005, for a review). The concept of the framing effect has been interpreted in many different ways. According to the commonly used definition of Levin et al. (1998), the framing effect is the difference between the decisions (scores, ratings, etc.) observed in a positive framing condition and in a negative framing condition. This definition is followed in the current empirical inquiry. Previous studies examined the framing effect in various contexts, e.g., in medical decision-making (Marteau, 1989), time allocation decisions (Paese, 1995), performance evaluations (Kreiner & Gamliel, 2018), selecting a mate (Saad & Gill, 2014), risky decision making (Tversky & Kahneman, 1981), negotiations (Majer et al., 2022), gambling (Levin et al., 1988), and environmental decisions (Yang et al., 2018).

Levin et al. (1998) distinguished between three main types of the framing effect: risky choice, goal, and attribute framing. The risky choice framing appears when willingness to take a risk depends on whether the potential outcomes are negatively or positively framed. The attribute framing effect refers to differentiating the decisions depending on how (positively or negatively) the attributes of a good are presented. Goal framing is related to the presentation of a product, service, or issue in the light of its potential to provide a gain (positive goal framing) or its potential to prevent a loss (negative goal framing). In this study, the focus is placed on the attribute and goal framing effects. These two types of framing were selected because they are commonly used in slogans and advertisements in the context of private goods. Risky choice framing, on the contrary, is used rather in the context of gambling, medical decisions, finance, or politics (Kühberger, 2023). Moreover, risky choice framing seems to be the most robust and reliable (Huizenga et al., 2023).

The current study verifies the effect of attribute and goal framing on willingness to pay (WTP) for private goods. WTP is a commonly used measure of the value of consumer goods (Wertenbroch & Skiera, 2002). Both researchers and managers have pointed out the importance of valid WTP estimation (Jedidi & Jagpal, 2009). Indeed, correct WTP estimates are crucial for developing an optimal pricing strategy, demand function modelling, and forecasting market responses to price changes. However, the vast majority of existing framing studies (on private goods) have examined the influence of framing on attitudes toward or on assesments of the product, rather than the influence on its valuations (as discussed in more detail in Section 2). Moreover, the results of these studies are inconsistent. In this study, therefore, the attribute and goal framing effects are examined in the context of valuation elicitation.

The relationship between attitudes towards a product and WTP for it has been the subject of many previous studies, particularly in the context of the contingent valuation method (CVM). Some scholars have argued that properly elicited WTP can

be viewed as an indication of economic preferences, consistent with the consumer theory (Hoehn & Randall, 1987; Smith, 1992). In contrast, both Kahneman and Ritov (1994) and Kahneman et al. (1999) argued that WTP is a measure of attitudes rather than genuine economic preferences. This hypothesis predicts a correlation between WTP values and attitudinal measures. However, Ryan and Spash (2011) showed that the method used to support Ritov and Schkade's attitudinal hypothesis was inadequate and re-examined it using a within-subject design. They documented a weak or insignificant relationship between WTP and attitudinal measures for respondents who reported a positive WTP (greater than 0). Given this diversity of theories explaining the relationship between WTP and attitudes and the fact that most framing studies examine only purchase intentions or participants' attitudes toward the product, veryfying the framing effect in the context of WTP elicitation appears to be needed.

In this study, the influence of attribute and goal framing on purchase behaviour is investigated. Four field experiments in a shopping centre were conducted, using a diversified sample and various product groups. Two experiments verify the impact of positive versus negative attribute framing on WTP for consumer products, and two examine the impact of promotion- versus prevention-oriented goal framing on WTP. According to existing literature, this is the first study to examine the influence of framing on WTP for private goods using field experiments conducted at the point of purchase. The usage of this methodology is crucial, because a key limitation of many prior studies (using laboratory experiments) was their artificiality and low sample diversity. Therefore, their findings may not generalise to out-of-lab settings (Harrison & List, 2004; Wu & Cheng, 2011). Moreover, in the current study, the influence of the framing effect on the valuation of private consumer goods is examined in both hypothetical and real transactions.

2. Literature review

The classic attribute framing experiment of Levin and Gaeth (1988) revealed that the 75%-lean beef product label (positive framing) led to a higher taste rating compared to the same beef described as 25% fat (negative framing). This study has been replicated several times in many different contexts (Donovan & Jalleh, 1999; Kim et al., 2014), although some did not confirm the original results (Ganzach & Karsahi, 1995).

Previous research related to goal framing demonstrated that negative framing is usually more powerful than positive framing, especially in the health decision-making context (Meyerowitz & Chaiken, 1987, Robberson & Rogers, 1988), but, again, some scholars obtained opposing results (e.g. Gamliel & Herstein, 2012). Moreover, meta-analyses (e.g. Nabi et al., 2020) report very small and usually insignificant effect sizes of the goal framing.

It should be emphasised that only a small part of the rich literature on attribute and goal framing refers to private consumer goods. Moreover, numerous studies concerning consumer products examine only purchase intentions or participants' attitudes toward the product (Burbock et al., 2019; Tu et al., 2013) rather than actual purchase decisions. In Buda and Zhang (2000), as well as Gifford and Bernard (2006) respondents who were exposed to a positive framing message had more positive attitudes towards the product than those who were exposed to a negatively framed message. Gamliel and Herstein (2007), however, presented the opposite results - willingness to buy the presented products was higher under negative framing compared to positive framing.

Only a small part of the literature on the framing effect is directly related to eliciting value measures, such as WTP, rather than judgements or assessments; and these typically involve solely hypothetical choices (e.g., Wallach et al., 2019). Moreover, many of them examine the framing effect in the context of medical (e.g. Howard & Salkeld, 2009) or environmental decision-making (e.g. Yang et al. 2018), rather than the valuation of private consumer goods. Only a few studies on framing effects have verified the impact of positive or negative framing on WTP for private consumer goods (Levin et. al, 2002; Wu & Cheng, 2011; Liu et al., 2020; Brzozowicz, 2019). Overall, they have demonstrated mixed results.

The study presented in this paper was designed to fill identified research gaps in the literature by examining the impact of the attribute and goal framing on the valuation of private goods in realistic (out-of-lab) shopping settings, on a large and diverse research sample. In four field experiments in the shopping centre, WTP for consumer products was elicited by manipulating framing conditions (positive vs. negative).

3. Research hypotheses

The key research hypotheses that were verified in this study are:

H1: Attribute framing influences WTP values for private customer goods

Although the attribute framing effect has not been extensively studied in the context of eliciting WTP values for private goods, based on the literature concerning mostly product attitudes and buying intentions (e.g. Levin et al., 2002; Burbock et al., 2019), by analogy, participants who were shown positive attribute framing were expected to report a higher WTP for the good than participants who were shown negative attribute framing.

H2: Goal framing influences WTP values for private customer goods

Based on the existing literature on the goal framing (e.g. Meyerowitz & Chaiken, 1987) higher WTP values were expected in negative goal framing conditions compared to positive goal framing conditions.

H3: Attribute framing influences customers' assessment of product attractiveness

Due to inconsistencies in the previous framing studies, the current study re-examined the influence of attribute framing on assessment of product attractiveness expressed on the rating scale. Based on previous studies (see e.g., Dolgopolowa et al., 2021), it is hypothesised that positive attribute framing contributes to a more favourable product assessment compared to negative attribute framing."

H4: Goal framing influences customers' assessment of product attractiveness

Customers' assessment of product attractiveness should be more favourable under negative goal framing conditions compared to positive goal framing conditions.

4. Methods

To verify the formulated hypotheses, four field experiments in various conditions were carried out in a shopping centre (see Supplementary Materials, Appendix A for instructions). All experiments were conducted in one of the most popular shopping centres in Warsaw - Galeria Wileńska. In each of them, participants were asked about their WTP for a presented product.

Products were presented at a professionally prepared stand in a place with very high customer traffic. Customers were encouraged to approach the stand by its display of selected products, the university logo, and a banner with a slogan promising them a chance to win a prize (a 100 PLN Galeria Wileńska gift card). After approaching the stand, customers interested in participating in the study were informed about the basic principles of the experiment.

In each experiment, two different treatments were used: negative framing (henceforth, referred to as Negative) and positive framing (henceforth, referred to as Positive). This approach is consistent with the aforementioned definition of framing effect of Levin et al. (1988) and used in many previous framing studies. Each customer was randomly assigned to one experimental treatment. The formulation of negative and positive framing in each experiment is described in the following sections.

5. Experiment 1 – Attribute framing: real transactions

The participants in Experiment 1 were asked to state their WTP for a hand-painted ceramic mug. It is a durable, useful, familiar good, but as a handicraft product it is varied

in terms of the price, pattern, or technique used. Therefore, participants were expected not to know the market price of the selected product (30 PLN) and to have low product knowledge, in result, to be susceptible to framing effect (Wu & Cheng, 2011).

Before the experiment, an online pilot survey (sample size N=52, diversified in terms of age and sex) was conducted to choose the most desirable patterns from 11 mugs presented by the artist. The survey was distributed by e-mail to people registered in the database of the Laboratory of Experimental Economics at the Faculty of Economic Sciences, University of Warsaw, Poland, and was completed by volunteers. After analysing the results of the survey, three mugs were selected for the actual experiment (see Figure C.1 in Supplementary Materials, Appendix C); about 80% of the participants in the pilot study chose at least one of the three. The aim of the pilot study was therefore to select designs that would interest shopping mall visitors and thus ensure an appropriate number of people willing to take part in the study. Moreover, the selection of attractive patterns was intended to ensure the involvement of participants in the experiment and to limit the number of zero valuations. During the main experiment, participants selected which of the three mugs they liked best, and then their WTP for it was elicited.

At the beginning, in each treatment, participants were orally informed about the rules of the experiment. Then, the evaluated products were showed to them and additional information about the product and the artist was presented in writing. Together with information about the product, the attribute framing message was presented to the participants (in writing). The attribute framing sentence was based on the results of the aforementioned online survey. In the Positive treatment, the positive attribute framing was formulated as follows: "As many as 84% of respondents (more or less 5 in 6) assess the artist's mugs as nice or very nice." The negative attribute framing in the Negative treatment was: "Only 16% of respondents (more or less 1 in 6) assess the artist's mugs as ugly or so-so". In the next step, participants were asked to choose which of the three mugs they liked the most. Subsequently, they partook in a Becker-DeGroot-Marschak procedure (BDM); which is theoretically incentive compatible (Kagel 1995), operationally efficient and suitable for eliciting consumers' WTP in purchase settings in the field (Wertenbroch & Skiera 2002). Participants were informed in detail about the rules of this procedure and then, they were asked to tell the maximum price they would be willing to pay for the selected mug. Thereafter, the experimenter drew the transaction price from a pre-specified distribution. The range of the price distribution was not revealed to participants to avoid the anchoring effect (Bohm et al., 1997). If participants' WTP was higher than or equal to the drawn price, the participant was required to buy the presented product at the transaction price (with their own money). If the WTP was lower than the transaction price, the purchasing process was not executed.

At the end, the participants in both treatments were asked to fill in the post-experimental questionnaire concerning their preferences, as well as their sociodemographic characteristics (see Supplementary Materials, Appendix B for the questionnaire) and thereafter took part in a short contest with prizes (100 PLN gift cards).

To estimate a required sample size, an average effect size for attribute framing (Cohen's d = 0.260) reported by Piñon and Gambara (2005) in their meta-analysis was used. Power analysis revealed that 368 participants should have been required to obtain sufficient statistical power for finding the expected effect (parameters: $d = 0.260$; $\alpha = 0.05$; $1 - \beta = 0.80$). In total, 442 shopping centre customers (aged 16 and over) took part. Their mean age was 37 years and the research sample was naturally diversified by age, sex, education, and occupation. About 67% of participants were female. It took about ten minutes for a single experiment to be conducted.

5.1. Results of Experiment 1

The mean value of WTP for the mug across the sample as a whole is equal to 15.06 PLN (3.36 EUR) and the median is 10 PLN (for histogram, see Figure C.2 in Supplementary Materials, Appendix C). The leverage and squared normalised residuals were first plotted (see Figure C.3 in Supplementary Materials, Appendix C). Leverage measures how far an observation's independent variable values are from the mean of all independent variables, while squared normalized residuals indicate observations that deviate substantially from the model's predictions. As a result of the analysis, one outlier was identified and removed (observation no. 177). Dropping this observation had no bearing on the Mann-Whitney tests, which will subsequently be presented. The analysis was initiated by comparing WTP values in each treatment (see Table 1 and Figure 1).

Table 1. **Experiment 1: WTP values by treatment (in PLN)**

	Negative	Positive
Mean	13.47	15.58
Median	10	11
Standard dev.	10.04	13.00
N	220	221

Source: own study

The mean WTP is slightly lower in the Negative condition than in the Positive condition. To verify this observation, a Mann-Whitney U test was performed. The Mann-Whitney U test is a nonparametric statistical method used to test the null hypothesis that randomly selected values X and Y from two populations have the same distribution.

This method was selected due to the non-normal distribution of the WTP values. Treatments with negative vs. positive framing were compared to test for the framing effect. The difference between the WTP values in the Negative and Positive treatments is not statistically significant (z=-1,438, p=0,151). In the light of this result, it can be concluded that the attribute framing has no impact on the valuation of mugs.

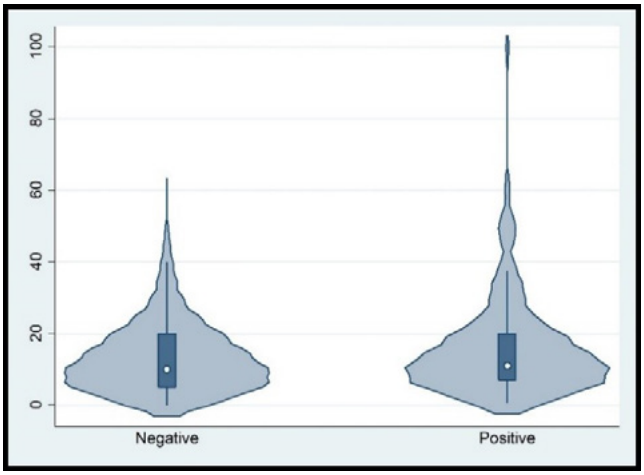

Figure 1 **Experiment 1: WTP values by treatment (in PLN)**

Source: own study

In the next step, to examine the robustness of this result and the impact of sociodemographic variables on WTP, a regression analysis was conducted (see Supplementary Materials, Appendix G for the variable labels). The Ordinary Least Squares (OLS) regression models with the WTP value as the dependent variable were estimated. The dependent variable was logarithmised and the correct functional form of the presented models was obtained. Table C.1 in Supplementary Materials, Appendix C illustrates the regression results. All of the models included the experimental condition (*positive_framing).* In model (2), certain sociodemographic characteristics such as sex, age, or education were also controlled for, whilst model (3) included the variable providing information on how much the participants liked the presented mugs, as well as whether participants intended to give the mug as a gift. Finally, model (4) also controlled for the experimenter conducting the particular experiment, as well as for the selected mug.

The effect of framing was not statistically significant (at the 5% significance level). It was also identified that older participants reported lower WTP values than younger

ones, participants with higher education levels reported lower WTP values than other participants, and employed participants reported higher WTP values than unemployed participants; besides these findings, WTP was higher for those who particularly liked the presented mugs.

As previously noted, the majority of studies on the framing effect have used hypothetical questions. To verify if the null results obtained in Experiment 1 were caused by the usage of a procedure with real transactions, in Experiment 2 a hypothetical method of eliciting consumers' WTP values was used.

6. Experiment 2: Attribute framing: hypothetical conditions

In Experiment 2, the scheme was similar to that of Experiment 1, but a direct method of eliciting participants' WTP (an open-ended question) was used instead of the BDM procedure. Participants were informed that their valuation was purely declarative. They were asked a question: *Give the maximum price that you would be willing to pay for the selected mug (in PLN).* The same framing manipulation, treatments, and products as in Experiment 1 were used.

As in Experiment 1, required sample size was equal to 368, given average effect size for attribute framing (d = 0.260; Piñon & Gambara, 2005). In total, 436 customers from the shopping centre took part; 66% of them were female; their mean age was 38 years. A single experiment took approximately five minutes.

6.1. Results of Experiment 2

The mean value of WTP for the mug across the whole sample is equal to 38.48 PLN (8.58 EUR), with a median of 30 PLN (see Figure D.1 in Supplementary Materials, Appendix D for histogram). Two outliers (observations no. 300 and no. 430) were removed using the same procedure as in Experiment 1 (see Figure D.2 in Supplementary Materials, Appendix D). Table 2 and Figure 2 show the comparison in WTP values by treatment.

Table 2. **Experiment 2: Descriptive statistics (monetary values in PLN)**

	Negative	Positive
Mean	36.12	36.80
Median	30	30
Standard dev.	26.09	28.16
N	216	218

Source: own study

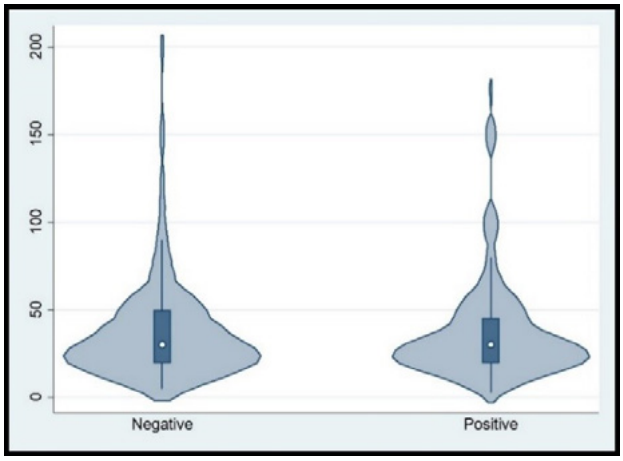

Figure 2 **Experiment 2: WTP values by treatment (in PLN).**

Source: own study

The difference between the WTP values in the Negative and Positive treatments was barely noticeable. This observation was confirmed using the Mann-Whitney test. Treatments with positive and negative attribute framing were compared to verify the framing effect; the difference was not statistically significant (z=0,053, p= 0,957).
In the next step, the OLS model was estimated. The logarithmised WTP was used as a dependent variable (to obtain a correct functional form), and the same independent variables and analogous specifications of the model as in Experiment 1 (see Table D.1 in Supplementary Materials, Appendix D).

The output of the regression was in line with the Mann-Whitney tests previously presented; it was observed that the framing effect did not affect the valuation of mugs. It was also noticed that older participants reported lower WTP than younger ones and, unsurprisingly, WTP values were higher in participants who particularly liked the presented mugs. The order of the experimental procedure had no impact on the valuation.

7. Experiment 3: Goal framing: real transactions

Experiment 3 was also conducted in the Galeria Wileńska shopping centre, but it started one week after Experiments 1 and 2. The experimental procedure used in Experiment 3 was very similar to that of Experiment 1; however, the goal framing was examined. The subject of valuation was a product from the fast-moving consumer goods category - a jar of flavoured honey. This product was rarely found in brick-and-mortar stores, so it was expected that most participants would be unfamiliar the

market price of the offered product (26 PLN). After analysing the available information about the popularity of particular product types, three types: honey with cocoa, honey with garlic and ginger, and honey with raspberry were selected (see Figure E.1 in Supplementary Materials, Appendix E). The participants were asked to reveal their WTP for the type of honey they were most interested in.
The same stand and location was used as in Experiment 1, and the same BDM procedure was followed. The positive goal framing was formulated as follows: "Regular consumption of honey helps you stay healthy and in good shape." By contrast, the negative goal framing was: "Regular consumption of honey helps to prevent diseases." Such formulation of framing may be categorised as a type of goal framing related to Higgins' (1997) regulatory focus theory (promotion and prevention behaviour).

To estimate the required sample size, a power analysis was conducted. Given the effect size of the goal framing (d=0.444), reported in the meta-analysis by Piñon and Gambara (2005), analysis revealed that the required sample is N =162. In this experiment, a sample of 356 shopping centre customers took part. The mean age was approximately 36 years and about 56% of participants were female. The experiment took approximately five minutes per person.

7.1. Results of Experiment 3

The mean value of WTP for the honey across the sample is equal to 16.16 PLN (3.59 EUR), with a median value of 15 PLN (for histogram, see Figure E.2 in Supplementary Materials, Appendix E). One outlier (observation no. 178) was removed using the same procedure as in previous experiments (see Figure E.3 in Supplementary Materials, Appendix E). The investigation was again initiated by comparing WTP values in each treatment (see Table 3 and Figure 3, as well as Figure E.4 in Supplementary Materials, Appendix E).

Table 3. **Experiment 3: WTP values by treatment (in PLN)**

	Negative	Positive
Mean	16.79	15.52
Median	15	15
Standard dev.	12.21	8.05
N	180	176

Source: own study

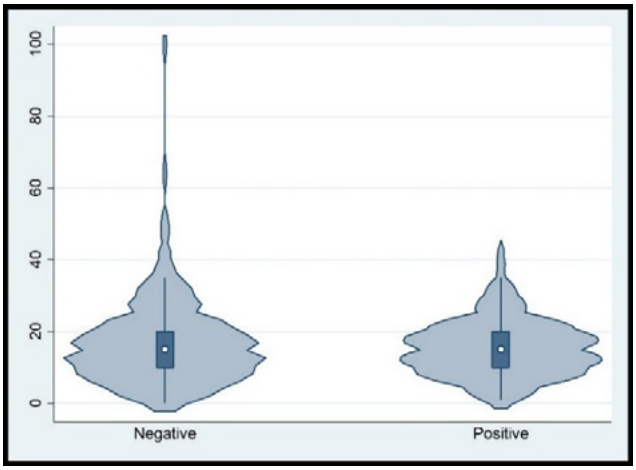

Figure 3. **Experiment 3: WTP values by treatment (in PLN).**

Source: own study

From a visual inspection alone, the mean WTP is slightly higher in the negative framing than in the positive framing condition. As in previous experiments, this observation was verified using non-parametric Mann-Whitney U tests. Again, treatments with positive and negative goal framing were compared to verify the framing effect. The difference between the WTP values in the Negative and Positive treatments was not statistically significant (z=0,104, p=0,917), implying there was no goal framing effect affecting the findings. These findings were once more verified using OLS regression models; see Table E.1 in Supplementary Materials, Appendix E. Again, the WTP value (dependent variable) was logarithmised; the Ramsey regression specification-error test (RESET) evidenced that the functional form of all presented models was correct. In all specifications of the model, the goal framing effect was not statistically significant. Among the remaining variables, only employment status matters; unemployed participants reported lower WTP values than their employed counterparts.

8. Experiment 4: Goal framing - hypothetical conditions

The scheme of Experiment 4 was similar to that of Experiment 2 (using the declarative method to elicit consumer WTP), but participants were asked to report their WTP for the selected honey (the same varieties as in Experiment 3 were used) instead of mugs. The design, product, and goal framing manipulation were also identical to Experiment 3.

It took approximately five minutes for a single experiment to be conducted. As in Experiment 3, a power analysis revealed that the required sample size was 162. In total, 368 shopping centre customers took part. Approximately 58% of them were female, with a mean age of 36.

8.1. Results of Experiment 4

The mean value of WTP for the honey across the whole sample equals 31.10 PLN, with a median of 25.5 PLN (for a histogram, see Figure F.1 in Supplementary Materials, Appendix F). One outlier was removed (observation no. 368); see Figure F.2 in Supplementary Materials, Appendix F. Table 4 and Figure 4 show WTP by treatment.

Table 4. **Experiment 4: WTP values by treatment (in PLN)**

	Negative	Positive
Mean	30.26	31.04
Median	26.5	25
Standard dev.	16.02	19.44
N	184	183

Source: own study

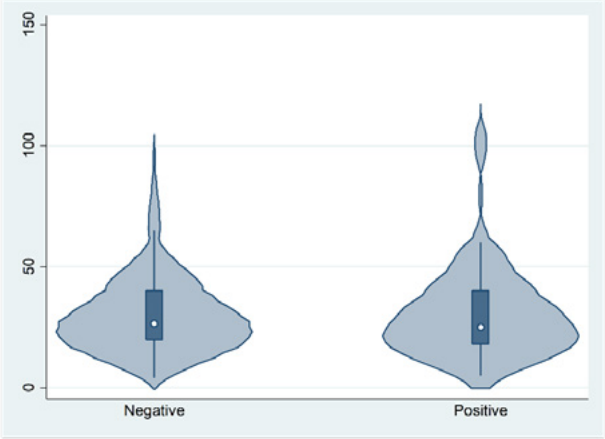

Figure 4 **Experiment 4: WTP values by treatment (in PLN).**

Source: own study

Again, treatments with positive vs. negative framing were compared using the Mann-Whitney test. The difference between the WTP values in the Negative vs. Positive treatments was unnoticeable and not statistically significant (z=0,192, p=0,848). Thus, it can be surmised that the framing did not affect the valuation of the offered honey.

As previously, these results were verified using a regression model with the logarithmised WTP as the dependent variable. Table F.1 in Supplementary Materials, Appendix F reveals the results. As in Experiment 3, no goal framing effect was observed. Women reported higher WTP values than men, older participants had lower WTP values than their younger counterparts, and, again, participants who particularly liked the presented product valued it more than the rest.

9. The influence of framing on customers' assessment of product attractiveness

In none of the experiments did framing affect the WTP for the products presented. One might speculate that the reason for this unexpected null result is simply the weak framing manipulation used in the study. To test this conjecture, it was checked whether framing had an impact on the assessment of product actractiveness, that participants were asked about in the post-experiment questionnaires. In the next step, the product assessment reported by the participants assigned to the conditions with positive vs. negative framing was compared; this procedure was conducted separately for mugs and honey.

9.1. The influence of the attribute framing on the assessment of mugs

In Experiments 1 and 2, participants were shown the hand-painted mugs. In the questionnaires, participants' assessment of the presented mugs was measured on a 5-point Likert-type scale using a simple question: *Do you like this product?* (with 1 = I definitely do not like the product and 5 = I definitely like the product). Table 5 displays the main statistics for positive and negative attribute framing conditions.

Table 5. **Assessment of mugs atractiveness by treatments**

	Negative framing	Positive framing
Mean	4.29	4.39
Median	4	4
Standard dev.	0.64	0.60
N	436	439

Source: own study

The assessments of mugs were more favourable in the conditions with positive framing. This observation was confirmed in a Mann-Whitney U test. The difference between product assessment in the positive framing condition and the negative framing condition was statistically significant (z = -2.269; p= 0.023). It can be seen that the difference between the means in the samples is not very large. However, it is worth noting that the standard deviation is also small because the selected products were generally liked by the respondents. To further test the influence of framing on the assessment of mugs atractiveness, a regression analysis was also conducted. The ordered logistic models were estimated using the assessment of the mug as the dependent variable. This model was selected because dependent variable is ordinal. Table H.1 in Supplementary Materials, Appendix H shows three specifications of the model.

The results of the regression are consistent with the results of the Mann-Whitney U test presented previously. In all models, positive attribute framing had a significant effect on the assessment of mugs.

9.2. Influence of the goal framing on the assessment of honey

To verify whether the framing manipulation used in Experiments 3 and 4 was effective, the next step was to examine the influence of framing on the perceived attractiveness of the jars of honey. To test the formulated H4 hypothesis, participants in Experiments 3 and 4 were asked the question: *Do you find the selected product attractive?*. Again, a 5-point Likert scale (with 1 = completely unattractive and 5 = very attractive) was used to measure participants' attitudes toward the product. Table 6 depicts the mean, median, and standard deviation for the analysed data by treatments with positive and negative goal framing.

Table 6. **Assessment of honey atractiveness by treatments**

	Negative framing	Positive framing
Mean	4.08	3.96
Median	4	4
Standard dev.	0.67	0.67
N	363	360

Source: own study

Participants exposed to the negative goal framing (prevention) assessed the presented product more positively than those shown the positive goal framing (promotion). This observation was verified with the usage of the Mann-Whitney U test. The difference

between the perceived attractiveness of the product under the negative and positive goal framing conditions was statistically significant ($z = 2.456$; $p = 0.014$). This time, as predicted in the literature, negative goal framing contributed to a higher assessment of product attractiveness than positive goal framing.

As before, ordered logistic regression models were estimated in the next step (see Table H.2 in Supplementary Materials, Appendix H). In all models presented, framing variable was statistically significant. Thus, we can conclude that goal framing influences the assessment of the attractiveness of the products presented.

10. Discussion and conclusions

In the current study, the influence of the framing effect on the valuation of private consumer goods (measured by WTP) was examined in four field experiments in a shopping centre. The experiments conducted involved two different types of consumer products (durable and fast-moving). Similarly, two different types of framing and two different valuation procedures were used; nevertheless, notably consistent results were obtained. It was observed that the framing effect had no impact on participants' WTP for the presented goods. The author is not aware of any other framing study conducted at the point of purchase; therefore this study appears to be the first to address the important question of whether framing reliably affects WTP in realistic shopping settings.

One might speculate that the lack of significant results on WTP might affect the contribution of the study. It could be suggested that the null result obtained in the context of the WTP elicitation was due to a weakness in the manipulation used. However, the same framing manipulation significantly affected customers' assessment of product attractiveness. Product attractiveness assessments were higher in the positive attribute framing conditions than in the negative ones. In the case of goal framing, however, product assessments were more favourable in treatments with negative framing than in the ones with positive framing. Both results are consistent with the framing literature, so we can conclude that the manipulation used was effective. Consequently, the obtained results may argue against the relevance of the attribute and goal framing effect, especially in valuation tasks. Based on the existing literature and the current study, it can be suspected that the framing effect is more likely to appear in assessment tasks than in the context of eliciting consumer WTP.

Another possible reason for the lack of a framing effect on WTP could be an inappropriate random assignment of respondents to the experimental treatments (heterogeneity of experimental groups). To check this conjecture, the socio-demographic characteristics of respondents in both treatments (positive vs. negative) were compared separately for each experiment. All tables are available in Supplementary Materials, Appendix I. As can be seen from the tables for Experiments 1, 2, and 4, the distribution of respondents'

characteristics differed only slightly across treatments. These observations were verified using the Kruskal–Wallis equality-of-populations rank test. For Experiments 1, 2, and 4, all tests confirmed the equality of populations across treatments ($p > .05$), indicating a successful random assignment. In Experiment 3, the Kruskal–Wallis tests showed equality between treatments in terms of age, employment, and education, but indicated an unsuccessful random assignment regarding sex (with a relatively larger share of men in the negative treatment compared to the positive one). However, in light of the previously conducted analyses, this imbalance should have no impact on WTP. Overall, it can be surmised that the experimental groups across all experiments were relatively homogeneous, and thus the socio-demographic characteristics of respondents had no significant bearing on the results obtained.

The author is aware of the need for further research in diverse contexts to explore others potential reasons for the absence of the framing effect on WTP. One possible explanation of the results obtained in the current study may be the theory of planned behaviour (TPB) proposed by Ajzen (1991). According to this concept, people follow their intentions. Attitudes are only one of the three main factors influencing behavioural intentions (which can be expressed as WTP). Other (non-attitudinal) variables are subjective norms (social pressure) and perceived behavioural control. In Ajzen (2004), subjective norms and perceptions of behavioural control significantly and independently explained WTP values reported by participants. The results of the aforementioned study and the subsequent analysis conducted by Ryan and Spash (2011) suggest that WTP is a broader measure of psychological evaluation than attitudinal assessment. Motives of WTP responses can be influenced by many additional factors, such as disposable income or use of the good in question (Carson et al., 2001). Consequently, WTP values may react differently to framing manipulations compared to measures of product attitudes, such as assessments of product attractiveness. Moreover, in valuation tasks, respondents may concentrate more on their preferences and the utility of the presented goods (Yoon et al., 2019) and, therefore, be less susceptible to any additional "hints" such as framing information. As a result, the framing effect is more often observed in studies concerning attitudes towards presented products or purchasing intentions than in the valuation context of the product.

The findings of the current study may in some sense also be supported by the theory of consumption values developed by Sheth et al. (1991). This theory identifies five independent values that drive consumer choices: functional, social, emotional, conditional, and epistemic. Consumer decisions may be influenced by all or some of these values, depending on the context. In the light of this theory, it can be supposed that in the current study these values may have influenced the consumer decision

on stated WTP, pushing the information included in framing manipulations to the background.

It would be very interesting to explicitly test the reasons behind the null effect of framing on WTP, for example by applying one of the theories described above. It would also be valuable to replicate this research using different products or alternative framing manipulations.

One could also imagine that the participants were not properly paying attention, rendering framing manipulations ineffective. Hovewer, worth noting, mean WTP for the presented products was much higher in experiments involving hypothetical valuations than in experiments using the BDM procedure, a clear case of hypothetical bias. The mean *bias ratio* (ratio of the mean WTP from the hypothetical treatment to the mean WTP from the real treatment) was equal to 2.24, and thus very close to that of the meta-analysis by Foster and Burrows (2017), in which the ratio was equal to 2.33. The conjecture of insufficient participants' attention is, therefore, entirely inconsistent with the findings on hypothetical bias – here, the manipulation of the experimental condition made a large behavioural difference (as it typically does in laboratory experiments), which would have been impossible if participants were inattentive.

The results of this study have both theoretical and practical implications. Firstly, as previously described, they contribute to the literature on the framing effect and expand the understanding of the behavioural determinants of the valuation of consumer goods. Secondly, as using framing is common in marketing activities and advertising (e.g., in public health campaigns and cosmetic slogans), this study also has implications within marketing science. The findings obtained suggest that framing as a marketing tool may be ineffective, especially when used in realistic shopping settings. Based on this study and previous papers, it can be predicted that framing is more likely to influence consumers' product assesments, rather than the perceived value of the products or actual purchase decisions (and, consequently, customers' expenditures). Therefore, marketers should carefully consider the objectives of a particular marketing campaign before using the attribute or goal framing in their marketing messages.

This study holds significant value from the consumers' perspective. The awareness of the existence and operation of behavioural effects or cognitive biases, such as the framing effect, is fundamental in making an informed decision at each stage of the purchasing process.

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Supplementary Materials

Supplementary materials are available at:

- https://osf.io/nhjsr?view_only=7750081069f54c70922c52010356d0cd
- https://www.management-poland.com/Does-attribute-and-goal-framing-affect-the-willingness-to-pay-for-consumption-goods,205912,0,2.html