



Research Paper

Does corporate responsibility increase consumers' product value? Evidence from two experiments

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ABSTRACT

Do consumers reward companies for engaging in corporate responsibility (CR)? Obtaining clear evidence on this question is challenging in naturally occurring purchasing environments due to numerous confounding factors, including brand reputation, product quality, and product appearance. CR predominantly focuses on two dimensions, i.e., (i) the social dimension, like providing fair working conditions, and (ii) the ecological dimension, like using recycled materials in production. We provide new evidence on this debate through two experiments in backpack sales for young adults. We find that CR information about both dimensions increases consumers' product value by more than 17 percent. In a separate study, we ask whether this effect is potentially entirely driven by one of the two CR dimensions, specifically social versus ecological. We find no significant difference in the increase in consumers' value between these two dimensions.

1. Introduction

Evidence on whether consumers are willing to compensate companies for their efforts in Corporate Responsibility (CR) is mixed.¹ In two studies, we conducted two experiments to answer (i) whether and to what extent consumers are willing to compensate for socially and ecologically responsible production, and (ii) whether consumers' willingness to do so is potentially entirely driven by one of the

Alexandra Eyberg joined the research project as a master's student during the project's design phase. Her master's thesis (Eyberg, 2019) includes an initial analysis of the data from the first study. We thank Marianne Bertrand, John List, and Dirk Sliwka for their helpful comments. Further, we thank Meike Felten and Theo Simon for their excellent assistance with data collection. The project received IRB approval at the University of Cologne (20001MS). The experiments were pre-registered in the AEA RCT Registry (AEARCTR-0004576 & AEARCTR-0005066). The research was funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy-EXC 2126/1-390838866 'ECONtribute: Markets and Public Policy' and by the Center for Social and Economic Behavior at the University of Cologne.

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¹ Bowen (1953) defined corporate responsibility (CR) as the duty of business to act in line with society's objectives and values. Friedman (1970) famously objected, arguing that managers' sole responsibility is to maximize profit. Later work offers a more nuanced view: Bénabou and Tirole (2010) argue that firms can sometimes address social problems more effectively than governments because investors, consumers, and employees engage in delegated philanthropy, sacrificing money to further social goals. A systematic review by Narayanan and Singh (2023) corroborates this, showing that consumers are willing to pay a premium for CR.

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two CR dimensions, specifically social versus ecological. Our experimental setup allows for some realism while abstracting from potentially confounding factors present in naturally occurring settings, such as brand reputation. Therefore, our study incorporates elements of “framed field experiments” and thereby provides a bridge between findings from abstract, conventional laboratory experiments with induced-valuation “goods” and those from natural field experiments.²

We elicit valuations for an actual product, a backpack, from samples of participants whose characteristics match the target consumer segment for the product. We elicit two product valuations from each participant through the incentive-compatible Becker-DeGroot-Marschak (BDM) mechanism (Becker et al., 1964), once before and once after the intervention. Treatments vary in the information participants receive between the two valuations.

In the first study, as an intervention after the first valuation, we inform participants about the backpack’s quality-related features, much like conventional marketing campaigns. In another treatment intervention, we also include the CR information that the production was socially and ecologically responsible. In the second study, we add information about the social or ecological dimension to the quality-related information after the first valuation.

The first study found a highly significant treatment difference of 32 percentage points, or a 9.98 euros premium, caused by CR information.³ While the average valuation increases by 21 % (from 35.30 to 42.78 euros) with the quality-related intervention, adding CR information increases it by 53 % (from 32.79 to 50.25 euros). Furthermore, while the increase caused by quality-related information stems from 58 % of participants, the rise with CR information stems from 84 %. Hence, adding CR information seems to affect consumers’ receptivity to conventional marketing and creates new demand from additional consumer segments.

In the second study, we do not find a significant treatment difference. Combining quality-related and ecological CR information increases the average valuation by 38 % (from 43.41 to 58.28 euros), and combining it with social CR information increases the average valuation by 34 % (from 38.67 to 53.37 euros). Like the CR treatment in Study 1, 86 % of participants in the ecological CR treatment and 89 % in the social CR treatment in Study 2 increased their valuations.

In addition, we find that participants with a higher pre-intervention valuation react significantly more strongly to CR information than those with a lower pre-intervention valuation.

Our paper contributes to a growing economics literature that employs the experimental method in controlled laboratory settings or naturally occurring settings to make causal inferences about responsible consumption behavior.⁴ Evidence from conventional laboratory experiments overwhelmingly points towards humans possessing social preferences and being willing to forgo monetary gains to avoid negative externalities under different institutional arrangements such as bilateral decision-making (Irlenbusch and Saxler, 2019), double auction markets (Falk and Szech, 2013; Kirchler et al., 2016), multilateral double auction markets (Falk and Szech, 2013; Sutter et al., 2020), and competitive laboratory markets with consumers as price-takers (Rode et al., 2008; Bartling et al., 2015; Feicht et al., 2016; Pigors and Rockenbach, 2016; Bartling et al., 2018; Engelmann et al., 2018; Bartling et al., 2019; Danz et al., 2022).⁵

On the other hand, evidence from natural field experiments is mixed. Some studies report a positive effect of CR information on consumer demand. For example, Hainmueller et al. (2015) conducted a field experiment in US grocery stores and reported that a Fair-Trade label significantly affects coffee sales. Dubé et al. (2017) find that donation-based promotions significantly increase the likelihood of purchase for cinema tickets when donations are sufficiently large. However, the effect is less intense compared to the same-sized discount-based promotions. Buell and Kalkanici (2021) report results from two natural field experiments. The first uses point-of-sale videos containing CR information in the social dimension, which increases apparel sales in a university bookstore. In the second, point-of-sale CR information in the ecological dimension increases coffee sales in a grocery store. Other studies report null results. For example, Gneezy et al. (2010) find that combining the sale of souvenir photos with a charitable donation has no effect when the photos are sold for a fixed price. Singh et al. (2019) report that sending out charity-linked promotions to customers of an online taxi-booking platform does not affect demand. Conrads et al. (2022) address a research question similar to that of the present study; however, their focus is on demand rather than the customers’ value of a product. They conducted a natural field experiment in the online shop of a German kindergarten backpack producer to examine whether providing consumers with information about socially

² Harrison and List (2004) define framed field experiments as studies that combine a non-standard subject pool with a field context in the commodity, task, or information set. Study 1 meets these criteria: we recruited young adults in a nearby park instead of using lab subjects, and we sold an actual backpack. Realism, however, remains limited – for instance, the Becker-DeGroot-Marschak (BDM; Becker et al., 1964) price-elicitation mechanism only partially mimics actual buying behavior in the real world.

³ We cannot disclose the firm’s CR costs due to confidentiality. Reliable data on the added costs of sustainable textiles is limited; however, materials such as organic cotton and recycled fabrics are typically more expensive due to their complex production processes and limited supply. Higher social standards, such as fair wages and safe conditions, also increase costs. Given the information of the backpack company, the cost premium is estimated to be at least 20% above the production costs without CR. Thus, given our results showing a 32-percentage-point increase in consumers’ willingness to accept, the CR investment may well be profitable.

⁴ In addition to results from randomized experiments, the economic literature on responsible consumption also offers evidence from analyzing naturally occurring data (see, e.g., Elfenbein and McManus, 2010; Elfenbein et al., 2012; Lee and Bateman, 2021).

⁵ Survey-based studies and hypothetical choice tasks consistently report a high willingness to pay for socially responsible products (reviews, e.g., from Newholm and Shaw, 2007; Andorfer and Liebe, 2012; Tully and Winer, 2014). Most rely on surveys (Kassarjian, 1971; Mohr & Webb, 2005; Du et al., 2011) or non-incentivized choice experiments (De Pelsmacker et al., 2005). In contrast to those findings, stated intentions often exceed actual market shares of analyzed products, raising concerns about external validity and suggesting inflation e.g. from social-desirability bias (Fisher 1993) and experimenter-demand effects (Zizzo, 2010). Narayanan and Singh (2023) therefore call for incentive-aligned methods, such as the BDM mechanism and field experiments.

and ecologically responsible production affects demand. The study employed an A/B testing approach, activating two versions of the shop simultaneously and randomly directing visitors to one of them. In the treatment condition, information about the backpacks' responsible production was included, whereas in the control condition, this information was omitted.⁶ The results showed that while the treatment increased the time customers spent in the online shop and the likelihood of their return, it had no significant effect on sales. These findings suggest that, in this context, responsible production does not substantially influence purchasing decisions.

Our results suggest that engaging in CR activities might increase companies' profits by increasing customers' valuation of a product.⁷ Our results further indicate that consumers, on average, seem not to have a strong preference for firms' specific engagement. In our study, both kinds of CR work similarly effectively. This might also leave regulators room to provide guidance and expertise to firms on specific CR initiatives that are most needed from a societal perspective.⁸

The paper proceeds as follows: [Section 2](#) describes the experimental design in detail and develops hypotheses on the causal effects that can be tested. [Section 3](#) presents the results and main findings, which are discussed in [Section 4](#). [Section 5](#) concludes.

2. Experimental design

We conduct two experiments to obtain high control over the setting while keeping some elements of realism. We use an incentive-compatible BDM mechanism to elicit two valuations from each participant for an actual product, i.e., a backpack. The first valuation is elicited after participants inspect the backpack, but before they receive any treatment. The second valuation is elicited after we intervene by providing information on the backpack's characteristics that either include or exclude CR information. We are interested in the differential effects of our interventions on the change between participants' pre- and post-intervention valuations (difference-in-difference).

The BDM elicitation method. The valuations we elicit through the BDM method represent the minimum monetary amount participants are willing to accept (WTA) to give up the backpack.⁹ Participants are given the backpack and told that, if drawn in a lottery, they either keep the backpack or sell it back to us through a specific auction-like mechanism. Then, they are informed that they need to bid the minimum amount of money for which they would sell back the backpack to us, but also that the bid does not determine the actual price for which they would sell back the backpack, and that the actual price will be determined randomly. If the randomly drawn price is higher or equal to their bid, they receive a monetary amount equal to the randomly drawn price and need to give up the backpack. If the randomly drawn price is below their bid, they do not receive any money and keep the backpack.

We take great care to ensure participants understand the BDM mechanism. Meticulously crafted instructions based on [Plott and Zeiler \(2005\)](#), [Lusk and Shogren \(2007\)](#), and [Isoni et al. \(2011\)](#), read out one-on-one by the experimenter to the participant, explain the mechanism (see Appendix A.2). Further, instructions include an illustrative application of the method for a chocolate bar with a hypothetical induced value. Additionally, participants are explicitly informed that, out of self-interest, their dominant strategy is to state the true valuation, as overstating or understating it will result in a loss of expected utility. Then, a training round with an apple is played, followed by comprehension questions about the consequences, i.e., whether the apple would need to be sold and for what price. In addition, participants are asked what would have happened if the randomly drawn price had been 5 cents above and 5 cents

⁶ More precisely, in the corporate responsibility treatment, the online shop prominently featured information about the firm's sustainability efforts. First, the brand's slogan on the landing page was modified from "the kids' backpack" (control) to "the sustainable kids' backpack." Second, product detail pages included explicit references to the backpacks being certified for fair labor standards, free from harmful chemicals, and made from recycled materials. Additionally, a dedicated "ask our experts" section was added, providing contact details of CR experts and links to a comprehensive CR subpage that detailed the company's sustainability measures.

⁷ CR investments can positively affect profits for reasons beyond consumers' behavior. For example, in a field experiment, [Hedblom et al. \(2019\)](#) show that firms can attract more productive workers who produce higher quality outputs when they advertise jobs with CR. [Bertrand et al. \(2020\)](#) provide empirical evidence for CR being used by corporations as a tool of political influence. On the other hand, however, too much emphasis on CR can also backfire. Beyond the typical "greenwashing" impression it can have on consumers, [List and Momeni \(2021\)](#) show that, through moral licensing, CR can increase employee misconduct and shirking.

⁸ The United Nations ([United Nations, 2015](#)) Sustainable Development Goals (SDG) initiative is likely to be the most prominent example of outside institutions guiding firms about important CR. For example, SDG 12 aims at responsible consumption and production, SDG 8 includes paying fair wages, and SDG 13 calls for climate action. The UN, local governments, and private non-profit organizations, among others, constantly specify these general goals to the regional contexts and provide firms with information and expertise to help achieve them.

⁹ In theory, participants' willingness to accept and their willingness to pay for a product should be the same. However, a well-known result is that the willingness to accept is often higher than the willingness to pay (e.g., [Kahneman et al., 1990](#)). While we cannot rule out that this might also be the case in our data, we hope that this is less problematic because we are mainly interested in changes in valuation and not their absolute levels. We are, however, aware that the disparity between the willingness to accept and the willingness to pay can be more significant for products with a moral dimension ([Anderson et al., 2000](#)).

below their bid. Suppose a participant indicates or reveals comprehension problems at any point in instruction. In that case, the experimenter returns to the respective passage and explains it again until comprehension is ultimately ensured.¹⁰

The product. We cooperate with a medium-sized company based in Germany with an annual turnover of around 10 million Euros. Given the harsh competitive environment for everyday and lifestyle backpacks, the brand has established itself in its target group of 19–29-year-olds with stylish and functional products. The company invests in CR activities by aiming to make the production process of its products socially and ecologically responsible. During our experiments, the firm's CR efforts in the social dimension included long-term and transparent partnerships with suppliers, as well as regular independent third-party audits of working conditions in Vietnamese factories by the Fair Wear Foundation (FWF). The FWF is an internationally active, multi-stakeholder organization dedicated to improving working conditions in the textile industry (Fair Wear Foundation, 2022). The firm's CR efforts in the ecological dimension included using fabrics made from recycled PET bottles, producing PFC-free (hazardous chemical for water-repellency effect), and using bluesign® system-certified materials. bluesign® is a sustainability standard for textile producers that prohibits the use of toxic chemicals in production processes, aiming for very high standards regarding resource efficiency, such as water and energy consumption (bluesign®, 2022). The specific product we used is a black, mid-sized backpack, priced at € 119.90 at the time of the experiment, which targeted students and young professionals as its primary consumer segment.

Treatments. Both experiments include two treatments each. Within each study, treatments are randomly assigned to subjects. In Study 1, treatment interventions either solely inform about quality-related characteristics of the backpack in treatment QLT or, in addition, include the CR information that production was socially and ecologically responsible in treatment ECO&SCL&QLT. In Study 2, both treatments include quality-related information but combine it with CR information in the ecological dimension in treatment ECO&QLT or with CR information in the social dimension in treatment SCL&QLT. Table 1 shows the content of the four different treatments.

Questionnaire. At the end of both studies, participants answered a questionnaire. It includes demographic questions, such as those regarding gender, age, occupational status, and educational background. Furthermore, participants are asked to assess on a Likert scale from 1 to 5 how much they like the backpack's design, how much they currently need it, and their general knowledge about the backpack market. Participants also reported whether they recognized the brand and how much they knew about its CR efforts. Four additional questions inquire about past responsible consumption behavior; two ask whether they usually consume socially or ecologically responsible products, and two ask whether they have paid price premiums to buy responsible products. Lastly, depending on the treatment, participants rank-order the specific characteristics of their information intervention and report whether they are familiar with the FWF or bluesign®.

The following seven steps summarize the experimental design: (i) recruitment, (ii) instructions, training round, and comprehension questions, (iii) inspection of the backpack, (iv) pre-intervention valuation, (v) intervention, (vi) post-intervention valuation, and (vii) questionnaire. We apply this basic experimental design in both studies reported in this paper. However, the specifics of the implementations differ across studies, as described below.

Procedures Study 1. Study 1 recruited 368 participants between August 19, 2019, and September 24, 2019.¹¹ To generate a sample of subjects more diverse in their background than a standard laboratory sample, we chose to leave the laboratory and recruit young adults in a park and three other locations near the University of Cologne. The recruitment procedure was simple. The experimenter set up a small stand at the location and asked young people passing by if they would like to participate in a consumer survey conducted by the University of Cologne, offering the chance to win a backpack or money.¹² The data for this study were collected by a single experimenter in both treatments. We neither paid for participation nor provided information on the lotteries' winning probabilities, and we assured complete anonymity.

Procedures Study 2. Study 2 took place between April 20 and May 4, 2020. While we aimed to keep as many factors as possible, like Study 1, the COVID-19 pandemic forced us to deviate in the following aspects. First, instead of recruiting participants outside the laboratory, we recruited 127 participants through ORSEE (Greiner, 2004, 2015) from the Cologne Laboratory for Economic Research

¹⁰ While, in theory, the BDM mechanism is incentive-compatible, i.e., predicted to elicit respondents' true valuations, it has been criticized for being difficult for subjects to comprehend. Most prominently, Cason and Plott (2014) show that when the BDM mechanism is employed with minimal instructions and without training subjects, "game form misconceptions," i.e., failures to understand the mechanism's incentive structure, lead to systematic overreporting of valuations, even when participants know the value of a commodity. Therefore, Cason and Plott (2014) caution against interpreting BDM choice data as evidence for or against any particular preference theory without ensuring complete comprehension of the method. There are three reasons why we think this, and similar criticisms are less of a concern for our difference-in-difference experimental design. First, as stated above, we take great care to ensure comprehension of the method. Second, it is less likely that misunderstanding about the technique, such as mistaking the second-price auction nature of the BDM method with a first-price auction against the randomly drawn price (cf., Cason and Plott, 2014), affect the change from a participant's pre-intervention to the post-intervention valuation. Third, any fraction of participants with comprehension problems that affect the change in their valuation, e.g., when comprehension problems lead to random behavior, will be divided equally on treatment conditions due to randomization. Of course, if the fraction is large, it might make detecting a treatment difference harder, but it is unlikely to make it easier.

¹¹ We conducted four pilot studies with the control treatment. No pre-intervention valuations were elicited in the first pilot, including 21 participants. The second pilot, which included 17 participants, was like the first, but participants were also informed about the backpack's price segment to reduce variance. The third pilot, with 20 participants, included both a pre-intervention valuation and information about the price segment of the backpack. The final design was found in a fourth control treatment pilot, including 20 participants. Data from these pilots is not included in the final data set.

¹² See Appendix A.3 for a picture of the stand used in the first experiment to collect data.

Table 1
Treatments.

Treatment:	Study 1		Study 2	
	QLT	ECO&SCL&QLT	ECO&QLT	SCL&QLT
“The backpack is characterized by ...				
• high functionality (e.g., expandable from 26 to 33 liters, padded lap-top compartment, 2 accesses to main compartment: rolltop system and circulating zipper)	x	x	x	x
• outstanding wearing comfort (e.g., ergonomic shoulder straps, padded back section, removable and adjustable chest strap)	x	x	x	x
• water-repellence	x	x	x	x
• an ecologically compatible production (e.g., fabrics made from 100 % recycled PET bottles, backpack free of PFCs harmful to the environment and health and continuous reduction of negative environmental impacts in production as certified by the independent third party bluesign®)	-	x	x	-
• a socially compatible production (e.g., regular auditing of work-ing conditions of the backpack production by the independent third party Fair Wear Foundation (including occupational safety reviews, employee training, and exclusion of child labor), and long-term and transparent partnerships with suppliers)”	-	x	-	x

Notes: The table presents an English translation of the original German information provided to participants after they inspected the backpack and gave a first pre-intervention valuation but before their post-intervention valuation. “x” indicates if the specific piece of information stated in a bullet point was included in the respective treatment shown in columns two to four, “-” indicates if it was not.

(CLER) subject pool at the University of Cologne. Second, we conducted the study via video call instead of face-to-face.¹³ Consequently, the inspection needed to be accomplished remotely. To compensate as much as possible for the physical experience with the backpack, participants could ask questions and instruct the experimenter to show certain parts of the backpack through the camera in more detail. However, we were cautious not to reveal more information than a physical inspection would have allowed them to observe. Third, the laboratory protocol at the time at CLER required reimbursing participation with €4. Further, two experimenters collected the data in this study, and we randomized them over both treatments. Additionally, we cannot rule out the possibility that participants may have had different valuations for backpacks in 2020 compared to 2019, given that they were less mobile due to government restrictions imposed by the COVID-19 pandemic. The pandemic may also have influenced their concerns for social responsibility and environmental impacts.

Hypotheses. We are interested in whether price-taking consumers in competitive product markets are willing to compensate firms for their CR efforts. Results from a growing number of incentive-compatible experimental studies suggest they might. For example, Bartling et al. (2015) and Pigors and Rockenbach (2016) provide convincing evidence from conventional laboratory market experiments with abstract induced-valuation goods that consumers are willing to pay higher prices for responsibly produced products. Hainmueller et al. (2015) report evidence from a large-scale natural field experiment in a U.S. grocery store chain, where attaching a Fair Trade label significantly increased the sales of the two most popular coffee brands.

Hypothesis 1 (ECO&SCL&QLT vs. QLT): *Providing participants with CR information that production was socially and ecologically responsible, in addition to quality-related information, will significantly strengthen their valuation.*

Our second hypothesis is exploratory and addresses the question of whether the effect observed in Study 1 was potentially entirely driven by one of the two CR dimensions, specifically social versus ecological.

Buell and Kalkanci (2021) report a significantly stronger effect of CR information in the ecological dimension; however, their results stem from two separately conducted field experiments where each dimension was tested in a different setting and for a different product. On the other hand, Tully and Winer (2014) report significantly stronger effects for the social dimension. However, their meta-analysis on responsible consumption includes many non-incentivized experiments.¹⁴

Hypothesis 2 (ECO&QLT vs. SCL&QLT): *Combining quality-related information with CR information in the ecological dimension will have a stronger/similar/weaker effect on participants' valuation than combining it with CR information in the social dimension.*

3. Results

The results section is organized as follows: Section 3.1 describes our two sample participants. Section 3.2 presents the results of Study 1, and Section 3.3 presents the results of Study 2.

3.1. Samples

Table 2 summarizes the characteristics of the two participant samples. In Study 1, after removing two outliers, we analyzed data

¹³ We did not require that participants turn on their cameras.

¹⁴ We did not quantify ecological or social impacts. Consumers rarely see precise impact data at the point of sale: labels such as “bluesign® product” or the Fair Wear seal signal commitment without detailing CO₂ savings or social effects. While additional figures are available online (e.g., bluesign.com/impact; fairwear.org/brands), they are difficult to compare, rarely accessible during purchase, and seldom actively sought (cf. Ehrlich and Irwin, 2005).

from 366 participants, 182 in QLT and 184 in ECO&SCL&QLT.¹⁵ Study 2 comprises 127 participants, with 64 in the ECO&QLT group and 63 in the SCL&QLT group. Demographics show, with one exception, no statistically significant treatment differences within either study; therefore, randomization appears to have been effective.¹⁶ Comparing demographics across studies reveals that our two samples differ from one another. In Study 1, participants are slightly younger, more evenly balanced in terms of gender, more likely to be still studying, and more diverse in their fields compared to Study 2. Nevertheless, both samples align with the target consumer segment for the backpack.

The middle part of Table 2 summarizes participants' answers to how much they like the backpack's design, how much they currently need a backpack, and how well they assess their knowledge about the backpack market. Most participants in both studies report (to a certain extent) liking the design. Again, no treatment differences appear within the studies, but more participants in Study 2 (79 %) report (totally or rather) liking the design than in Study 1 (66 %). Regarding the need for a backpack, an interesting treatment difference appears in Study 1. When CR information is added, a significantly larger fraction of participants report that they currently (totally or somewhat) need a backpack. This larger fraction is similar to the respective fractions (36 %) in Study 2, where no treatment difference is observed. Lastly, in both studies, a small fraction, below 10 %, of participants report having good or above-average knowledge of the backpack market, while most report having insufficient or below-average knowledge. Once again, no treatment differences are observed within studies; however, Study 2 participants are significantly less likely to report below-average knowledge than Study 1 participants.¹⁷

The lower part of Table 2 describes participants' self-reported past responsible consumption behavior. When asked if they usually buy ecologically or socially responsible products, around a fifth to a third of participants answered yes (always or often), similar numbers answered no (seldom or never), and the rest responded that they do so sometimes. When asked if they had previously paid a price premium for responsibly produced products, around half of the participants answered yes (always or sometimes), approximately a third answered no (never or seldom), and the rest answered sometimes. There are no significant treatment differences between Study 1 and Study 2. In Study 2, the percentage of those reporting usually consuming socially responsible products is somewhat larger than in Study 1.

3.2. Study 1

Tables 3 and 4 present the results of Study 1. We find no significant treatment difference between the €35.30 pre-intervention valuation in QLT and the €32.79 in ECO&SCL&QLT ($p = 0.369$, double-sided t -test). On the other hand, the post-intervention valuation of € 42.48 in QLT is significantly smaller than the valuation of €50.25 in ECO&SCL&QLT ($p = 0.029$, two-sided t -test). Nevertheless, both interventions significantly increase valuations (see column (1) in Table 4). Informing participants solely about quality-related features results in a 21 % increase in the average valuation, while adding CR information leads to a 53 % increase. The 32-percentage-point difference represents the highly significant treatment effect caused by CR information. Furthermore, while in QLT, the rise in valuation is attributed to 58 % of participants, in ECO&SCL&QLT, it is caused by 84 %. The 26-percentage point difference is highly significant ($p < 0.001$, two-sided t -test) and indicates that CR information affects both the intensive and extensive margins.

Result 1. *Providing participants with CR information in addition to quality-related information significantly increases their valuation more than just providing quality-related information. While the former increases the average valuation by 53 %, the latter increases it by 21 %.*

Next, we analyze the treatment effect in relation to pre-intervention valuation-based heterogeneity. For this purpose, we categorize participants as “higher pre-intervention valuation participants” when their pre-intervention valuation is larger than the median of all Study 1 participants and as “lower pre-intervention valuation participants” otherwise.¹⁸ Column (2) of Table 4 shows that the QLT intervention causes a €7.49 increase in the lower pre-intervention valuation of participants. Adding CR information increases the valuation rise by € 5.19 for participants with lower pre-intervention valuations. Their total increase in ECO&SCL&QLT equals €12.68. The QLT intervention has a nearly identical effect on participants with higher pre-intervention valuations, increasing their valuation by €7.48. On the other hand, the impact of the ECO&SCL&QLT intervention is €10.61 stronger in the higher pre-intervention valuation category, resulting in a total increase of €23.29.¹⁹

¹⁵ We remove two outliers. The first is a participant from treatment QLT with a pre-intervention valuation of €999 and a post-intervention valuation of €30. This participant stated post-experimentally that they had believed only the second valuation would be relevant. The second outlier is a participant from treatment ECO&SCL&QLT with a pre-intervention valuation of €100 but a post-intervention valuation of €1,000. The main result of a positive effect from adding CR information is robust to either leaving either one or both in the data set.

¹⁶ In Study 2, slightly more participants had a first university degree in ECO&QLT than in SCL&QLT.

¹⁷ In the first study, 9 out of 368 reported recognizing the brand, and 5 out of 127 did so in the second study. No treatment difference appears in either study. Further, out of the 184 participants in ECO&SCL&QLT, 37 and 10 reported knowing the FWF and bluesign®, respectively. In SCL&QLT, 12 out of 63 participants reported knowing the FWF; in ECO&QLT, 4 out of 64 participants reported knowing bluesign®.

¹⁸ In QLT, we end up with 83 lower pre-intervention valuation and 99 higher pre-intervention valuation participants. In ECO&SCL&QLT, the respective numbers are 101 and 83. The pre-intervention valuations of three participants equal the median of €29, all in ECO&SCL&QLT. Changing the categorization such that the higher pre-intervention valuation category includes these three observations does not qualitatively affect results. Further, results remain qualitatively unaffected when we enter the pre-intervention valuation as an explanatory variable into the regression and refrain from the categorization.

¹⁹ See Table A.1 in the Appendix for average valuations from Study 1 by type of participant.

Table 2
Characteristics of the samples of participants.

	Within Study 1			Within Study 2			Between Studies		
	QLT	ECO&SCL &QLT	p-value	ECO	SCL &QLT &QLT	p-value	Study 1	Study 2	p-value
Number of participants	182	184		64	63		366	127	
Demographics									
Age	23.4	23.8	.454	26.2	25.3	.523	23.6	25.8	.001
Female	48 %	50 %	.752	67 %	65 %	.802	49 %	66 %	.001
<i>Highest educational degree</i>			.989			.059			.009
High school diploma	57 %	57 %		31 %	48 %		57 %	39 %	
University diploma	43 %	43 %		69 %	52 %		43 %	61 %	
<i>Occupational status</i>			.242			.257			.011
Student	92 %	87 %		77 %	83 %		90 %	80 %	
Full-/part-time job	7 %	11 %		22 %	13 %		9 %	17 %	
Other	1 %	2 %		1 %	4 %		1 %	3 %	
<i>Field of study</i>			.131			.167			.000
Business/Economics	27 %	20 %		39 %	47 %		24 %	43 %	
Humanities	21 %	20 %		25 %	16 %		21 %	20 %	
Education	14 %	20 %		9 %	10 %		17 %	10 %	
Technical sciences	18 %	13 %		9 %	2 %		15 %	6 %	
Natural sciences	7 %	6 %		3 %	13 %		6 %	8 %	
Law	9 %	17 %		6 %	6 %		13 %	6 %	
Other	4 %	4 %		9 %	6 %		4 %	7 %	
Self-assess. i.r.t. backpack									
Liking design (Yes/No)	69 %/17 %	64 %/20 %	.901	77 %/14 %	81 %/14 %	.863	66 %/18 %	79 %/14 %	.001
Needing backpack (Yes/No)	25 %/65 %	35 %/55 %	.035	38 %/52 %	35 %/57 %	.415	30 %/60 %	36 %/54 %	.027
Mrkt. knowldg. (Good/Bad)	5 %/61 %	4 %/66 %	.405	6 %/52 %	10 %/48 %	.439	5 %/64 %	8 %/50 %	.001
Past resp. consumption									
Buy ECO (Yes/No)	21 %/20 %	26 %/26 %	.944	22 %/34 %	29 %/25 %	.245	24 %/23 %	25 %/30 %	.196
Buy SCL (Yes/No)	21 %/25 %	20 %/27 %	.648	23 %/31 %	37 %/22 %	.100	20 %/26 %	30 %/27 %	.049
Premium ECO (Yes/No)	46 %/33 %	50 %/33 %	.644	43 %/28 %	48 %/29 %	.465	48 %/33 %	46 %/28 %	.425
Premium SCL (Yes/No)	49 %/31 %	52 %/34 %	.917	49 %/26 %	56 %/31 %	.761	51 %/32 %	53 %/28 %	.727

Notes: The table summarizes data from the post-experimental questionnaire to check if and how samples of participants differ within and between studies. The upper part displays demographics, the middle part shows participants' self-assessments related to the backpack, and the bottom part summarizes self-reports about past responsible consumption. Answers in the middle and bottom are given on a five-point Likert scale. The two affirmative points are taken together to "Yes" or "Good," the two negating points to "No" or "Bad," and the neutral point is left out. The following statistical tests are used: double-sided *t*-test on variable "age" and Pearson's χ -squared on remaining variables.

Table 3
Study 1 valuations.

Treatment	Pre-intervention valuation (in €)	Post-intervention valuation (in €)	Change in valuation (in €)
QLT	35.30	42.78	7.48
	>	< **	< ***
ECO&SCL&QLT	32.79	50.25	17.46
Treatment difference	−2.51	7.47	9.98

Notes: Statistical significance from conducting a double-sided *t*-test is indicated as follows:

p* < 0.10, *p* < 0.05, ****p* < 0.01.

Result 2. *The effect of additional CR information is significantly stronger for participants who already valued the backpack relatively more before receiving the intervention. We do not detect such an effect when participants receive only quality-related information.*

3.3. Study 2

Tables 5 and 6 show the results of Study 2. The pre-intervention valuations of €38.67 in ECO&QLT and €43.41 in SCL&QLT do not differ significantly (*p* = 0.306, two-sided *t*-test). Similarly, the post-intervention valuations of €53.37 in ECO&QLT and €58.28 in SCL&QLT do not differ significantly (*p* = 0.400, two-sided *t*-test). The within-treatment change in valuation of €14.70 in ECO&QLT and €14.87 in SCL&QLT amounts to a significant increase of 38 % and 34 %, respectively. Unsurprisingly, the treatment difference is statistically insignificant (see column (1) of Table 6).²⁰ Thus, information about the two CR dimensions creates a similarly strong positive effect. Further, the share of participants who increase their valuation is 86 % in ECO&QLT and 89 % in SCL&QLT. The difference, again, is not statistically significant (*p* = 0.620, double-sided *t*-test).

²⁰ The 95% confidence interval around the SCL&QLT treatment coefficient in column (1) goes from −5.612 to 5.951.

Table 4
The effect of CR information on valuation in Study 1.

	Difference post-pre-intervention valuation	
	(1)	(2)
Constant	7.482*** (0.774)	7.487*** (1.282)
ECO&SCL&QLT	9.982*** (1.480)	5.193*** (1.799)
Higher pre-intervention valuation		−0.009 (1.589)
Higher pre-intervention valuation × ECO&SCL&QLT		10.614*** (2.977)
Observations	366	366
R ²	0.111	0.173

Notes: The table presents results from ordinary least squares (OLS) regressions with robust standard errors in parentheses. Column (1) tests the effect of CR information on the valuation. The constant in Column (1) indicates the increase in valuation resulting from the intervention in QLT treatment. Column (2) tests whether the effect depends on participants having a higher or lower pre-intervention valuation for the backpack. The constant in Column (2) indicates the increase in valuation resulting from the intervention in treatment QLT for participants with lower pre-intervention valuations. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Result 3. *Combining quality-related information with either CR information in the ecological dimension or CR information in the social dimension leads to a 38 % and 34 % increase in the average valuations, respectively. The difference is statistically insignificant.*

Next, as in Study 1, we again check for pre-intervention-valuation-based heterogeneous effects.²¹ Column (2) of Table 6 shows that lower pre-intervention valuation participants react with an €11.20 increase to the ECO&QLT intervention. The insignificant 0.348 coefficient indicates that, as with the overall treatment difference, participants with lower pre-intervention valuations do not exhibit a differential response to the specific dimension of the CR information.²² Higher pre-intervention valuation participants react with an €18.93 increase to the ECO&QLT intervention. Hence, the increase in their valuation is €7.73, significantly larger than the respective reaction of participants with lower pre-intervention valuations. As in Study 1, this result suggests that the effect of CR information is significantly stronger for participants who already value the backpack relatively more before receiving the intervention.

Result 4. *The positive interaction effect between participants' pre-intervention valuations and CR information does not depend on whether the specific dimension of the CR information is ecological or social.*

4. Discussion

We conducted two experiments with a German backpack producer to test whether consumers will compensate for firms' CR efforts. We investigate the effect of CR on consumers' value for an actual product, i.e., a backpack. Our results suggest that study participants are willing to compensate. Participants react to a combination of quality-related and CR information, resulting in a 53 % increase in valuation (from 32.79 to 50.25 euros). Quality-related information alone also effectively increases participants' valuation; however, without CR information, the increase is 21 % (from 35.30 to 42.78 euros). The 32-percentage-point treatment difference (9.98 euros) is highly significant.

In addition to this finding, we extend the economic literature on responsible consumption with the novel insight that when consumers value a product more, providing them with additional CR information can have a more substantial positive effect than when they value a product less. In each of our two studies, we detected a positive interaction effect between participants' pre-intervention valuation and the impact of our interventions, which included CR information. Two reasons might explain this finding. First, higher pre-intervention valuations might be caused by higher income levels. If responsible consumption is a "normal good," its demand could increase with income, as Bartling et al. (2018) suggested, then this could explain the above finding. But, if higher pre-intervention valuations are caused by higher income, we should also expect a positive interaction effect in the QLT treatment because quality is undoubtedly a normal good. However, we do not. Therefore, it is unlikely that differences in the income of participants with higher vs. lower pre-intervention valuations cause this differential effect. Second, if not income differences, then, according to economic theory (e.g., Lancaster, 1966; Rosen, 1974), the variation in pre-intervention valuations needs to be caused by differences in the strength of preference for the backpack, i.e., participants with higher pre-intervention valuations like the backpack more and therefore, ceteris

²¹ Following the same categorization procedure as in study 1, in ECO&QLT, we end up with 35 lower and 29 higher pre-intervention valuation participants. In SCL&QLT, the respective numbers are 31 and 32. pre-intervention valuations of seven participants equal the median of €35, three of whom are in ECO&QLT and the other four in SCL&QLT. Changing the categorization such that the higher pre-intervention valuation category includes these seven observations does not qualitatively affect results. Further, results remain qualitatively unaffected when we enter the pre-intervention valuation as an explanatory variable into the regression and refrain from the categorization.

²² The 95% confidence interval around the SCL&QLT treatment coefficient in column (2) goes from −6.532 to 7.228.

Table 5
Study 2 valuations.

Treatment	Pre-intervention valuation (in €)	Post-intervention valuation (in €)	Change in valuation (in €)
ECO&QLT	38.67	53.37	14.70
	<	<	<
SCL&QLT	43.41	58.28	14.87
Treatment difference	4.74	4.91	0.17

Notes: Statistical significance from conducting a double-sided *t*-test is indicated as follows:

p* < 0.10, *p* < 0.05, ****p* < 0.01.

Table 6
The effect of ecological vs. social CR information on valuation in Study 2.

	Difference post-pre-intervention valuation	
	(1)	(2)
Constant	14.703*** (1.837)	11.200*** (2.694)
SCL&QLT	0.170 (2.921)	0.348 (3.476)
Higher pre-intervention valuation		7.731** (3.496)
Higher pre-intervention valuation × SCL&QLT		−1.186 (5.671)
Observations	127	127
R ²	0.001	0.048

Notes: The table presents results from ordinary least squares (OLS) regressions with robust standard errors in parentheses. Column (1) tests whether the effect of CR information depends on the dimension being ecological vs. social. The constant in Column (1) indicates the increase in valuation resulting from the intervention in the treatment of ECO&QLT. Column (2) tests whether the positive interaction between the pre-intervention valuation type and CR information depends on the dimension. The constant in Column (2) indicates the increase in valuation resulting from the intervention in treatment ECO&QLT for participants with lower pre-intervention valuations. Statistical significance is shown as follows: **p* < 0.10, ***p* < 0.05, ****p* < 0.01.

paribus, value it higher. If true, the above result indicates a positive interaction effect between the strength of preference for the non-CR characteristics of a product and the impact of CR information.²³ This result may provide a missing link in the literature to explain why CR information can significantly decrease the price elasticity of a higher-priced product, while leaving the price elasticity of a closely related but lower-priced substitute unchanged. As noted in Hainmueller et al. (2015), differences in income level do not always account for this observation.²⁴ Singh et al. (2019) provide further evidence that consumers who already appreciate a product more, i.e., those with a *ceteris paribus* stronger preference for it, might also react more positively to information on the product's CR characteristics. The authors run a natural field experiment on an online taxi booking platform to test the effectiveness of charity-linked promotions. Their results show that charity-linked promotions were taken up disproportionately more often by customers who used the platform more frequently and, therefore, by those who probably also appreciated the service more.

Having established a positive effect of CR information on consumer valuation and, therefore, on demand, a natural question is whether the effect stems from an increase in the intensive margin or works on the extensive margin. Our above-described result suggests that firms with customers who appreciate their products can effectively utilize CR investments and benefit from the intensive margin. However, the following results indicate that CR information also affects the extensive margin. First, while quality-related information causes 58 % of our participants to increase their valuation, adding CR information increases this number by 26 percentage points to 84 %. Second, compared to QLT, adding CR information significantly increases the share of participants who self-

²³ Our data do not allow us to pinpoint what precisely causes differences in pre-intervention valuations. Nevertheless, Table A.3 and Table A.4 in the Appendix show that while participants' self-assessment of market knowledge is not a significant predictor of pre-intervention valuations, liking the design and currently needing a backpack is so.

²⁴ In Greiner (2015), the authors investigate the effect of CR information on sales of two bulk coffee brands, where one of the two is priced higher (\$11.99) than the other (\$10.99). The authors intervened in the first experiment by adding the same CR information to both brands. They observed a similar positive effect on sales, with approximately a 10% increase in both brands. In a second experiment, the authors keep the CR information but, in addition, increase the prices of both brands by \$1, measure the price elasticity on demand, and compare it with the historical price elasticity of each of the two brands. Interestingly, results show that while the price elasticity of the higher-priced brand reduces significantly when CR information is attached, the price elasticity of the lower-priced brand is unaffected by CR information. The authors test if income differences might cause the differential effect on price elasticity but cannot find any evidence for their hypothesis. Alternatively, we suspect that consumers in Greiner (2015) who are willing to pay \$1 more for a coffee might do so because they have a stronger preference for coffee, irrespective of income. Combined with our result that consumers who value a product react more positively to CR information, it would explain the differential effect on price elasticity.

report needing a backpack.

The results from our second study align with those of the first study, as described below. First, the combination of quality-related with CR information, as in Study 1, effectively increases consumer valuation, albeit with 38 % (from 43.41 to 58.28 euros) for ecological CR and 34 % (from 38.67 to 53.37 euros) for social CR. The increase is somewhat smaller than the 53 % increase in Study 1.²⁵ Second, the increase stems from 86 % and 89 % of participants when ecological or social CR information, respectively, is included in the intervention. The corresponding number for the Study 1 CR intervention was 84 %. Third, as in Study 1, the CR interventions cause the valuation of participants with a higher pre-intervention valuation to increase significantly more than that of participants with a lower pre-intervention valuation.

We find no significant treatment difference in Study 2 and therefore document that, in our setting, whether the CR information is ecological or social does not matter. In general, two explanations might relate to the nature of the motivation behind responsible consumption. First, it could be motivated by genuine concerns (other-regarding preferences) for the well-being of, for example, the environment or animals in the ecological dimension, or people in the social dimension. If so, then these concerns do not differ in our setting. Second, responsible consumption could be motivated by self-centered preferences, such as the “warm glow” utility derived from the act of doing something good (Andreoni, 1989, 1990) or the utility gained from an improved self- or social image (Bénabou and Tirole, 2006). If this is true, then the actual dimension of CR might not matter much as long as it still allows us to see responsible consumption as a moral act. Results from laboratory and natural field experiments suggest that the second reason is crucial in motivating responsible consumption. For example, Engel and Szech (2020) demonstrate that experimental participants significantly reduce their willingness to pay for CR in the social dimension when they are aware that the product already possesses some CR features in the ecological dimension. Such an effect should not appear if responsible consumption were motivated by genuine concerns over well-being outcomes. Dubé et al. (2017) provide evidence from a field experiment that responsible consumption is motivated by the ability to self-signal that, by doing so, one is acting morally.

Like all research, our study, too, has limitations. First, our results may be partially driven by experimenter demand effects (Zizzo, 2010), i.e., participants may anticipate the study’s purpose and adjust their behavior to help the experimenter achieve it. Although we have no indications, it is possible that the changes in valuation in Study 1, observed with both QLT and CR information, may result from participants feeling that they are expected to increase their valuations after being provided with this information. Since the quality treatment produces an increase in valuations, demand effects may also be present there, and the magnitude of the demand effects could be stronger with CR information, which would explain the treatment differences. Experimenter demand effects could also be consistent with Result 2, in which people who are more inclined to state high valuations initially also respond more to the treatment. It might be that such participants are also more likely to want to please the experimenter. In Study 2, this might also contribute to the finding that the magnitudes of the two effects of CR information in the ecological and social dimensions are similar, since they both might reflect similar demand effects.

Second, our results may also be influenced by social desirability bias (Fisher, 1993), i.e., participants may want to appear moral to the experimenter or themselves by adjusting their behavior in the study so that it seems more socially acceptable. Despite taking precautions, such as providing monetary incentives, ensuring anonymity, and thoroughly reminding participants that, from a self-interest perspective, their dominant strategy is to state actual valuations, we cannot strictly exclude social desirability effects. However, observability by others is also a common feature of many real-world consumption situations. For example, people often shop with others who can observe their choices. Further, others frequently observe product choices after purchase, especially for apparel such as backpacks. However, it is true that in everyday life, individuals who prefer not to engage in socially responsible behavior often have the option to avoid such situations entirely. In contrast, in our study, participants could not anticipate or opt out of being evaluated on socially responsible criteria.

Third, while we are interested in consumer behavior, the practical implementation of our design led us to elicit willingness to accept instead of willingness to pay because we neither wanted to endow participants with a fixed monetary amount for purchasing that could have had an anchoring effect nor could we force them to purchase the backpack with their own money. We think this limitation is less of a concern for us for two reasons. The first is that we are not interested in absolute valuations but rather in changes in valuations. The second is that valuation changes are only in comparisons across treatments of interest.

Fourth, as an alternative experimental approach, one could have provided participants with a choice between alternative products, e.g., the backpack studied and another backpack with weaker CR properties. Although this might have reflected the kinds of tradeoffs that consumers make when purchasing from a menu of products with varying social and environmental impacts, we refrained from this design choice. The reason was that we wanted to keep all characteristics of the backpack exactly constant across treatments, except for the variation in information about the backpack.

Fifth, of course, the choice of our specific samples limits the generalizability of the results. This study aims to test laboratory findings of responsible consumption in a more realistic but still highly controlled setting that allows us to abstract from confounding

²⁵ Study 2 does not include a control treatment without CR information. Therefore, we cannot entirely exclude the observed increase in valuation to come from quality-related information alone.

factors present in naturally occurring settings. We achieve higher realism by eliciting valuations for an actual product from participants that match the consumer segment targeted by the product. Consequently, our participants are young, highly educated, and live in an urban center; therefore, they are not representative of the general population. It is an open question for future research whether our results also hold for a more representative sample or in other markets.²⁶

Sixth, it is unclear what effect CR features have on perceived product quality, and both positive and negative outcomes are conceivable (Chen and Chang, 2013). On the one hand, improved working conditions may allow seamstresses to exercise greater care in their work, leading consumers to associate these products with higher quality. Similarly, when it comes to ecological aspects, CR information might lead consumers to assume that a product is of higher quality because potential harmful effects on the user's health are seen as less likely (Li et al., 2024). On the other hand, there are reasons to believe that CR features could hurt perceived quality. For example, by refraining from using certain fluorocarbon-based chemicals (PFCs) and opting for more environmentally friendly alternatives, the product's performance—such as its water-repellent capabilities—may be perceived as diminished. Additionally, there may be reservations that textiles made from recycled materials (e.g., recycled PET) are less stable or durable than those made from virgin materials (Chen and Chang, 2013; Joergens, 2006). Therefore, it is conceivable that the backpacks' higher ratings in the CR treatments are associated with increased perceived quality, although the opposite effect may also have played a role. Further empirical research is needed to clarify these dynamics.

5. Conclusion

Our results, along with a growing body of research from economic laboratories, suggest that consumers prefer responsible consumption and are willing to compensate firms for their CR efforts. On the other hand, results from natural field experiments are mixed. Since both types of experiments are designed in an incentive-compatible way, this new inconclusiveness in the literature cannot be explained by the classical “attitude-behavior-gap,” described, e.g., in Carrigan and Attalla (2001) as a divergence between what people answer in surveys and how they behave in actual markets. It seems more likely that market constraints, e.g., distrust in firms' CR communications or unavailability of a sufficient assortment of responsible products, hinder consumers from acting according to their preferences. This market failure, i.e., the inability of current product markets to sufficiently fulfill consumers' preferences for responsible consumption, might decrease with an increased supply of more appealing responsible products and through government regulations that, for example, improve the credibility of CR information used to promote products.

Ethics approval

The project received IRB ethics approval by the Ethics Committee of the WiSo Faculty of the University of Cologne (20001MS)

Informed consent

Informed consent was obtained from all individual participants included in the study. The experiments were pre-registered in the AEA RCT Registry (AEARCTR-0,004576 & AEARCTR-0,005066).

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Bernd Irlenbusch reports financial support was provided by Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy–EXC 2126/1–390838866 ‘ECONtribute: Markets and Public Policy’. Bernd Irlenbusch reports administrative support was provided by C-SEB Center for Social and Economic Behavior. 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.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.jebo.2025.107189](https://doi.org/10.1016/j.jebo.2025.107189).

²⁶ Although specific studies on the market share of sustainably produced backpacks are lacking, broader market trends in the apparel market to which backpacks belong also indicate a growing consumer interest in sustainable products within the timespan of our study (2019–2020). For instance, data from the Gesellschaft für Konsumforschung (GfK) show that, in Germany, the share of apparel with recognized environmental labels increased from 0.87% in 2017 to 1.42% in 2020 (Umweltbundesamt, 2022). Similarly, Statista (2025) reports that the global market share of sustainable clothing rose from 2.83% in 2017 to 3.62% in 2020—with forecasts reaching 6.14% by 2026.

Data availability

Data will be made available on request.

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