

**Essays on Customer Satisfaction, Pricing Strategies, and
Sustainable Purchasing Behavior in the Insurance Industry**

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Summary

This dissertation empirically investigates the consumer behavior of insurance customers to draw implications for the strategic decisions of insurers. The implications are relevant for decisions regarding customer and pricing strategies as well as the development of sustainable insurance products. The first paper analyzes whether satisfied customers are also profitable customers. The second paper examines, how insurance companies can optimize their pricing strategies in a regulated and competitive market, considering customers' willingness to pay (WTP). The subsequent two papers examine the purchasing behavior of sustainable insurance products.

The first paper, *The relationship between net promoter score and insurers' profitability: an empirical analysis at the customer level*, investigates, at the level of a single customer, whether high NPS-Scores of customers are associated with greater contribution margins. Based on the data of a Swiss insurer, we show that satisfied customers are also profitable customers, as they exhibit more signed contracts and have longer-lasting relationships with the insurer.

The second paper, *Pricing Strategies in the German Term Life Insurance Market: An Empirical Analysis*, compares actuarial fair prices for term life insurance contracts in Germany with the respective market prices and customers' WTP. Taking regulatory requirements and competition into account, we derive separate profit-increasing pricing strategies for three different product segments, compared to the status quo.

The third paper, *Consumers' Perceptions and Purchasing Behavior of Sustainable Insurance Products*, examines consumer behavior with regard to sustainable insurance products. First, a survey is conducted to compare consumer attitudes toward sustainable products in six different industries. Then, two experiments are conducted to evaluate the effect of a sustainable insurance product on consumers' purchase intention, trust, and perceived quality. The results show that sustainable attributes substantially increase consumers' purchase intention for an insurance product, even at a price premium.

The last paper, *What matters more – being a Green Company or offering Green Products?*, analyzes the question of whether it makes a difference in consumer perception of whether an insurance incorporates a sustainable attribute at the product or the company level. In three studies, the paper shows that sustainable attributes at the product level, lead to higher purchase intention, WTP more, and increased perceived greenness.

Zusammenfassung

In dieser Dissertation wird das Kaufverhalten von Versicherungskunden empirisch untersucht, um daraus Implikationen für strategische Entscheidungen von Versicherern abzuleiten. Die Implikationen sind relevant für Entscheidungen zu Kunden- und Preisstrategien sowie für die Entwicklung nachhaltiger Versicherungsprodukte. Im ersten Beitrag wird analysiert, ob zufriedene Kunden auch profitable Kunden sind. Im zweiten Beitrag wird untersucht, wie Versicherer ihre Pricing-Strategien in einem stark regulierten und wettbewerbsintensiven Markt, unter Berücksichtigung der Zahlungsbereitschaft, optimieren können. Die beiden folgenden Beiträge untersuchen das Kaufverhalten nachhaltiger Versicherungsprodukte.

Das erste Paper, *The relationship between net promoter score and insurers' profitability: an empirical analysis at the customer level*, untersucht auf der Ebene des einzelnen Kunden, ob hohe NPS-Scores von Kunden mit einem höheren Deckungsbeitrag verbunden sind. Basierend auf den Daten eines Schweizer Versicherers zeigen wir, dass zufriedene Kunden auch profitable Kunden sind, da sie mehr Verträge und längere Vertragsbeziehungen aufweisen.

Das zweite Paper, *Pricing Strategies in the German Term Life Insurance Market: An Empirical Analysis*, vergleicht die aktuariell fairen Preise für Risikolebensversicherungen mit den jeweiligen Marktpreisen und der Zahlungsbereitschaft in Deutschland. Unter Berücksichtigung der regulatorischen Anforderungen und des Wettbewerbs leiten wir für drei verschiedene Produktsegmente unterschiedliche gewinnsteigernde Preisstrategien im Vergleich zum Status quo ab.

Das dritte Paper, *Consumers' Perceptions and Purchasing Behavior of Sustainable Insurance Products*, untersucht das Konsumentenverhalten in Bezug auf nachhaltige Versicherungsprodukte. Zunächst wird in einer Umfrage die Einstellung von Konsumenten zu nachhaltigen Produkten in sechs verschiedenen Branchen verglichen. Anschließend wird in zwei Experimenten der Einfluss eines nachhaltigen Versicherungsprodukts auf die Kaufabsicht, Vertrauen und wahrgenommene Qualität untersucht. Die Ergebnisse zeigen, dass nachhaltige Attribute die Kaufabsicht für ein Versicherungsprodukt deutlich erhöhen, auch bei einem Preisaufschlag.

Das letzte Paper, *What matters more – being a Green Company or offering Green Products?*, analysiert die Frage, ob es in der Wahrnehmung der Kunden einen Unterschied macht, ob eine Versicherung ein nachhaltiges Attribut auf Produkt- oder auf Unternehmensebene enthält. Es wird gezeigt, dass nachhaltige Attribute auf der Produktebene zu einer höheren Kaufabsicht, Zahlungsbereitschaft und wahrgenommenen Greenness des Produkts führen.

Introduction: How to sell insurance in the future

1. Motivation: How to sell insurance in the future – strategic implications from research on customer satisfaction, pricing strategies and sustainable purchasing behavior

Insurance is not bought, it has to be sold, a phrase that is repeated frequently at many insurance industry gatherings. Even though this statement is commonly used, what does it mean in practical terms for an insurance company in the 21st century? The following dissertation aims to address this fundamental question and serves to help insurance companies take relevant strategic measures toward sustaining a successful future. The motivation of the following dissertation is based on three essential cornerstones that form the basis of strategic leadership in the modern insurance industry. These include customer satisfaction, the use of data and technological advancement (e.g., pricing), and sustainability.

Customer satisfaction is one of the most discussed topics in the insurance industry and an important lever for long-lasting customer relationships. However, there is very little research on how customer satisfaction is created in the insurance industry and what impact it has on the insurer. Due to the increasing *availability of data* for insurers, there are unprecedented opportunities to make use of this data and resulting insights. Other industries are already advanced in the application of collected data, for example, applying dynamic pricing in price discrimination strategies. However, it remains questionable whether also insurers can use this data and similar methods in their pricing due to restrictive regulatory requirements. *Sustainability* is one of the main trends in modern society and is often regarded as a maxim for good conduct. Many insurance companies do have notable efforts in this field and invest a lot of money in both corresponding measures and developing sustainable insurance products. But what do customers think about sustainable insurance, and which sustainable measures have the greatest effect on the purchasing intention of customers?

2. Results of the conducted research

In the following four papers, these questions will be explored in depth in order to enable insurance companies to better understand customer behavior and continue to sell their insurance products successfully in the future.

The first paper titled *The relationship between net promoter score and insurers' profitability: an empirical analysis at the customer level* examines whether customer satisfaction is associated with higher contribution margins at the level of the single customer. Grounded on former theoretical insurance-related theories, we are able to derive four hypotheses on how the relationship between customer satisfaction, measured by the NPS and contribution margin, might look today. Empirically, this topic has only been investigated once with a data set limited to U.S. car insurers on a company level (Pooser and Browne, 2018). Based on a unique data set of a large Swiss insurance company, we are able to run several OLS-regression models and robustness checks to test our hypotheses. The results show that satisfied customers are more profitable customers, as they exhibit a higher number of contracts and have a longer-lasting relationship with their respective insurer. While customer satisfaction is positively correlated with the contribution margin, it is independent of the loss ratio.

The second paper titled *Pricing Strategies in the German Term Life Insurance Market: An Empirical Analysis* investigates the pricing barriers for German term life insurers and assesses indications of whether insurers are engaging in price discrimination by considering the policyholders' willingness to pay (WTP). In this analysis, we compare three different data sets. The first data set is comprised of actuarial fair prices for term life insurance contracts in Germany and is based on own calculations. This data is compared to the respective market prices and policyholders' willingness to pay, surveyed in a study by Braun et al. (2016). The analysis shows that WTP varies largely between age groups and products. Often, young potential policyholders exhibit a very large WTP compared to market prices. We also identify large gaps between the WTP and the actuarial fair premium which proves that the German market for term life insurance would potentially allow for revenue management. In analyzing these data, we do not find evidence that TLI providers consider their policyholders' WTP, even though it could increase profitability. The failure to not take the WTP into account could be based on three different reasons: insurers not being aware of the policyholder's WTP, regulations that target the life insurance industry specifically, or the competitive pressure among

insurers. Taking regulatory requirements and competition into account, we derive separate profit-increasing pricing strategies for three different product segments.

The third paper titled *Consumers' Perceptions and Purchasing Behavior of Sustainable Insurance Products* examines consumer behavior with regard to sustainable insurance products. This paper joins a number of other papers that examine, for specific industries, whether and how sustainable attributes increase the purchasing intention and willingness of consumers to pay for a product or service (cf. Van Doorn and Verhoef, 2011; Newman et al., 2014; Hustvedt and Bernard, 2008; Sen and Bhattacharya, 2001; Haws et al., 2014). In a first step, a survey compares consumer attitudes toward sustainable products across six different industries. Second, we conduct two experiments to evaluate the effect of a sustainable insurance product on consumers' purchase intention, trust, and perceived quality. The results of the first survey show for insurance products, the WTP must be awakened through awareness or educational measures and is then comparably high as in other industries. The results of the subsequent experiments are as follows: Sustainable attributes substantially increase consumers' purchase intention for insurance products, even at higher prices. This effect can be explained by increased perceptions of product quality and brand equity. Additionally, pricing in line with average market prices can have negative consequences on the consumer's purchasing intention.

The last paper titled *What matters more – being a Green Company or offering Green Products?* analyzes the question of whether consumers react differently to sustainable attributes at the product or company level. When an insurance company is about to introduce a sustainable product, the question remains, in which way can this product be made sustainable? In essence, an insurance company has two options: It can introduce a sustainable attribute either at the company level or at the product level. While most insurers currently advertise sustainable attributes at the company level, the question is whether sustainable attributes at the product level might have a greater impact on customers' willingness to pay or their purchasing intentions. Gershoff and Frels (2015) provide a first insight into this question. They illustrate for different industries that sustainable attributes that are closer to the core functionality of a product lead to those products being perceived as greener. We conduct three experimental studies to investigate this question within the insurance industry. The results show that sustainable attributes at the product level lead to higher purchase intention, willingness to pay, and perceived greenness of the product. However, if the sustainable impact of both attributes is quantified,

e.g., by kilograms CO₂ saved, and identical between both options, the participants' preference for the product-level attribute disappears, and both products are rated identically.

3. Overall summary

The results of these four papers reveal four strategic measures for insurance companies to follow. Firstly, as satisfied customers are also profitable customers with, on average, more contracts, customer satisfaction is therefore valuable to insurers. Secondly, technological advancements and the use of data within the legal framework help us to better understand customer preferences and offer new opportunities for the benefit of the insurer. Third, insurance customers also have a vested interest in sustainable insurance products and are willing to pay a premium for them. Finally, under current market conditions, insurers should favor sustainable attributes at the product level over sustainable attributes at the company level.

This dissertation briefly concludes the following: To continue to sell insurance products successfully in the 21st century, insurers should recognize customer satisfaction, the use of data and technological advancements, as well as sustainability as a high strategic priority, and invest in the development of products with sustainable attributes at the product level.

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Essay I: The relationship between net promoter score and insurers' profitability: an empirical analysis at the customer level

Abstract

This paper examines the relationship between customer satisfaction and profitability at the level of the individual customer. In many industries, investigations detect a positive, decreasing relationship between customer satisfaction and firm profitability. The insurance industry has rarely been the object of such investigations. Pooser and Browne (2018) started this discussion by examining U.S. insurers at the firm level. We provide reasons why the positive satisfaction–profitability relationship might be reversed, particularly in the case of the insurance industry. We conduct an array of OLS regressions with customer-level data. Our results reveal a strong positive relationship between customer satisfaction and profitability. The effect is considerably large and also robust when investigating the effect of several customer characteristics on this relationship. We recommend that the increase in profitability is induced by a strong positive correlation between customer satisfaction and premium income, while satisfaction is not associated with the combined ratio.

Keywords

Profitability of customer relationship; Net promoter score; Customer satisfaction

Jonas R. Jahnert and Hato Schmeiser (2021).

This paper has been presented at the Jahrestagung des Deutschen Vereins für Versicherungswissenschaft 2021 in Mannheim, Germany (online), and has been accepted for the 89th ARIA Annual Meeting 2021 in Denver, USA (online), and the 25th Conference of the APRIA 2021 in Jerusalem (online).

This paper has been accepted for publication in *The Geneva Papers on Risk and Insurance –Issues and Practice* (forthcoming).

1. Introduction

This paper empirically investigates the relationship between customer satisfaction and insurer profitability. An increase in customer satisfaction is often mentioned as a major strategic management goal or when setting targets for sales managers. More than a third of all companies use customer satisfaction measures to determine their managers' compensation (Ittner and Larcker, 1998, p. 3). It is therefore of great importance to better understand the impact of customer satisfaction on the most important firm target measures, such as profitability.

Outside the insurance industry, the prior literature on this relationship is extensive. Most research concludes that there exists a positive, non-linear, decreasing relationship between customer satisfaction and the provider's profitability (Anderson et al., 1994; Ittner and Larcker, 1998; Gupta and Zeithaml, 2006). However, the magnitude of this relationship varies across different industries and countries. Hence, the results of a particular situation cannot be applied directly to other industries or countries (Anderson et al., 2004; Gupta and Zeithaml, 2006). It appears to be intuitive that customers repurchase a good or service if they are satisfied with it. As long as the repurchased product or service exhibits a positive contribution margin, the company increases its profits with each additional unit sold. In other industries, this debate began three decades ago. For the insurance industry, this discussion only began in 2018 (Pooser and Browne, 2018). Pooser and Browne's dataset consists of firm-wide measures for several auto insurance companies in the U.S. market. In our investigation, we possess a unique dataset on the customer level from a Swiss non-life insurer.

To date, most research in this field is conducted by analyzing customer satisfaction indices focusing on firm-wide customer satisfaction (Ittner and Larcker, 1998; Anderson et al., 2004; Pooser and Browne, 2018). Though this procedure allows for industry-wide general statements, it cannot account for the fact that there might be heterogeneous groups of customers disclosing diverse behaviors. In the insurance industry, the different behaviors of various customer groups have an even greater impact on the cost, and hence the profit structure. Consequently, we believe it is important to investigate the relationship between satisfaction and profitability in the insurance industry at the customer level. Looking at firm-level data omits the possibility that some satisfied customers impact firm-wide satisfaction in an extremely positive manner while exposing extreme losses at the same time. Moreover, customers in the insurance industry

might not behave similarly to customers from other industries in terms of how satisfaction evolves and how profit emerges. Coming from a theoretical insurance perspective, the willingness to pay (WTP) for insurance will, *ceteris paribus*, differ depending on the policyholder's private information with respect to her individual risk type. If this information is unknown by the insurer and hence a fixed premium is applied for heterogeneous risk types, policyholders with a higher WTP (high-risk type) would receive a greater utility from signing the insurance contract compared to the lower risk type. It could be assumed that this utility from purchasing insurance coverage is a major factor when it comes to customer satisfaction. Besides, in the insurance industry, the individual behavior and personal characteristics of customers highly affect the profits of the insurer. Customer characteristics are not fully disclosed to the insurer. Hence, insurers have to deal with moral hazard and adverse selection. As a result of these fundamental differences, we find it important to conduct an insurance-specific examination of this relationship. In summary, there could be major discrepancies between empirical findings and theoretical considerations with respect to this topic.

The results of our investigation suggest, despite all counterarguments, that customer satisfaction is strongly positively associated with profitability per customer. These results are found to be robust in terms of magnitude and significant across different customer groups separated by customer and claims characteristics. This study does not find evidence for the non-linearity of the relationship, as found in other industries. Instead, it suggests that customer satisfaction enhances profitability. This is due to the positive relationship between satisfaction and the premium income of customers and not due to a negative relationship between satisfaction and administration and/or claims costs.¹ In this respect, policyholders seem to behave in a similar way to customers in other industries.

The rest of this paper is structured as follows. The next section provides a literature review, which will develop the importance of the addressed relationship and display an array of research from both a general and an insurance-specific perspective. Then, we build the theoretical, insurance-specific basis of this topic and derive four hypotheses. This is followed by sections containing a description of the dataset and methodology, the quantitative analysis, and robustness checks. The final section draws conclusions and provides recommendations for future research.

¹ By claims we mean the indemnity payment to the policyholder. This number is in general smaller than the incurred loss (e.g., because of deductibles).

2. Literature review

2.1 Relationship between customer satisfaction and profitability: general findings

Companies do care about customer satisfaction. One of the first studies in this area (Waters, 1931) investigates customers' attitudes towards the salesman. Since then, many academic papers have been published concerning the various consequences and implications of customer satisfaction. The primary correlation scholars are concerned about is the relationship between customer satisfaction and profitability. In general, the literature detects a strong positive correlation between customer satisfaction and profitability (Anderson et al., 1997; Anderson and Mittal, 2000; Gruca and Rego, 2005; Ittner and Larcker, 1998; Kotler, 1991). Ittner and Larcker (1998) and Anderson and Mittal (2000) add to this finding and state that the relationship is non-linear (asymmetric) and decreases with the level of satisfaction. This finding has two primary implications.

Firstly, a 1% decrease in customer satisfaction has a larger negative impact on profitability when compared to the positive effect of a 1% increase in customer satisfaction (asymmetry). Anderson and Mittal (2000) state that a 1% decrease in the Swedish Customer Satisfaction Barometer (SCSB) results in a 5.08% drop in return on investment (ROI), while a 1% increase in the SCSB only results in a 2.37% rise in ROI. Secondly, for high levels of satisfaction, the positive correlation completely vanishes (Ittner and Larcker, 1998). In these extreme cases, the costs of satisfying customers exhibit extra returns. Additional research shows that the magnitude of the relationship between satisfaction and profitability depends on the degree of customization or standardization in a specific industry (Andersen et al., 1997). This relationship might also be subject to cultural (Anis and Tausif, 2018) and, more broadly, contextual factors (Chen, 2009). Therefore, a lot of country- and industry-specific research has been conducted. The comprehensive work of Gupta and Zeithaml (2006, pp. 725 - 726) reviews and outlines the existing body of knowledge regarding this relationship. Their study develops three generalizations of the satisfaction–profitability relationship. Firstly, an improvement in customer satisfaction has substantial positive consequences for the financial performance of firms. Secondly, this relationship is asymmetric and non-linear. Thirdly, the magnitude of this relationship fluctuates across industries and across firms within the same industry.

The literature reveals multiple metrics to measure satisfaction and profitability: Anderson et al. (2004) employ the American Customer Satisfaction Index (ACSI) to measure satisfaction and Tobin's Q to quantify profitability. Their results show that a 1% increase in ACSI increases firms' Tobin's Q by 1.016%. Anderson et al. (1994) find that a 1% change in SCSB impacts a company's ROI by 11%. The results of Anderson et al. (1997) show an elasticity between SCSB and ROI of 0.14 to 0.27. Gruca and Rego (2005) analyze 105 firms across 23 industries. In this sample, a 1% rise in ACSI is followed by growth in the subsequent year's cash flow of USD 55 million per company. Profitability is not the only measure of importance. Customer satisfaction is also positively associated with customer loyalty (Hult et al., 2019), revenue, larger price margins and profits (Ittner and Larcker, 1998), shareholder value (Anderson et al., 2004), and willingness to pay (Homburg et al., 2005). Furthermore, Hallowell (1996) investigates U.S. retail banks, employing a similar methodology to the one used in this paper. He concludes that customer satisfaction is positively correlated with customer loyalty, which again correlates positively with various firm-wide profitability measures.

These results provide evidence that the effect of satisfaction on profitability is not only positive and statistically significant, it is also relevant in terms of the magnitude. Furthermore, an industrial and geographical focus is found to be important when investigating the satisfaction–profitability relationship.

2.2 Relationship between customer satisfaction and profitability: insurance companies

Scholars have recently started to investigate this relationship in the context of insurance. This section discusses papers that investigate a similar relationship in the insurance industry and one paper that assesses the same relationship examined in this paper – but in a different manner. Durvasula et al. (2004) examine repurchasing intentions for Singaporean life insurance and conclude that satisfaction is positively correlated with repurchasing intentions. Taking this result further, Wu and Lin (2009) find that, in the U.S. property and casualty (P&C) business, customers who are actively renewing their insurance contracts are more profitable and constitute better risks than customers who tend to frequently switch their insurer. D'Arcy and Doherty (1990) come to similar conclusions. Both investigate U.S. auto insurers and show that loss ratios dramatically fall with policy age due to insurers lowballing strategies to gain new customers. Therefore, it is important to bind profitable customers to an insurance company for as long as possible. These switching barriers are extensively discussed by Colgate and

Lang (2001), who investigate the reasons why customers that intend to switch their insurance provider finally do not leave the company. Further, Guillen et al. (2012) examine factors to determine customer loyalty. They conclude that the factors explaining insurance customer loyalty vary over time. Pooser and Browne (2018) are the first to investigate the satisfaction–profitability relationship in the insurance sector. The examined dataset contains a customer satisfaction index (CSI), provided by J.D. Power, a private marketing research company. J.D. Power surveys U.S. citizens on a voluntary basis about their satisfaction with their auto insurance and builds a firm-wide satisfaction measure for many different insurance companies. As profitability measures, the researchers firstly assume a company's total combined, loss and expense ratios. These ratios include the total portfolio of the insurer and not only the auto business. Secondly, they rebuild the auto-only combined loss and expense ratio of the insurers on their own, based on publicly available data. In the last step of their examination, they solely look at data from insurance companies whose total premium income is made up of at least 50% auto premia. With these three sets of data, they run ordinary least squares (OLS) regressions, controlling for several firm-specific variables.

The study by Pooser and Browne reveals negative correlations between customer satisfaction and combined/expense ratios at the firm level, as well as no correlation with insurers' loss ratios. These results hold for all three datasets, at least to a significance level of 10%. The authors conclude that there is a positive relationship between satisfaction and profitability in the U.S. insurance industry. Pooser and Browne (2018) suggest that satisfied customers continuously prolong their contracts. As the acquisition costs of new customers are significant and can be as high as the average contribution margin of several years, customer retention should be an important goal of insurance companies.

The examination of Pooser and Browne only looks at the average customer satisfaction. Consequentially, the individual behavior of customers cannot be assessed when applying this approach. As the distribution of customer satisfaction plays an important role in assessing this relationship, this should be considered in the investigation. Otherwise, a few extremely satisfied customers could influence the overall satisfaction tremendously, while exposing highly negative profitability. Therefore, it is very important to investigate various customer groups to validate whether or not the overall results hold for different customer segments.

Usually, insurers calculate their premiums such that all customers will make an expected profit. From the ex-post perspective, the firm-wide average profit is rather stable and, in general, quite comparable between non-life insurers, as many countries possess competitive insurance markets. However, individual profit ratios per customer fluctuate heavily. From the insurer's perspective, most customers possess positive profitability, while few have an extremely negative individual profitability. Consequently, if satisfaction was meant to explain profitability, it should explain the average profitability of an insurer and the large variation in profitability between individual customers.

All in all, Pooser and Browne's (2018) results provide a good understanding of how satisfaction and profitability are interrelated in the insurance industry. Still, a deeper look at the individual customer level can be helpful to broaden the perception of this relationship.

To summarize, the literature on the relationship between customer satisfaction and profitability is vast and many aspects and specific areas have been covered. All of the general research concludes that customer satisfaction has a strong and positive impact on firm profitability. However, the assessment of individual industries is mandatory. Due to the common discernment that customer satisfaction is generally value-enhancing, many companies use customer satisfaction measures to determine the compensation of executives and employees (Ittner and Larcker, 1998). Furthermore, profitability is a major goal of many insurance companies, next to growth and safety. However, the non-life insurance industry has rarely been the focus of these investigations and a positive relationship is often just assumed by practitioners without robust insurance-specific evidence. Therefore, it is of great importance to investigate the link between customer satisfaction and profitability in the insurance industry.

3. Derivation of hypotheses

At first glance, a positive relationship between satisfaction and profitability seems intuitive. Even though this relationship is proven for many industries, the insurance sector is subject to structural differences and, according to the theory of insurance demand, a negative relationship appears reasonable to assume. According to insurance theory, there are reasons why both satisfaction and profitability may show different trends when compared to other industries.

Insurance theory founded on normative-rational decision making is based on the comparison between the premium demanded and the policyholder's claim distribution transferred to the insurer. High-risk policyholders tend to have a higher WTP for a given insurance contract than low-risk policyholders. For them, the difference between WTP and demanded premium (based on a heterogeneous portfolio of high- and low-risk policyholders) is generally larger than for policyholders with lower risks, resulting in a greater utility when closing an insurance contract. One could expect that this greater increase in utility positively influences customer satisfaction. This does not require that the policyholder experiences claim events as this can be purely based on ex-ante expectations. It is also worth mentioning that the event of a claim is usually a negative experience for customers and may lead to financial consequences on the policyholder's side if full insurance coverage has not been purchased. However, if customers never experience a loss over many years, they might start to question the need for the insurance contract. As well as the possible influence of the difference between WTP and premium paid, one would certainly expect that customer satisfaction depends on several other factors, such as trust, branding, or service quality.

In many industries, companies know their product costs in great detail and can calculate their contribution margin for a specific product unit precisely in advance. Elsewhere, the costs and margin structure are deterministic and usually remain equal ex-ante and ex-post. In the insurance industry, product costs, which are mainly based on losses, are ex-ante stochastic. Therefore, ex-post, there is a large discrepancy between the premiums paid and the loss payments received for almost any policyholder. This can lead to customers either paying premiums for a long time without receiving any 'paybacks' or receiving large indemnities compared to the premiums paid. This may influence customer satisfaction – even if the insurance product's pricing is, in general, based on the expected claims per contract. There may be customers who mainly compare premiums with the received indemnity payments over past periods. For them, satisfaction and insurer profitability might be negatively correlated.

Contrary to this line of reasoning, particular insurance contracts (like auto insurance) are compulsory or required to obtain mortgages from a bank (like homeowner fire insurance). At least some policyholders are not able to evaluate if they are high or low risk. Incurring accidents are mainly unintentional and are not welcomed by policyholders for many reasons.

Additionally, the effects of moral hazard and adverse selection might influence the cost structure of the insurer. The customer's behavior ('moral hazard') could impact the loss distribution, and hence the expected cost structure and expected profitability of the insurer (Arrow, 1963; Pauly, 1974). Due to adverse selection, rational customers might select insurance tariffs not designed for their loss distribution, as customers carry private information, significantly impacting their loss distribution (Rothschild and Stiglitz, 1976; Jensen and Meckling, 1976). Furthermore, insurers cannot fully prevent moral hazard and adverse selection (Biener et al., 2018). The fact is that customers can influence their own payout immensely after having signed the insurance contract. This puts them in a completely different situation than in other industries. In contrast to this argument, research rather describes individuals as longing to be 'good citizens' and wanting to behave in line with society's goals (Almond and Verba, 1963).

These arguments may make the benefit of insurance different from services and products provided in other industries. In consequence, the relationship between customer satisfaction and profitability might also vary. There are several arguments for either a positive or a negative relationship between customer satisfaction and profitability. Due to a lack of previous research in the insurance industry, we assume in our hypotheses that the satisfaction–profitability relationship is negative for insurance companies, but we also consider the possibility of a positive relationship. A negative relationship would not imply that customers are satisfied because of claims; rather, this assumption is founded on the theoretical argument that high-risk policyholders might be satisfied with the fact that they are able to purchase insurance for a comparably low premium in relation to their WTP.

Based on these theoretical foundations, we derive four hypotheses on the relationship between satisfaction and profitability in the Swiss non-life insurance market. Supported by the reasons discussed in this section, in the insurance industry, the effect of customer satisfaction on insurer profitability might be opposite to what prior research on other industries has shown. Therefore, we derive the following hypothesis:

Hypothesis I: In the non-life insurance industry, satisfaction has a negative effect on insurer profitability² per customer.

² Profitability is defined as the average, annual contribution margin per customer, calculated as net premiums (after reinsurance) minus net claims (after reinsurance) minus reserves and provisions for the signing and prolonging of the contracts. Due to insufficient data, claims handling costs and other administrative costs are not considered here.

This first hypothesis investigates the overall relationship, which is already important for management decisions. However, there might be further customer and claim characteristics that influence this relationship. Therefore, we assess this connection in more depth. In line with Gupta and Zeithaml's (2006) second generalization, which expects that the cost of satisfying customers to the extreme surpasses the additional profit, we formulate the hypothesis that the relationship is even more negative for highly satisfied customers.

Hypothesis II: In the non-life insurance industry, for promoters, the satisfaction–profitability relationship is more negative than the general relationship.

After the two main hypotheses, we intend to investigate two further special features of the customer satisfaction–profitability relationship in the insurance industry: in the event of a claim, the contribution margin usually shrinks drastically. At the same time, customers experience the value of insurance and they receive a monetary return – even though the indemnity is generally below the policyholder's original loss. Consequentially, the third hypothesis states that the relationship between satisfaction and profitability becomes more negative as the claims-to-contracts ratio increases. As the number of claims³ typically depends on the number of contracts a policyholder holds, we employ the claims-to-contracts ratio here.

Hypothesis III: In the non-life insurance industry, the satisfaction–profitability relationship becomes more negative as the claims-to-contracts ratio increases.

Hypothesis IV concerns the costs that customers induce to insurers. According to Hypothesis I, customer satisfaction influences profitability negatively. This might either stem from increased costs or decreased premium volume. Following the previous argument, only the first scenario is logical. Hypothesis IV narrows down this expectation by stating that this negative relationship between customer satisfaction and profitability is induced by a positive association between customer satisfaction and the costs per customer.

Hypothesis IV: In the non-life insurance industry, customer satisfaction is positively associated with the combined ratio per customer for the insurer.

³ The number of claims is the sum of all claims the policyholder reports to the insurance company over the last five years.

4. Data and methodology

4.1 The insurer

The investigated insurer is a major player in the Swiss insurance market. The company is ranked among the top eight Swiss insurance organizations in terms of P&C premium income in 2018 (Eidgenössische Finanzmarktaufsicht FINMA, 2019). Via a separate legal entity, the insurance company also offers life insurance and belongs to an internationally operating insurance group.

4.2 Variables and observations

Survey procedures and timespan

The entire dataset contains 48,320 anonymized observations. The satisfaction data was collected during the period between April 2017 and February 2019. Profitability and claims data cover the five-year period from March 2014 through February 2019. The dataset comprises records for each profitability and claim variable for every single year of the five one-year periods. All other data are one-point-of-time pictures from the end of February 2019. The process involves all customers who have been in contact with the insurer automatically being asked a question concerning their satisfaction. These touchpoints range across the whole customer relationship. They can be divided into six categories: from general contact with the customer via phone or in person, contract changes, changes of address via customer service, and claim-related contact points.

The numbers of observations vary between 1,140 and 7,908 for the different touchpoints. It may seem possible that the reason for getting in contact with the insurer may influence customer satisfaction or profitability. The varying number of observations is not the consequence of a selection, it occurs by chance. As our dataset constitutes the full available dataset of the insurer, the varying number of observations is induced by the definition of the touchpoint conducted by the insurer. The customers do not actively decide which touchpoint they get attached to, but their external circumstances do. Therefore, the distribution of observations between the touchpoints influences neither the results nor the validity of our investigation. Moreover, no customers are accidentally excluded from the survey. It can be assumed that the customers in the dataset were randomly added. Furthermore, the results are comparable over the complete timeline, because the methodology has not changed during the observation period. Nevertheless, there might be “silent” customers who do not make

any requests or claims, or have any contact with the insurer; these customers do not appear in the dataset.

Dependent variable

The profitability per customer is measured by the average Contribution Margin over the recorded five years, considering only the non-life business. We employ the annual average over this timespan to control for extreme values. Still, large outliers occur. Hence, we winsorize the contribution margin such that the outliers outside the 1 and 99 percentiles were corrected to the value of the 1 and 99 percentiles, respectively. The insurer does not calculate the contribution margin for customers who signed their first contract less than five years ago. For these customers, the insurer considers this information as irrelevant, because the information revealed within a horizon of less than five years is found to be unreliable. As such, we cannot consider these customers as part of our investigation. The contribution margin is calculated as all net premiums (after reinsurance) minus all net claims (after reinsurance) minus reserves and provisions for the signing and prolonging of the contracts. However, claims handling or other administrative costs are not considered in this calculation and are not separately available to us.

Independent variable

The measure of satisfaction is the answer given by customers to the net promoter score (NPS) question. This is measured on an 11-point Likert scale ranging from 0 to 10. Missing entries are not deleted but are filled with the average NPS-Score of the respective touchpoint. If one customer is asked the NPS-question multiple times within one touchpoint, the multiple entries are merged and the average NPS-Score is entered. Consequently, the variable NPS-Score in the final dataset contains decimal figures.

Excursion on the net promoter score

The NPS, introduced by Reichheld (2003), is a widely accepted measure of a company's customer satisfaction and customer willingness to recommend. Reichheld (2003) conducted research to construct a metric that is superior to existing satisfaction and loyalty measures in terms of simplicity, comparability, and being better able to explain company growth. In contrast to many prior measures of satisfaction or loyalty, Reichheld (2003) narrows down the customer evaluation to one single question, namely "How likely is it that you would recommend company X to a friend or colleague?" (Reichheld, 2003, p. 50). An 11-point Likert scale is used, where 0 = not likely at all

and 10 = extremely likely. This is the measure of satisfaction we are using in the analysis of this paper. In the next step, all customers who give an answer between 0 and 6 are labeled as “detractors”. Customers who give an answer of 7 or 8 are labeled as “passively satisfied” and those who answer 9 or 10 are considered “promoters”. To calculate the NPS, the percentage of the detractors is subtracted from the percentage of the promoters. This results in a score between -100 and $+100$. Reichheld (2003) found a strong correlation between NPS and future growth rates.

Though in theory the NPS narrowly measures the willingness to recommend, in practice it has become one of the most common measures of customer satisfaction as it is easy to raise, easy to understand, and provides a comparable metric to firms. Insurance companies in particular employ the NPS as the most relevant customer satisfaction indicator, often published in their (annual) reports, to benchmark their customer satisfaction against competitors. For example, global insurers like Allianz (2021), Swiss Life AG (2018), or Zurich Insurance Group (2021) employ the NPS as a surrogate for customer satisfaction. Although scientific studies have shown that the NPS-Score does not perfectly correlate with detailed customer satisfaction indices (Haan et al., 2015, p. 199), insurance companies often prefer the NPS methodology over more sophisticated ones as an approximation of customer satisfaction. Also, critics mention that the NPS methodology considers all individuals within one category (detractors, passives, promoters) as equal. This argument does not hamper our analysis, as we employ the actual NPS-Score in our research.

Control variables

The database includes several variables for the characteristics of the customer and the relationship between the customer and the insurer. The dataset contains six different dummy variables that signal through which Touchpoint the customer contacted the insurer. The variable Sex indicates the gender of the customer (0 if the customer is female and 1 if male). The Age of the customer is measured in years. In all regression models, the logarithm of age in years is used. Another control variable is Family Status. This dummy control equals 1 if the respective customer is married or in a registered partnership and 0 in all other cases.

Switzerland has four official national languages. Besides Italian and Romansh, German and French are the most common. Knowing the mother tongue of a customer is not only a good indication of the place of origin, but also offers information about cultural

heritage. Therefore, the dummies German and French constitute further controls. Moreover, five variables (e.g., Customer 5–10y) indicate the duration of the customer relationship. The dataset only reflects the non-life business of the insurer. Some customers do have life insurance contracts with the investigated insurer but provided by a separate legal entity. These customers exhibit a value of 1 for the dummy variable Life Insurance. The number of paid claims is firstly considered as the number of paid claims during the last five years (Claims 5y), as the contribution margin is calculated throughout this timespan. Secondly, as recent claims might influence the strength of the current satisfaction level, the number of paid claims during the last year constitutes a second control variable (Claims 1y). The final control is the number of non-life insurance contracts the customer obtained in February 2019 (Contracts).

The only variable used in the investigation that was not received from the insurer is the degree of urbanization (Urbanization). For this, an official Europe-wide classification scheme was applied. We obtain the data from the Swiss federal office for statistics and attach the score according to every customer's postal code (Statistik Schweiz – Bundesamt für Statistik, 2019).

Cleansing of the dataset

The original dataset contains 48,320 anonymized data entries, which include corporate customers. These 5,230 entries are removed completely. Observations showing an age of below 18 years or an unknown age (203) are also erased. Moreover, 1,603 observations are erased as no postal code is available. Customers with life insurance contracts only (1,180) are deleted. In total, 1,395 customers answered the NPS question within the same touchpoint multiple times. These observations are merged into one observation and show the average NPS-Score. However, 10,511 observations are deleted, because the customer signed their contract less than five years ago and no contribution margins were calculated by the insurer. If an observation contains missing entries regarding other relevant variables, these observations (155) are erased, except for the case where only the NPS-Score is missing. In these 440 cases, the NPS-Score is estimated using the average NPS-Score of the referring touchpoint. After cleansing the dataset, 28,016 observations remain.

4.3 Methodology

We investigate the described hypotheses in several steps. For the first hypothesis, we run four linear OLS regression models and perform t-tests to assess whether the NPS-

Score is significant at the 5% level, and hence impacts the contribution margin. For the purpose of illustration, the regression equation is as follows:

$$\text{Contribution Margin}_i = \alpha + \beta_1 \text{NPS-Score}_i + \beta_2 \text{Set of Controls}_i + e_i$$

Firstly, we investigate the univariate relationship by calculating a univariate OLS regression model without any controls (Table 2, Model I). Next, we subsequently add several sets of controls. The first controls we employ concern the touchpoint, which initiated the sending of the NPS question to the customer (Table 2, Model II). As there are six touchpoints, we create six dummy variables, where 1 represents the customer receiving the NPS question through this touchpoint and 0 otherwise. Because Touchpoint 4 exhibits the most observations, we exclude this dummy to avoid homoscedasticity. In the subsequent model (Table 2, Model III), we add all other relevant customers, insurance internal and relational controls. We perform t-tests to examine whether the NPS-Score is significant at the 5% level, and hence impacts the contribution margin. Additionally, we assess the goodness of fit of all regression models. Hallowell (1996, p. 37) examines the same relationship in the banking industry with a similar set of control variables. As his results reveal an R^2 between 0.12 and 0.20, we expect a minimum R^2 of 0.12 for the model to be considered acceptable. Furthermore, we assess whether these results are robust in several subsamples of the dataset we create according to different customer characteristics. To investigate the second (Table 2, Model IV) and third (Table 2, Model VI) hypotheses, we introduce matching interaction terms to our regression models, which aim to capture the differences in the satisfaction–profitability relationship. For the analysis of Hypothesis IV (Table 2, Model VII), we introduce the new variable Combined Ratio, which is the collected premium volume minus the contribution margin over the premium volume for each customer. We use this Combined Ratio as the dependent variable and run an OLS regression with the same independent variables as before.

5. Analysis

5.1 Descriptive analysis

Table 1 shows the descriptive statistics for the main variables in the dataset, firstly for the complete dataset, secondly for the detractors only, and thirdly for the promoters only. Considering the full dataset, the complete range of the NPS-Score is represented, while the mean is 7.9. The minimum premium income is at CHF 0 per year. This is due to the

fact that the dataset includes customers who answer the NPS question, but cancel all their contracts in the meantime, until the cutoff date. The unwinsorized contribution margin has a mean of CHF 572 per year and the winsorized contribution margin has an average of CHF 632 per year. Comparing the values of these variables for all customers with the statistics for only the detractors or promoters, a clear tendency in line with the intuition is recognizable: for the group of detractors, the average contribution margin, premium income, and number of contracts are constantly lower than for the group of promoters. However, the average number of claims over the last five years and in the previous year is higher for the promoters.

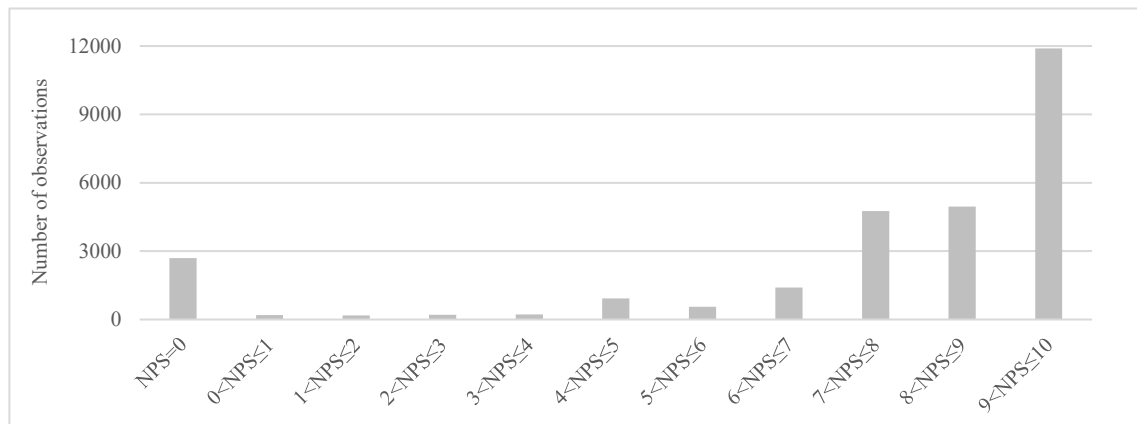
Because 66% of customers own more than one contract (up to a maximum of 25 contracts per customer and 2.5 contracts on average) and the claim horizon is five years, 76% of all customers have experienced at least one claim in the investigated period. Nevertheless, the examined insurer confirms that the constitution of the socio-demographic statistics of this dataset is representative of their entire customer portfolio.

Table 1: Descriptive statistics

Variable	All observations (n = 28'016)				Detractors (n = 5'001)				Promoters (n = 16'788)			
	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.
NPS-Score	0.0	10.0	7.9	3.0	0.0	6.7	2.0	2.4	9.0	10.0	9.7	0.5
Contribution Margin (not winsorized)	CHF -169'446	CHF 90'876	CHF 572	CHF 2'650	CHF -169'446	CHF 21'759	CHF 496	CHF 3'913	CHF -155'834	CHF 96'815	CHF 742	CHF 2'511
Contribution Margin (winsorized)	CHF -4'528	CHF 4'311	CHF 632	CHF 1'280	CHF -4'528	CHF 4'311	CHF 529	CHF 1'265	CHF -4'528	CHF 4'311	CHF 660	CHF 1'299
Premium Income	CHF 0.70	CHF 347'362	CHF 2'897	CHF 4'851	CHF 0	CHF 169'820	CHF 2'442	CHF 4'733	CHF 0	CHF 347'362	CHF 3'051	CHF 5'333
Number of Contracts	0.0	25.0	2.5	1.8	0.0	17.0	2.2	1.6	0.0	25.0	2.6	1.8
Claims 5y	0.0	29.0	2.3	2.4	0.0	29.0	2.1	2.6	0.0	21.0	2.5	2.4
Claims 1y	0.0	10.0	0.6	0.8	0.0	10.0	0.5	0.8	0.0	8.0	0.6	0.8
Sex	0.0	1.0	0.7	0.5	0.0	1.0	0.7	0.5	0.0	1.0	0.7	0.5
Age	18.2	107.5	56.4	13.6	18.2	104.7	55.7	14.3	19.6	107.5	56.5	13.5
Family Status	0.0	1.0	0.5	0.5	0.0	1.0	0.5	0.5	0.0	1.0	0.5	0.5
German	0.0	1.0	0.7	0.5	0.0	1.0	0.7	0.4	0.0	1.0	0.7	0.5

Note: This table reports the descriptive statistics of the most relevant dataset variables. All statistics are provided for the complete dataset and looking only at detractors or promoters.

Figure 1: Distribution of the NPS-Score



Note: This figure represents the distribution of the NPS-scores across all customers. Because some customers were answering the NPS-question multiple times, averages are calculated; not all observations exhibit integers.⁴

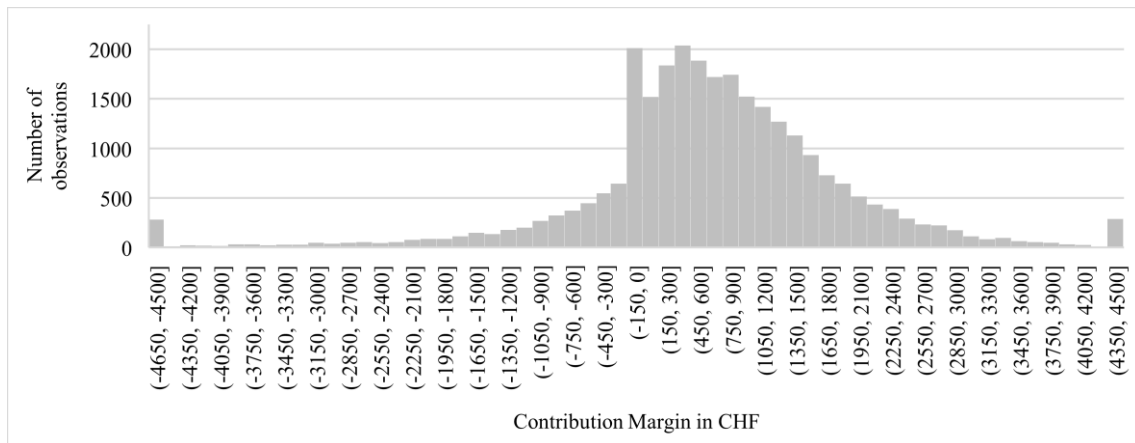
Looking at the distribution of the NPS-Score (Figure 1), a score larger than 9 and smaller than or equal to 10 occurs most frequently, with 11,902 observations. NPS-Scores between 7 and 8, and 8 and 9 are chosen around 4,800 times for both ranges. NPS-Scores between 0 and 4 are reported very seldomly.

The dataset reveals a firm-wide NPS of 42. The contribution margin (Figure 2) displays a right-skewed distribution, where most of the customers contribute a positive margin to the insurers' profits. Most observations are located in the lower positive range. There is a peak of observations on the negative side of the scale, right below CHF 0.

Figure 3 reports the average winsorized contribution margin, the number of contracts in February 2019, and the number of claims in the last five years for each NPS-Score. While all three variables disclose no systematic behavior for the low NPS-Scores, a positive trend is visible for NPS-Scores of 6 and above.

⁴ Due to this particular distribution of the NPS-Score, it seems likely that the distribution of the error-terms of the regression do not follow the Gauss-Markov assumption of normally distributed error-terms: Though the distribution of the error-terms looks very similar to a normal distribution (mean of 0.00), the slightly fat tails lead to the fact, that the Shapiro-Wilk test rejects this assumption to the 1% level. However, this test is very sensitive to small deviations especially in large samples and we argue that this deviation from the assumptions does not have any significant impact on the presented results.

Figure 2: Distribution of the winsorized contribution margin

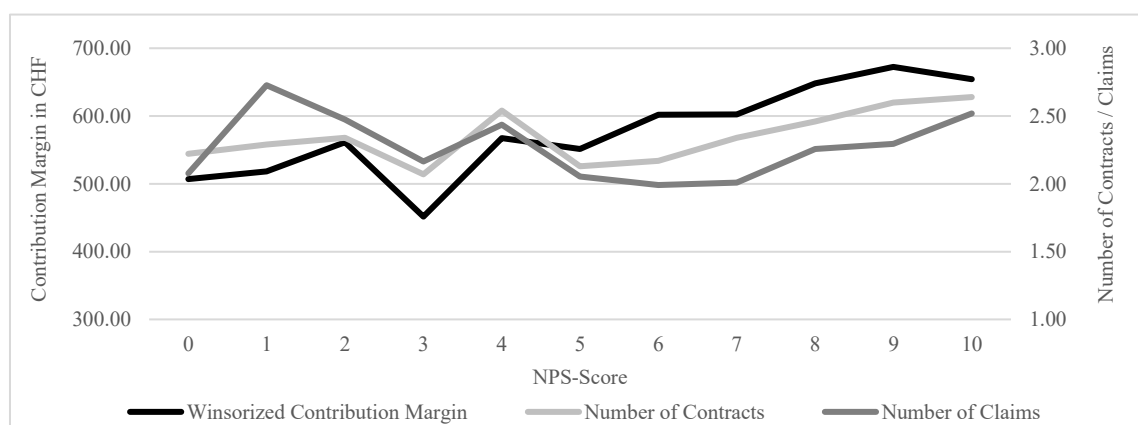


Note: This figure represents the distribution of the winsorized contribution margin in parenthesis of CHF 150.

5.2 Regression analysis

Table 2 reports the results of the OLS regression models we run to analyze the satisfaction–profitability relationship per customer. The univariate regression in Model I suggests a significant (to the 1% level) and positive relationship between the NPS-Score and the contribution margin. The effect size is considerably substantial, as one point in the NPS-Score accounts for almost CHF 16 in the contribution margin per customer and year.

Figure 3: Mean of contribution margin, number of contracts, and number of claims for each NPS-Score



Note: This figure displays the averages of the Contribution Margin, Number of Contracts, and Number of Claims for each level of the NPS-Score.

Model II adds control variables for the touchpoint between the customer and insurer, which initiates the NPS question. This setting enlarges the NPS-Score coefficient to

CHF 21.45. This coefficient is significant to the 1% level and most of the controls in this model seem to be significant for explaining the contribution margin. Model III additionally controls for the following customer specifics: Sex, Age, Family Status, German, French, Length of the Customer Relationship, Life Insurance, Claims 5y, Claims 1y, as well as Urbanization and Number of Contracts. These controls have a severe impact on the model fit, in general, and on the NPS-Score coefficients in particular. The NPS-Score coefficient almost halves, while its significance remains at the 1% level. Still, a coefficient of 11.23 suggests that customer satisfaction has a relevant, positive influence on the customers' contribution margin. Additionally, Model III can be considered a good fit as the R^2 reaches a value of 0.276 and, therefore, exhibits the benchmark of 0.12 (cf. Hallowell 1996). Henceforth, we consider Model III to be the main model of our analysis.

The previously presented results do not support the first hypothesis. The findings concordantly provide strong evidence that satisfaction is positively correlated with the profitability per customer in the non-life insurance industry. The positive and significant results support the outcome of Pooser and Browne (2018) in that customer satisfaction is profit-enhancing for insurers. Furthermore, by splitting the dataset according to the six touchpoints and running separate OLS regressions, a positive relationship is revealed for all six touchpoints individually. Nevertheless, this positive relationship could only be valid at the general level; certain customer groups might behave differently. To collect further evidence and gain insight into this relationship, we continue to investigate the subsequent hypotheses to test whether, for some groups, this result might disappear or even become negative.

Following Hypothesis II, we expect that the relationship between satisfaction and profitability would become more negative or, at least, become less strong, for high levels of satisfaction. The regression results of Model IV are in line with this expectation. The interaction term Promoter x NPS-Score exhibits a coefficient of -1.444. Hence, for promoters, the relationship between satisfaction and profitability seems to be less positive than for passives and detractors. The coefficient is, by far, not significant at the 5% level. We, therefore, have to reject Hypothesis II, as this result does not provide enough evidence that the satisfaction–profitability relationship of the promoters differs significantly from that of the other customers.

In Model V, we test the non-linearity, as proposed by Ittner and Larcker (1998), in more depth. This is accomplished by including the interaction terms for the promoters and the detractors. However, no significant coefficients are identified. We conclude that, within our insurance company sample, we cannot provide any evidence for the non-linearity of the bespoke relationship, as found in other industries. Model VI of Table 2 investigates Hypothesis III. This hypothesis states that satisfaction–profitability evolves more negatively the higher the number of claims declared by customers to the insurer. Since the number of claims is highly dependent on the number of contracts a customer holds, we examine this hypothesis with the claims-to-contracts ratio per customer. The regression results support this hypothesis with significance to the 1% level, as the interaction term of claims per contract and the NPS-score displays a negative sign. Still, the total relationship remains positive in the most considerable cases. If a customer receives more than four claims per contract, the satisfaction–profitability relationship becomes negative. Therefore, the more claims customers experience, the less positive the relationship between satisfaction and profitability. Hence, we conditionally accept Hypothesis III.

The last hypothesis assumes that customer satisfaction and costs for the insurer are positively correlated. Model VII assesses this relationship, but cannot detect any relationship between the satisfaction and the combined ratio at all. As the coefficient of the NPS-Score is slightly negative at -0.015 and shows a t-value of -0.801, we do not accept Hypothesis IV.

$$\text{Contribution Margin}_i = \text{Premium Income}_i - (\text{Claims}_i + \text{Administration}_i + \text{Provisions}_i + \text{Reserves}_i)$$

$$\text{Contribution Margin}_i = \text{Premium Income}_i - \text{Costs}_i$$

As customer satisfaction seems to have a positive relationship with the contribution margin but not with the combined ratio (Hypothesis IV), customer satisfaction should be positively related to premium income. Either these customers accept higher prices when prolonging a contract or buy additional insurance products. Due to our previous results, we expect that satisfaction is not significantly associated with the costs and the increase in the contribution margin is empowered by a positive relationship between the NPS-Score and premium income. Indeed, the regression results of Model VIII in Table 2 show a large and significant relationship between the NPS-Score and premium income per customer. Worth mentioning is the size of the coefficient. With a value of 11.444,

this is extremely close to the value of our main model (Table 2, Model III). Additionally, the t-value of 5.775 is also in the area of the main model (t-value of 5.141) and the model fit doubled in comparison to Model III of Table 2. Firstly, this outcome supports the positive relationship between satisfaction and profitability. Secondly, it can be derived that the effect of customer satisfaction on profitability is almost completely rooted in a rise in premium income. Appendix A further examines possible variables impacting the satisfaction–profitability relationship (Appendix A, Models I to IV). A significant difference in the satisfaction–profitability relationship cannot be found for either of the customer groups, considering sex, family status, language and age. Hence, these regressions offer additional evidence for the steadiness of the preceding results.

In summary, this analysis provides strong evidence of the fact that customer satisfaction and customer profitability are positively associated based on our sample from the non-life insurance industry. This result is only driven by a volume effect, as a greater NPS-Score is strongly positively associated with a larger premium volume. The hypothesis that satisfaction rises with the combined ratio does not hold true. Furthermore, this result is widely constant throughout various groups of customers. Contrary to other industries, no indications for the non-linearity of the relationship are found. However, the dataset does not comprise any information about customers having no interaction with the insurer in the investigated timeframe, as well as customers signing their first contract with the insurer within the last five years.

6. Robustness tests

To provide additional evidence to our result, we execute three further tests of robustness. Firstly, we exchange the non-life contribution margin with the total contribution margin that a customer provides to the insurer (Table 3, Model I to III). Secondly, we use estimates of the average, yearly contribution margin of customers having signed their first contract within the last five years and add them to the complete dataset (Table 3, Model IV). In a last step, we investigate whether the investigated relationship still remains positive when dividing the data into customers with and without claims during the last five years.

Table 2: Regression results

Variable	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Dependent Variable	Contribution	Contribution	Contribution	Contribution	Contribution	Contribution	Combined	Premium
	Margin	Margin	Margin	Margin	Margin	Margin	Ratio	Income
Constant	505.07*** (23.830)	400.460*** (15.750)	119.553 (0.904)	59.622 (0.499)	61.166 (0.460)	58.718 (0.443)	1.026 (0.894)	-608.084*** (-5.065)
NPS-Score	15.99*** (6.398)	21.450*** (8.502)	11.228*** (5.141)	12.626*** (4.032)	12.593*** (4.019)	14.339*** (5.921)	-0.015 (-0.801)	11.444*** (5.775)
Touchpoint 1 (d)		290.20*** (12.425)	-17.474 (-0.786)	45.547* (1.953)	45.381* (1.945)	43.713* (1.874)	-0.178 (-0.886)	-34.916*** (-1.732)
Touchpoint 2 (d)		-18.29 (-0.456)	-92.404** (-2.574)	-31.798 (-0.868)	-31.662 (-0.865)	-35.612 (-0.972)	-0.331 (-0.980)	-89.408*** (-2.745)
Touchpoint 3 (d)		143.24*** (6.342)	15.317 (0.731)	74.373*** (3.399)	74.583*** (3.406)	71.528*** (3.267)	-0.345 (-1.827)	-119.009*** (-6.260)
Touchpoint 5 (d)		270.17*** (11.281)	-64.616*** (-2.886)	-3.788 (-0.162)	-3.741 (-0.160)	-7.768 (-0.332)	-0.117 (-0.581)	-78.444*** (-3.862)
Touchpoint 6 (d)		-336.39*** (-14.415)	-443.659*** (-21.364)	-433.050*** (-20.804)	-433.102*** (-20.806)	-434.374*** (-20.870)	0.768*** (4.288)	-133.267*** (-7.073)
Sex (d)			83.573*** (5.644)	83.143*** (5.614)	83.095*** (5.610)	82.991*** (5.607)	0.077 (0.603)	96.003*** (7.147)
Age (ln)			-4.122 (-0.138)	-6.026 (-0.201)	-6.031 (-0.202)	-5.256 (-0.176)	-0.066 (-0.254)	164.899*** (6.076)
Family Status (d)			113.117*** (8.062)	114.825*** (8.186)	114.794*** (8.183)	113.000*** (8.051)	-0.194 (-1.601)	75.342*** (5.919)
German (d)			1.619 (0.054)	-1.814 (-0.060)	-1.692 (-0.056)	-0.343 (-0.011)	0.136 (0.522)	-199.777*** (-7.295)
French (d)			-50.667 (-1.572)	-51.833 (-1.609)	-51.748 (-1.606)	-49.873 (-1.548)	0.472* (1.694)	-139.999*** (-4.789)
Customer 5-10y (d)			-18.165 (-0.757)	-19.359 (-0.807)	-19.428 (-0.810)	-18.303 (-0.763)	-0.157 (-0.755)	110.704*** (5.086)
Customer 11-16y (d)			-15.338 (-0.635)	-15.028 (-0.623)	-15.088 (-0.625)	-14.480 (-0.600)	0.233 (1.114)	34.986 (1.598)
Customer 17-22y (d)			42.414* (1.798)	40.990* (1.738)	40.973* (1.737)	40.383* (1.713)	-0.061 (-0.300)	46.163** (2.157)
Customer ≥29y (d)			35.988 (1.579)	37.713* (1.655)	37.728* (1.656)	36.278 (1.592)	0.000 (0.002)	-35.359* (-1.710)
Life Insurance (d)			-504.752*** (-29.058)	-503.228*** (-28.971)	-503.265*** (-28.972)	-505.829*** (-29.094)	0.384** (2.311)	-796.494*** (-50.541)
Claims 5y			-188.101*** (-56.027)	-196.053*** (-61.948)	-196.048*** (-61.944)	-186.430*** (-42.527)	0.166*** (6.108)	144.811*** (47.541)
Claims 1y			-30.767*** (-3.053)	74.132*** (4.292)	74.096*** (4.290)	77.923*** (4.502)	-0.292** (-1.961)	27.121*** (2.966)
Urbanization			20.748** (2.112)	20.732** (2.111)	20.750** (2.113)	20.726** (2.111)	0.029 (0.345)	14.375 (1.613)
Contracts			384.281*** (81.953)	384.431*** (81.974)	384.417*** (81.964)	376.567*** (71.252)	-0.177*** (-4.336)	600.846*** (141.237)
Promoter (d) x NPS-Score				-1.444 (-0.725)	-1.566 (-0.767)			
Detractor (d) x NPS-Score					-1.499 (-0.277)			
Claims/Contracts x NPS-Score						-2.980*** (-3.187)		
R ²	0.0014	0.0283	0.277	0.277	0.277	0.277	0.004	0.582
Adjusted R ²	0.0014	0.0281	0.276	0.276	0.276	0.276	0.003	0.582
Observations	28'016	28'016	28'016	28'016	28'016	28'016	28'016	28'016

Note: This table reports the results of the OLS regression of the NPS-Score on the contribution margin in Model I. Subsequently, additional sets of control variables are added to Models II and III. Models IV through VI report the regression results with a special focus on customers with extra-high or extra-low levels of satisfaction, depending on the customer's claims-to-contracts ratio. Furthermore, Model VII reports the results of the regression of the NPS-Score on the combined ratio of the customers. Model VIII reports the results of the OLS regression of the NPS-Score on the premium income. Variable names containing an "x" indicate an interaction term between the respective variables. Dummy variables are indicated by (d) and the logarithmic operators by (ln), t-values are in parentheses. *p < .10; **p < .05; ***p < .01.

The NPS-Score has subsequently been recorded to a situation specific to the non-life business. However, this score should still be representative of the customers' satisfaction with the whole company. As customers with life insurance contracts only are excluded from the beginning, this additional analysis is still exclusively valid for non-life customers and not for the total customer base. The regression models in Table 3 subsequently add the same sets of controls to the model as for Table 2, Models I to III. The results of these regression models are very similar to the analysis of the non-life contribution margin only. The coefficients, as well as the t-values, emerge in parallel to the results in Table 2, Models I to III, and also add evidence that when adding the contribution margin of the life business to the contribution margin of the non-life business, customer satisfaction is promoting profitability in the insurance sector.

Furthermore, Model IV adds customers who signed their first contract with the insurer within the last five years to the dataset. As stated previously, these contribution margins are not exactly calculated by the insurer. However, the estimates of the potential average, yearly contribution margin per customer do exist. Including this customer group is important because these customers might reveal divergent behavior. On the one hand, many of them might change their insurer more often than the average, because of high claims; on the other hand, their contribution margin is rather low, by definition, as the costs for their acquisition have just recently occurred. Nevertheless, this group of customers is important and makes up 21% of the dataset. In addition, we test the robustness of the positive relationship by assessing the customers with and without claims during the last five years separately. The results of Models V and VI in Table 3 show that the relationship remains positive and significant for both groups.

In summary, the results of these three robustness checks, based on our sample, add further evidence to the main result of this paper, i.e., that customer satisfaction is enhancing profitability at the customer level in the insurance industry.

Table 3: Results of the robustness tests

Variable	Model I	Model II	Model III	Model IV	Model V	Model VI
Dependent Variable	Total Contribution Margin	Total Contribution Margin	Total Contribution Margin	Contribution Margin (incl. Customer <5y)	Contribution Margin (if Claims 5y =0)	Contribution Margin (if Claims 5y >0)
Constant	606.721*** (27.111)	470.621*** (17.554)	-474.137*** (-3.515)	211.050** (2.155)	383.043** (2.390)	-530.801*** (-2.950)
NPS-Score	18.035*** (6.830)	23.598*** (8.863)	10.150*** (4.559)	8.390*** (4.857)	7.593*** (3.482)	15.032*** (4.948)
Touchpoint 1 (d)		367.767*** (14.924)	12.831 (0.566)	-10.038 (-0.542)	-108.521*** (-3.307)	207.053*** (6.434)
Touchpoint 2 (d)		22.770 (0.538)	-55.263 (-1.510)	-71.551** (-2.441)	-133.795*** (-3.510)	111.394* (1.820)
Touchpoint 3 (d)		128.945*** (5.411)	16.156 (0.756)	39.234** (2.346)	-72.470** (-2.199)	105.513*** (3.665)
Touchpoint 5 (d)		355.069*** (14.052)	-34.180 (-1.498)	-50.706*** (-2.723)	-137.199*** (-4.121)	132.989*** (4.197)
Touchpoint 6 (d)		-303.627*** (-12.332)	-435.227*** (-20.560)	-402.874*** (-23.472)	-35.144 (-0.633)	-466.011*** (-18.495)
Sex (d)			88.734*** (5.879)	72.033*** (6.044)	89.186*** (5.876)	79.731*** (3.911)
Age (ln)			136.997*** (4.492)	-10.699 (-0.492)	-70.830** (-2.225)	79.492* (1.954)
Family Status (d)			104.586*** (7.312)	92.795*** (7.864)	60.821*** (4.115)	92.086*** (4.810)
German (d)			31.928 (1.038)	14.094 (0.560)	58.266* (1.778)	18.346 (0.450)
French (d)			-11.217 (-0.342)	-30.751 (-1.146)	19.920 (0.562)	-38.413 (0.886)
Customer <5y (d)				-591.770*** (-25.826)		
Customer 5-10y (d)			-60.393** (-2.470)	-32.673 (-1.506)	-4.219 (-0.167)	-142.273*** (-4.355)
Customer 11-16y (d)			-70.050*** (-2.847)	-23.272 (-1.047)	-48.549* (-1.925)	-74.695** (-2.264)
Customer 17-22y (d)			10.408 (0.433)	39.943* (1.831)	34.774 (1.426)	12.888 (0.398)
Customer ≥29y (d)			6.262 (0.270)	44.669** (2.125)	19.366 (0.820)	53.271* (1.706)
Life Insurance (d)			-222.642*** (-12.574)	-451.494*** (-30.469)	-606.982*** (-35.360)	-352.546*** (-14.397)
Claims 5y			-195.195*** (-57.034)	-181.727*** (-61.786)		
Claims 1y			-28.368*** (-2.761)	-67.040*** (-8.137)		-105.681*** (-5.051)
Urbanization			3.612 (0.361)	18.545** (2.308)	49.453*** (4.685)	14.517 (1.099)
Contracts			431.509*** (90.275)	362.194*** (87.753)	391.467*** (63.576)	279.860*** (-5.051)
R ²	0.002	0.030	0.326	0.313	0.434	0.162
Adjusted R ²	0.002	0.030	0.325	0.313	0.432	0.162
Observations	28'016	28'016	28'016	35'724	6'755	21'261

Note: This table reports the results of the robustness tests. Models I to III provide the results of the OLS regressions, with the total (non-life and life) contribution margin per customer as the dependent variable. The underlying data of Model IV also include customers with a customer relationship of less than 5 years. In Models V and VI, the data are split into customers with and without claims. Dummy variables are indicated by (d) and the logarithmic operators by (ln); the t-values are in parentheses. *p < .10; **p < .05; ***p < .01.

7. Conclusion

The literature finds that, for many industries, customer satisfaction affects the profitability per customer positively. Even though there are several, mostly theory-based, reasons why this relationship may be different in the insurance industry, insurance has rarely been the subject of investigations in this field. This paper is the first to investigate this topic based on customer-level data and looking at all major business lines of a non-life insurance company. The data we analyze stems from a large Swiss insurance company and comprises customer satisfaction data, contribution margins and a rich array of control variables at the single customer level.

Contrary to theory-based arguments, but in line with the prior general literature from other industries, we find strong evidence that customer satisfaction measured by the NPS-Score positively affects insurers' profitability. Furthermore, the effect is considerably large, indicating that customer satisfaction is a meaningful variable for explaining profitability at the customer level in our dataset. The result is robust in size and remains significant for high levels of customer satisfaction, customers with and without claims and various other customer characteristics. No evidence for the non-linearity of the relationship is found, however, though we construct one theoretical case where the satisfaction–profitability relationship turns negative. This occurs when the claims-to-contracts ratio exceeds a value of four. Moreover, we find that customer satisfaction is not correlated with the combined ratio per customer but is strongly positively correlated with the generated premium income. Hence, the positive relationship stems from a pure volume effect, as customer satisfaction increases the premium volume per policyholder.

Our results demonstrate that the results of the general marketing literature are widely applicable to insurance companies. Customer satisfaction is a relevant driver of insurance profitability. Therefore, insurance companies are right to consider customer satisfaction a goal of their organization and to make management compensation dependent on customer satisfaction. Our analysis indicates that it is worthwhile for insurance companies to invest in customer satisfaction, while we perceive the parameters driving customer satisfaction within the insurance industry as insufficiently investigated.

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Appendix A: Regression results testing the influence of customer characteristics

Variable	Model I	Model II	Model III	Model IV
Purpose	Sex	Family Status	Language	Age
Dependent Variable	Contribution	Contribution	Contribution	Contribution
	Margin	Margin	Margin	Margin
Constant	88.619 (0.656)	68.482 (0.513)	-30.524 (-0.203)	54.300 (0.271)
NPS-Score	8.088** (2.071)	10.539*** (3.460)	22.744** (2.476)	11.035*** (2.939)
Touchpoint 1 (d)	45.198* (1.938)	45.368* (1.945)	44.887* (1.925)	45.463* (1.949)
Touchpoint 2 (d)	-30.666 (-0.838)	-31.338 (-0.856)	-31.820 (-0.869)	-31.246 (-0.853)
Touchpoint 3 (d)	74.845*** (3.422)	74.838*** (3.422)	74.781*** (3.419)	74.968*** (3.428)
Touchpoint 5 (d)	-4.047 (-0.173)	-4.102 (-0.175)	-4.403 (-0.188)	-3.912 (-0.167)
Touchpoint 6 (d)	-432.694*** (20.793)	-432.765*** (-20.794)	-432.765*** (-20.819)	-432.684*** (-20.791)
Sex (d)	50.438 (1.275)	83.531*** (5.637)	83.423*** (5.635)	83.531*** (5.637)
Age (ln)	-6.217 (-0.208)	-6.096 (-0.204)	-5.429 (-0.182)	-3.499 (-0.073)
Family Status (d)	114.748*** (8.181)	107.456*** (2.950)	114.643*** (8.173)	114.706*** (8.170)
German (d)	-2.010 (-0.067)	-2.023 (-0.067)	110.910 (1.336)	-1.914 (-0.063)
French (d)	-52.240 (-1.622)	-52.294 (-1.632)	-0.175 (-0.002)	-52.138 (-1.618)
Customer 5-10y (d)	-19.978 (-0.833)	-19.836 (-0.827)	-19.798 (-0.825)	-19.641 (-0.816)
Customer 11-16y (d)	-15.151 (-0.628)	-15.236 (-0.631)	-15.415 (-0.640)	-15.216 (-0.630)
Customer 17-22y (d)	40.895* (1.734)	40.910* (1.735)	40.551* (1.720)	40.861* (1.733)
Customer ≥29y (d)	37.480* (1.645)	37.667* (1.653)	37.544* (1.648)	38.044* (1.660)
Life Insurance (d)	-500.073*** (-28.961)	-503.218*** (-28.970)	-503.092*** (-28.964)	-503.568*** (-28.779)
Claims 5y	-196.106*** (-61.979)	-196.109*** (-61.975)	-196.112*** (-61.983)	-196.111*** (-61.966)
Claims 1y	74.095*** (4.290)	74.127*** (4.291)	74.467*** (4.311)	74.162*** (4.293)
Urbanization	20.748** (2.113)	20.787** (2.117)	20.770** (2.115)	20.757** (2.113)
Contracts	384.280*** (81.957)	384.331*** (81.968)	384.351*** (81.986)	384.323*** (81.924)
Sex (d) x NPS-Score	4.174 (0.899)			
Family-Status (d) x NPS-Score		0.928 (0.218)		
German (d) x NPS-Score			-14.275 (-1.500)	
French (d) x NPS-Score			-6.621 (-0.649)	
Age40-60 (d) x NPS-Score				0.110 (0.034)
Age>60 (d) x NPS-Score				-0.215 (-0.049)
R ²	0.277	0.277	0.277	0.277
Adjusted R ²	0.276	0.276	0.276	0.276
Observations	28'016	28'016	28'016	28'016

Note: This table reports the results of the OLS regression of the NPS-Score on the contribution margin, investigating whether the customer characteristics impact this relationship. Model I displays the output of the OLS regression, assessing whether the customer's sex has an impact on the relationship between the NPS-Score and the contribution margin. Model II focusses on the family status, Model III focusses on the language, and Model IV focusses on the customer's age. Variable names containing an "x" indicate an interaction term between the respective variables. Dummy variables are indicated by (d) and the logarithmic operators by (ln), the t-values are in parentheses. * $p < .10$; ** $p < .05$; *** $p < .01$.

Essay II: Pricing Strategies in the German Term Life Insurance Market: An Empirical Analysis

Abstract

The life insurance sector is highly regulated. Areas of regulation include not only solvency requirements but also product pricing. In most industries, companies aim to increase producer rents by using information regarding the customer's willingness to pay (WTP), which allows them to endeavor price discrimination if no perfect competition prevails. In this article, we investigate the pricing behavior in the German term life insurance market by analyzing market prices, actuarial fair pricing, and the WTP for eighteen customer groups and three product categories. The results show that premiums charged for budget Term Life insurance products are in some cases even below the actuarially fair price. For term life insurance products with additional services, regulation, and market conditions hinder insurance companies from employing advanced strategies of price discrimination and the employment of the WTP.

Keywords

Term life insurance; Insurance regulation; Willingness to pay; Pricing

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1. Introduction

Insurance companies are subject to a comprehensive regulatory framework designed to protect the rights of policyholders. An important regulatory requirement for life insurers is the so-called “principle of equal treatment” that can be found in various countries.⁵ The principle of equal treatment requires that premiums and benefits are set according to the same rules for policyholders with the same conditions. As a result, the premium is a direct function of the production costs. From a technical perspective, it is composed of the actuarially fair premium and a loading $p (= a + b + c)$ where p is generally positive. The actuarially fair premium is derived from the discounted expected indemnity payments to the beneficiary. The loading p is the sum of a (= the price for bearing the risk), b (= the profit loading) and c (= the insurer’s administration costs and additional frictional costs such as taxes).

In establishing this principle, regulators must assume that markets are not fully competitive. Otherwise, and whether or not such a regulatory principle is applied to the market, competition would force insurers to offer prices equal to the full cost of production. Therefore, market premiums should be equal to the actuarially fair premium plus a and c , thus always fulfilling the principle of equal treatment. Suppose this principle was applied to a non-competitive market; in that case, the result would be that premiums would still be based on the actuarially fair premium. However, companies could set $b > 0$ and still be in compliance with the regulation as long as the loading p is identical for every policyholder with the same risk characteristics. This would result in policyholders with higher risks paying higher premiums, as required by the principle. In this case, premiums could be set significantly higher than the actuarially fair premium, and insurers could skim off parts of the customer rent. The principle of equal treatment is to some extent contradictory to the EU-wide deregulation of the insurance market since 1994, according to which private insurance companies are supposed to be free to set their own prices. Similar laws can only be found in markets with explicit price regulations or in the social insurance sector. In addition, there are other laws that affect the pricing of life insurance. For example, the German Insurance Contract Act (§153 Versicherungsvertragsgesetz, VVG) regulates the surplus sharing of life insurance

⁵ Examples, among others, include Germany (§ 138 (2) of the Law on the Supervision of Insurance Undertakings (Versicherungsaufsichtsgesetz, VAG)), Switzerland (§ 120 and § 122 of the Law on the Supervision of Insurance Undertakings (Versicherungsaufsichtsgesetz, VAG)), and parts of Canada (§ 1 (1/2) of the Insurance Act, Ontario Regulation 7/00: Unfair or Deceptive Acts or Practices).

companies and thus influences the prices and returns of insurers. Articles 3 to 8 of the Minimal Payback Directive (§§ 3-8 Verordnung über die Mindestbeitragsrückerstattung in der Lebensversicherung, MindZV), on the other hand, stipulate the share of investment returns, underwriting profit, and other surpluses that insurers must repay to policyholders.

In the case of imperfect competition, companies in other industries usually try to set the loading factor b individually for different groups of customers and thus skim off their willingness to pay. Therefore, the principle of equal treatment might prevent insurers from accounting for the policyholders' WTP in their pricing. To examine this aspect in more detail, we analyze the relationship between WTP, actuarially fair premium, and market price in the German term life insurance (TLI) market. We explicitly chose TLI for several reasons. First, with over EUR 4.2 billion in annual premiums paid and 7.6 million policies in force, term life insurance policies represent a significant part of the German life insurance industry (Gesamtverband der Deutschen Versicherungswirtschaft e. V., 2019). Second, as shown by Kahneman and Tversky (1979), policyholders are expected to overestimate their expected indemnity payment, leading to a significant difference between the actuarially fair premium and their WTP. Consequently, TLI is believed to offer insurers great potential for active revenue management. Moreover, due to the nature of the product, renewals appear to occur infrequently, so the effects of the so-called price walking phenomenon do not affect the analysis.⁶

The remainder of this article is structured as follows. We start our discussion with a brief literature review in Section 2, while the data and the methodology used are described in Section 3. The fourth section contains our analyses, and Section 5 discusses the results and implications for insurance companies and policyholders. In the final section, we provide a summary of our results and draw our conclusion.

⁶ The price walking phenomenon describes the increase in price over time for longer contracts, resulting in a difference between the premiums paid by new and existing customers for the same product.

2. Literature review

2.1 Willingness to pay in the context of insurance

In the academic literature, research on customers' WTP is diverse: While some authors aim to determine consumer and producer rents, others focus on the evaluation of different pricing strategies. In insurance practice, it is vital to approximate the WTP for a new product beforehand to assess, whether potential customers are willing to pay a price that exceeds the provider's costs.

In the context of insurance, several articles empirically examine WTP in developing countries for crop insurance (see, e.g., Bulte et al., 2019; Freudenreich and Mußhoff, 2018; Wang et al., 2020), health insurance (see, e.g., Bonan et al., 2014; Delavallade, 2017), livestock insurance (see, e.g., Castellani and Vigan`o, 2017), different types of index and microinsurance in different parts of the world (see, e.g., Elabed and Carter, 2015), flood insurance (see, e.g., Botzen and Bergh, 2012), and weather insurance (see, e.g., Fraser, 1992; Musshoff et al., 2008). For developed countries, analyses of WTP for insurance tend to focus on public social systems. For instance, there is an extensive strand of literature that concentrates on WTP for health insurance in the United States (see in particular Bosworth et al., 2015; Drake, 2019; Finkelstein et al., 2019), Germany (see Bock et al., 2016, 2017) and many other regions (for an overview, see Braun et al., 2016). Unemployment (Hendren, 2017) and long-term care insurance (see, e.g., Akaichi et al., 2020; Braun et al., 2019) have also been studied in the past. For instance, Hendren (2017) shows that even though the WTP for private unemployment insurance treaties in the US market seems to be higher than estimated in early studies, frictions imposed by the policyholders' private information do not allow providers to offer such contracts in a profitable manner. Braun et al. (2019) demonstrate in an experimental study that individuals in frail and/or low-income risk groups do not purchase long-term care insurance because the cost of insuring exceeds their WTP. Also, the take-up rates for more wealthier individuals are rather small because of transaction costs and problems of adverse selection.

Private insurance products have been rather seldom the subject of research. One of the few examples is Hansen et al. (2016), who examine the WTP of auto, home, and household insurance in Denmark. To date, few authors have focused on life insurance policies. Among these, the theoretical work of Gatzert et al. (2012) assesses WTP for participating life insurance contracts, while Braun et al. (2016) draw on choice-based conjoint analysis to derive the WTP for German TLI products. In Gatzert et al. (2012),

the fair price of participating life insurance contracts based on risk-neutral valuation is compared with the WTP of normative-rational policyholders with μ/σ -preference. In particular, the authors derive fair-priced combinations of investment guarantees, annual profit participation rates, and terminal participation rates that maximize the policyholder's utility for fixed degrees of risk aversion. Braun et al. (2016) run a choice-based conjoint (CBC) analysis for term life insurance on a sample of 2,017 German customers using data from a web-based experiment. Individual-level part-worth profiles are estimated and relative attribute importance as well as different WTP measures are derived. Branding, critical illness covers and the underwriting procedure are on average the most important product attributes from the customer's point of view. If a term life insurance contract comprises such favored specifications, customers accept substantial premium markups. On simplified market assumptions, the authors show that utility-driven product optimization helps to increase the insurer's market share and profitability.

In Luca et al. (2022), preferences of 1,180 German consumers for investment guarantees in financial products by means of choice-based conjoint and latent class analysis are analyzed. Based on the segment-level part-worth utility profiles, the most important product features are identified. In a stylized market environment, consumer's demand is examined and it is tested to which degree individual purchasing behavior can be connected to various socioeconomic characteristics. Although the willingness to buy an investment guarantee for a fair price (based on risk-neutral valuation) varies widely within different consumer groups, the degree of heterogeneity with respect to the individual guarantee attributes and guarantee levels is rather small.

This overview shows that the research employing WTP is widely present in public welfare literature, accepted in the field of marketing research and frequently used in the context of insurance. For developed countries, scholars put their emphasis strongly on insurances belonging to the social systems. But for privately offered products, the WTP has been investigated less frequently. However, in other industries, WTP analyses are very common, also for privately offered products (Goldberg et al., 1984; Kohli and Mahajan, 1991; Sichtmann et al., 2011; Venkatesh and Mahajan, 1993; Ward and Martin, 1990). For instance, Goldberg et al. (1984) focus on the pricing and the customers' willingness to pay for hotel amenities in the US market. Thereby, the authors emphasize on the question of how conjoint analysis can be modified to account for correlated attributes (like the product price) and bundling problems (price ad-up for each amenity vs. the price ad-up for various bundles of amenities).

In summary, we clearly see the necessity for more extensive WTP research for life insurance products. Furthermore, the reported literature focuses on a presentation of the WTP for a certain product and does not reflect the findings on regulatory requirements, the given market structure, and the product costs. The aim of this paper is to close this gap in the sector of term life insurance contracts in the German term life insurance market.

2.2 Measurement of willingness to pay

According to Breidert et al. (2015), the various approaches to measuring WTP can be divided into indirectly revealing and directly stated preference measurements. The former include methods such as analyses of market data and experiments such as auctions, while the latter include indirect or direct survey methods. Direct survey measures explicitly ask about the WTP for a particular good. Customer surveys or judgments by experts fall into this category. Indirect surveys such as conjoint analyses and discrete choice analyses work quite differently. In a first step, the survey participants have to rank different products with different characteristics or choose between several product alternatives. This preference information is then used to derive the WTP.

In the past, practitioners and researchers have mostly used customer surveys to determine the WTP of insurance products. However, especially for life insurance policies, policyholders have difficulty capturing the value of these abstract, seldomly purchased products. As a result, customer surveys tend to inadequately estimate WTP (see, e.g., Backhaus et al., 2005; Miller et al., 2011; Voelckner, 2006). Thus, in this paper, we use data collected using choice-based conjoint analysis, a special form of conjoint analysis. In the latter, respondents do not rank all displayed products but, rather, choose one product over its alternatives. This procedure makes the results even more precise because it lowers the cognitive demands and puts respondents in a situation that resembles a real purchase decision (Huber, 1997).

3. Product types, customer groups, and data

Our methodological approach consists of three steps. Firstly, to consider the full range of representative TLI products, we define three hypothetical policies, ranging from a budget product to a classic product to a premium product. Secondly, we assess key

policyholder characteristics to determine TLI prices and form customer groups based on these characteristics. Finally, we collect information on policyholders' WTP, market prices, and actuarially fair premiums for each customer group and product type.

3.1 Product types

Braun et al. (2016) consider six different so-called product attributes that characterize TLI policies. In addition to the sum insured, these are the (i) insurance premium, the (ii) term insured, the (iii) sales channel, the (iv) underwriting procedure, the (v) brand of the insurance provider, and the (vi) availability of critical illness coverage. The underwriting procedure describes the type of medical examination used to assess the health status of the potential policyholder. Critical illness coverage, on the other hand, is an additional option that pays a policyholder who is diagnosed with a predefined fatal illness a predetermined amount of money immediately after the diagnosis. Following Braun et al. (2016), we draw on these attributes to define three hypothetical products. Regarding the term insured, we assume an identical contract period of 15 years.

The so-called budget product is characterized by the lowest price available in the market. This product can only be purchased over the internet and the underwriting consists of 10 questions about the potential policyholder's health. The insurer is an unknown brand and the contract does not include coverage for critical illnesses. Our classic product is in the middle price range and can be purchased through an intermediary. Before the policy is underwritten, potential policyholders must undergo a fully-fledged medical examination. The insurance company is a well-known brand, but the policy does not provide coverage for critical illnesses. Finally, the premium product is at the upper end of the price range, can be purchased through an agent or online, and is offered by a well-known insurance brand. To be insured, policyholders only have to answer three questions about their health. In addition, the premium product includes critical illness coverage.

3.2 Customer groups

During the registration process, insurance companies ask for a large amount of personal information. This information affects the risk assessment and, thus, the premium of the policy. However, for simplicity, we focus on the two most important variables for determining the price: the customer's age and smoking status. Since the demand for TLI is usually only present in midlife, we form customer groups for customers between 20

and 55 years of age. Each group spans four years and includes either only smoking or non-smoking policyholders. Thus, we have a total of 18 customer groups (i.e., nine age categories times two smoking statuses).

3.3 Data collection

For the calculation of the WTP, we draw on the raw data set from Braun et al. (2016), while all market prices (expressed in monthly premiums) are taken from the German online comparison portal “Verivox”. The actuarially fair premiums, on other hand, are based on a mortality table published by the German Association of Actuaries (Deutsche Aktuarvereinigung e. V. (DAV), 2008a).

3.3.1 Willingness to pay

The willingness to pay is calculated based on a survey conducted by Braun et al. (2016). In 2015, they surveyed 2,017 German consumers who claim themselves as insurance decision-makers. Half of the respondents do own a term insurance contract. The study's participants were between 20 and 54 years old and are population representative with respect to gender and domicile state. Out of these 2,017 data records, 1,995 meet the requirements for further assessment. The study setups ten groups and select the respondents to age classes and smoking habits. After a short explanation of the supposed buying situation, the concept of a term life insurance, and the embedded product attributes, participants were confronted with twelve choice tasks describing complete policy profiles. In addition, a no-choice option is offered. While the attribute order within each conjoint stimulus remained fixed, the pairwise comparisons were automatically generated using the so-called balanced overlap method (cf. Sawtooth Software, 2013). The interviewees were given various reference prices, adequate for their respective characteristics (like age class and smoking habits). Subsequently, they were asked about their WTP for several TLI products with certain attribute specifications. Due to this setting, it is possible to calculate the WTP for all possible combinations of product attributes. Using the distribution of the WTP giving the feedback of all respondents for specific products and product features, we calculated various statistical figures like the 60%-highest density interval (HDI), the median or expected values for the WTP.

3.3.2 Term life insurance market premiums

The market prices have been collected from “Verivox”, a German online comparison portal and broker that offers the largest selection of insurance brands of all German online broker platforms. We collected premium data according to the following approach. First, we assume that the representative policyholder is an office worker with 60% in-office work. Second, we set the height of the policyholder to 180 cm and the weight to 71 kg.⁷ Moreover, the insured sum is EUR 100,000, the term insured is 15 years, and the payments are made on a monthly basis. The data have been recorded in November 2019, and the insurance term starts on December 1, 2019. However, while insurers advertise monthly net premiums for their term life offerings, the respective contracts are still based on the gross monthly premiums.⁸ The latter corresponds to the maximum price the insurer can charge at any time during the contract period if there is no surplus sharing.⁹

To collect the market data, we obtained quotes for the youngest and oldest possible policyholders in each group, and we average their net and gross premiums to approximate the market price. Moreover, we resort to the product with the lowest quoted price as the estimate for the predefined budget product and the product with the highest available price as the estimate for the predefined premium product. The average of the two forms is the estimate for the classic product. For the budget product, for example, the market premium is the average of the product with the lowest net price and its gross price for the youngest possible policyholder and the product with the lowest net price and its gross price for the oldest possible policyholder in the respective customer group.

3.3.3 Actuarially fair premiums

The actuarially fair premiums are calculated on the basis of the mortality tables published by the German Association of Actuaries (Deutsche Aktuarvereinigung e. V., 2008a). These tables are used by German insurers to calculate their TLI premiums. In the present article, we calculate fair premiums exclusively on the basis of the expected payments to policyholders. The first-order mortality table is based on historical

⁷ Note that these values result in the mean of the optimal Body Mass Index score for men and women in Germany.

⁸ The net premiums offered to anticipate the excess profits of the former period.

⁹ One should note that there are special regulatory requirements for the German insurance market with regard to the profit participation of policyholders.

mortality data of actual life insurance policyholders and includes only general safety loadings for (i) random risk, (ii) parameter and model risk, and (iii) risk of change. Nevertheless, expected changes in mortality were not included in the calculation, and a prudent zero trend is assumed (cf. Deutsche Aktuarvereinigung e. V., 2008b). Overall, neither premium loadings for risk-bearing nor administration costs of the insurer are considered here. Insurers also request information about a customer's health status and lifestyle factors prior to underwriting. This may impact the selection of policyholders who are allowed to purchase a certain policy and may result in a selection effect: For example, only people with a better health condition than in the overall population would be admitted to the budget product. In consequence, the actuarially fair premium for the budget product will be lower than when considering the overall population. How we adjust for this effect is explained in the following paragraph. We further assume a flat term structure with an interest rate of 0% for the contract term. By equating expected premium income with expected indemnity payments, we calculate a fair monthly premium for smokers and non-smokers for each age.

The average actuarially fair premium for all individual ages within each of our 18 customer groups is assumed to be the actuarially fair premium for the classic product for each of the defined groups. Following Braun et al. (2016), we further assume that insurers realize a 15% cost saving from better cost structures, higher rejection rates, and stricter risk classification for budget products. Premium products, on the other hand, are associated with 30% higher costs due to the included critical illness coverage, better service offering, relaxed medical examination, and stronger brand reputation of the provider, among other factors (cf. Braun et al., 2016).

3.4 Similarity of hypothetical products with products in the market

Before running our analysis, we test for similarity by comparing hypothetical characteristics to actual market characteristics for a range of customer groups based on age and smoking status. As described in Section 3.1, the TLI policies are fully defined by six product attributes. However, since the term insured and the premium are either fixed (term insured) or determined by the product category (premium), we examine only the similarity of the characteristics: sales channel, underwriting procedure, brand, and critical illness coverage. In this regard, we assume that a product in the market is very similar to the hypothetical product if at least three of the four characteristics are the same. If two features are identical, we assume medium similarity, and if one or zero features are identical, we assume no similarity.

The results illustrate that 72.5% of all cases are highly similar, while the remaining cases (27.5%) have a medium similarity. Since the highest and lowest priced products in the market often differ for different customer groups, the product characteristics also differ. Considering these arguments, the hypothetical products are a good proxy for the actual products offered in the market for TLI.

4. Empirical findings

Of all 1,995 respondents, 824 individuals have a positive WTP for the budget product, 921 for the classic product, and 1,177 for the premium product (cf. Braun et al., 2016). Thus, per customer group, 9–124 individuals have a positive WTP. The minimum WTP is EUR 0.08 for the budget product, EUR 0.03 for the classic product, and EUR 0.06 for the premium product, while the maximum WTP is EUR 610.26 for the budget product, EUR 643.39 for the classic product, and EUR 968.31 for the premium product. In the following sections, we analyze the average WTP, the median WTP, the 60% HDI of the WTP, the market price, and the actuarially fair premium for all defined customer groups.

4.1 Budget product

As illustrated in Figure 4a, the average WTP of non-smokers for the budget product is U-shaped. In the younger age groups, the average WTP is around EUR 40 per month, which is more than 10 times the actual market price or actuarially fair premium. A comparison of average and median WTP suggests that this high average WTP is mainly driven by a few extremely high WTPs. For potential middle-aged policyholders, on the other hand, the average WTP shrinks to a level of EUR 12–30, but it is still well above the market price and the actuarially fair premium. For older age groups, the average WTP lies between EUR 40 and EUR 61, while the corresponding market price is between EUR 20 and EUR 40. The median WTP is initially well above the market price and the actuarially fair premium, but it converges to these two values in the medium age groups and is below the actuarially fair premium for all groups from age 40–43. It is notable that, starting in the 36–40 age group, the market price is below the actuarially fair premium. Both the market price and the actuarially fair premium start at the lower bound of the 60%-HDI, grow continuously with age relative to the 60%-HDI, and are in the upper half for all age groups above 40–43 years.

For smokers, the results look quite similar (cf. Figure 4b). That is, the average WTP is high compared to the market price and actuarially fair premium for young and middle-aged groups. However, for customers ages 48–51 and older, the average WTP is lower than the market price and the actuarially fair premium. Similar to non-smokers, for smokers the median WTP starts above the market price and actuarially fair premium for young age groups and approaches both lines for middle age groups, then falls below the market price beginning with the 36–39 age group and below the actuarially fair premium beginning with the 44–47 age group. Again, the market price and actuarially fair premium start at the lower boundary of the 60%-HDI and continue to rise in this range as age increases. However, at ages above 44–47, both lines exceed the upper boundary of the 60%-HDI.

Figure 4: Analysis of the budget product

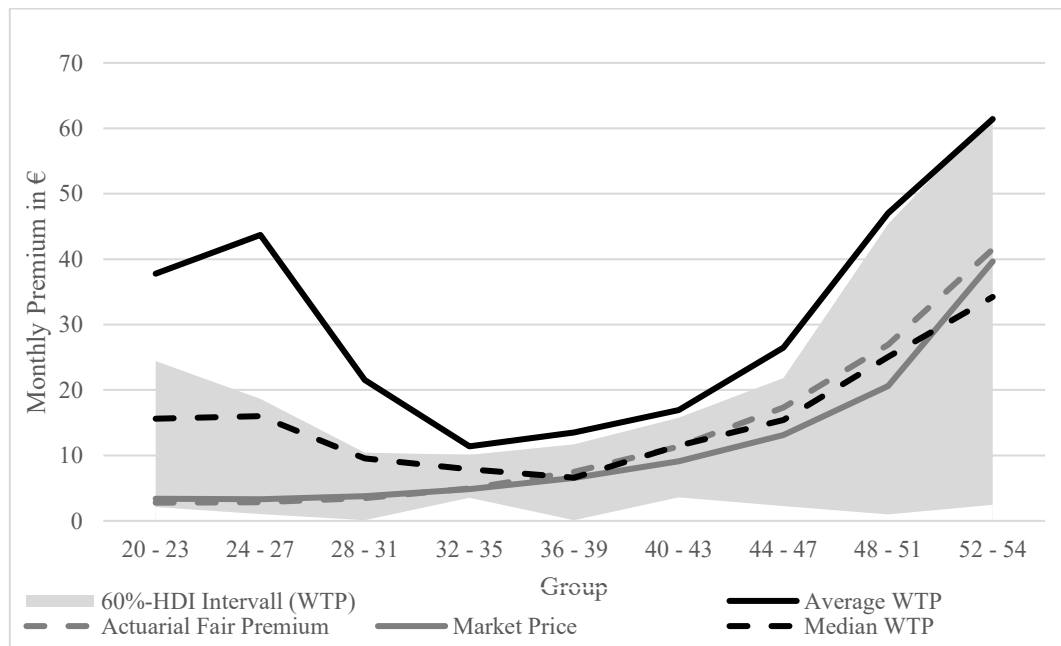


Figure 4a: Market prices, actuarial fair premium and WTP “Budget” product for non-smokers.

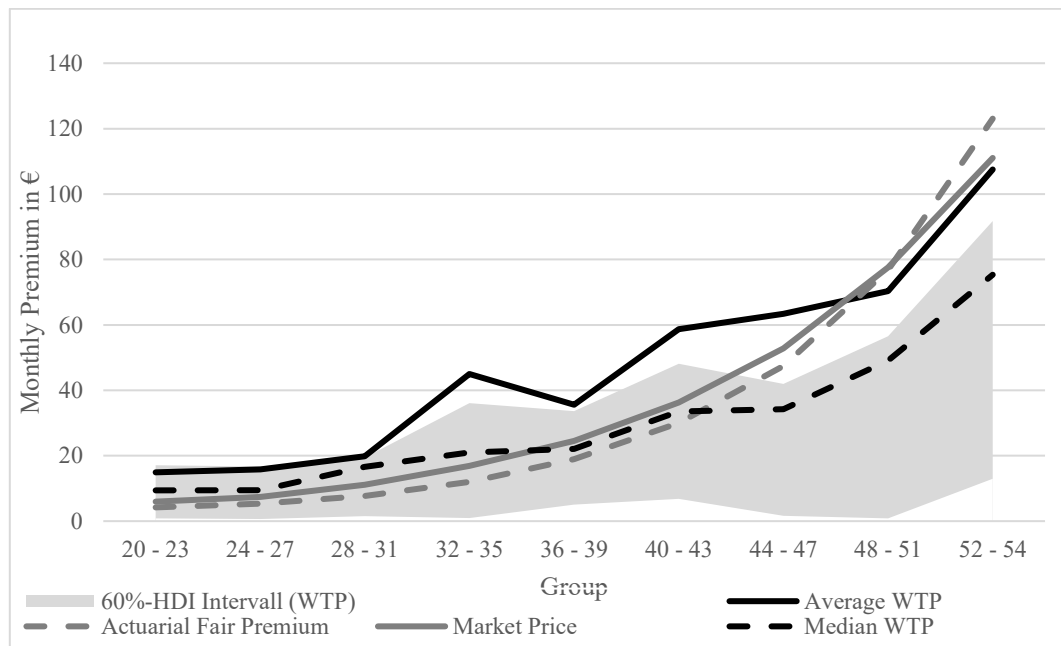


Figure 4b: Market prices, actuarial fair premium and WTP “Budget” product for smokers.

Note: Market prices, actuarial fair premium, and willingness to pay (WTP) for the “Budget” product. The market prices are derived from the online platform Verivox. Product costs are based on the actuarially fair premium. Median, average WTP as well as the 60%-highest density interval (HDI) are calculated using the empirical data set of Braun et al. (2016).

The fact that the market price appears to be lower than the actuarially fair premium in some cases is probably because life expectancy has increased in the insurers’ portfolios compared with the 2008 DAV mortality tables, which assume no trend in mortality. An alternative explanation may also be found in the underwriting process. Insurance

companies ask their prospective customers about their current health status and specific lifestyle factors to better estimate the risk of death within the contract period. This information leads to selection effects by the insurer. In consequence, the average customer typically exhibits *ceteris paribus* a lower death probability than the general population. We could see in Verivox that in particular providers in budget products are more restrictive in the application process than insurance companies with contracts we allocated to other product groups. Due to this effect, the actuarially fair premium of the budget product may be lower for actual insurers than in our estimation. However, as the weighting of the health assessment, lifestyle factors, and concrete acceptance rates are not publicly disclosed, we are not able to estimate the correct size of this effect. Finally, Koijen and Yogo (2015) find that during financial crises, insurers tend to sell long-term life insurance policies below the actuarially fair price due to financial and regulatory frictions such as relaxed reserving regulations.

4.2 Classic product

At first glance, Figure 5 looks similar to Figure 4. In particular, the average WTP of the non-smokers is predominantly U-shaped (Figure 5a), while the WTP of the smokers tends to increase continuously Figure 5b. In turn, the young non-smokers show an extremely high average WTP (EUR 39.90 – 56.01) compared to market prices and actuarially fair premiums.

In contrast to the budget product, the market price starts in the middle of the 60%-HDI. For young age groups, the median WTP is also well above the market price and actuarially fair premium. However, for middle-age groups and above, the market price rises above the average and median WTP as well as above the 60%-HDI. Furthermore, we note that the actuarially fair premium also rises sharply relative to the other variables and is above the median WTP and at the upper limit of the 60%-HDI from the middle age groups onward.

Among smokers (Figure 5b), the average WTP (EUR 23.96) is slightly less than twice the market price (EUR 12.19) and four times the actuarially fair premium (EUR 5.26) for the 20–23 age group. For the 36–39 age group, the market price exceeds the average and median WTP and increases exponentially. For the oldest group, the market price (EUR 204.89) is almost 2.5 times higher than the median WTP (EUR 79.79) and more than 2.2 times higher than the upper limit of the 60%-HDI (EUR 90.17). The actuarially

fair premium crosses the median WTP in the 40–43 age group and the average WTP in the 48–51 age group.

Figure 5: Analysis of the classic product

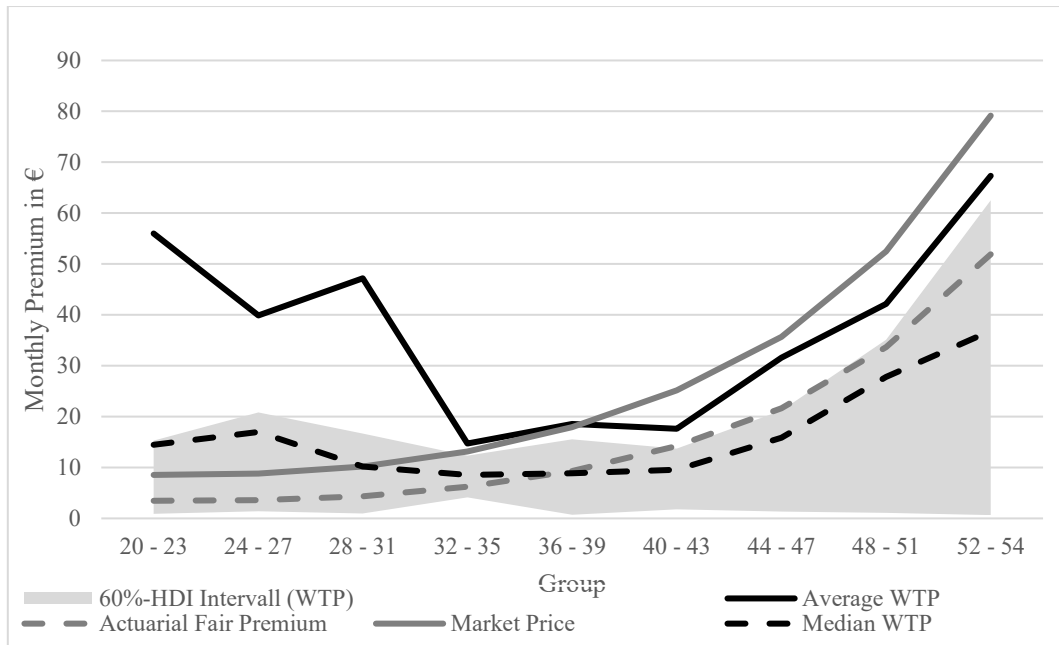


Figure 5a: Market prices, actuarial fair premium and WTP “Classic” product for non-smokers.

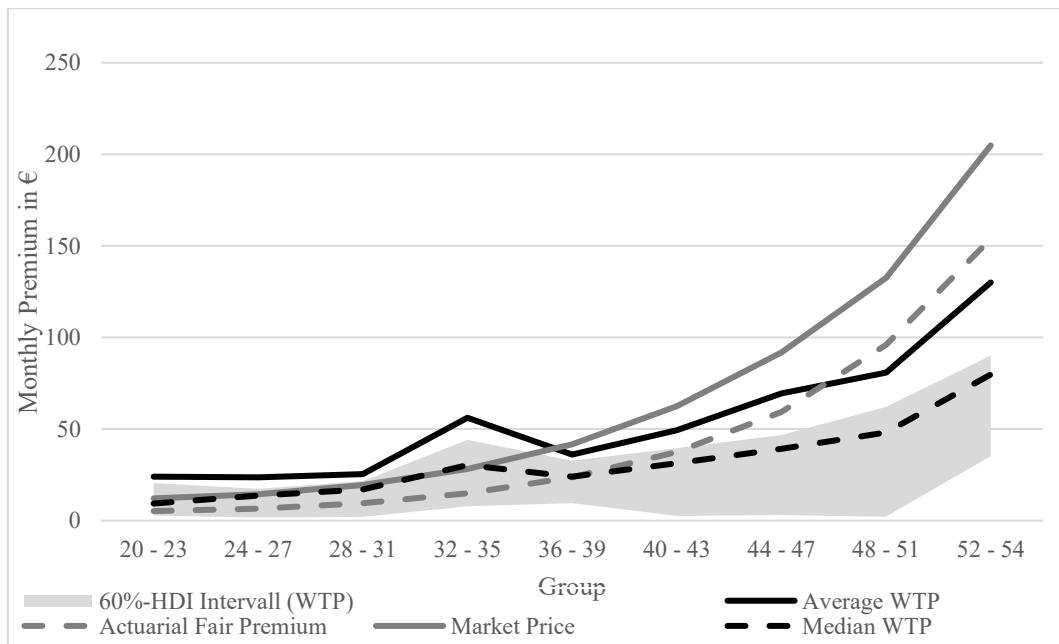


Figure 5b: Market prices, actuarial fair premium and WTP “Classic” product for smokers.

Note: Market prices, actuarial fair premium, and willingness to pay (WTP) for the “Classic” product. The market prices are derived from the online platform Verivox. Product costs are based on the actuarially fair premium. Median, average WTP as well as the 60%-highest density interval (HDI) are calculated using the empirical data set of Braun et al. (2016).

Figure 6: Analysis of the premium product

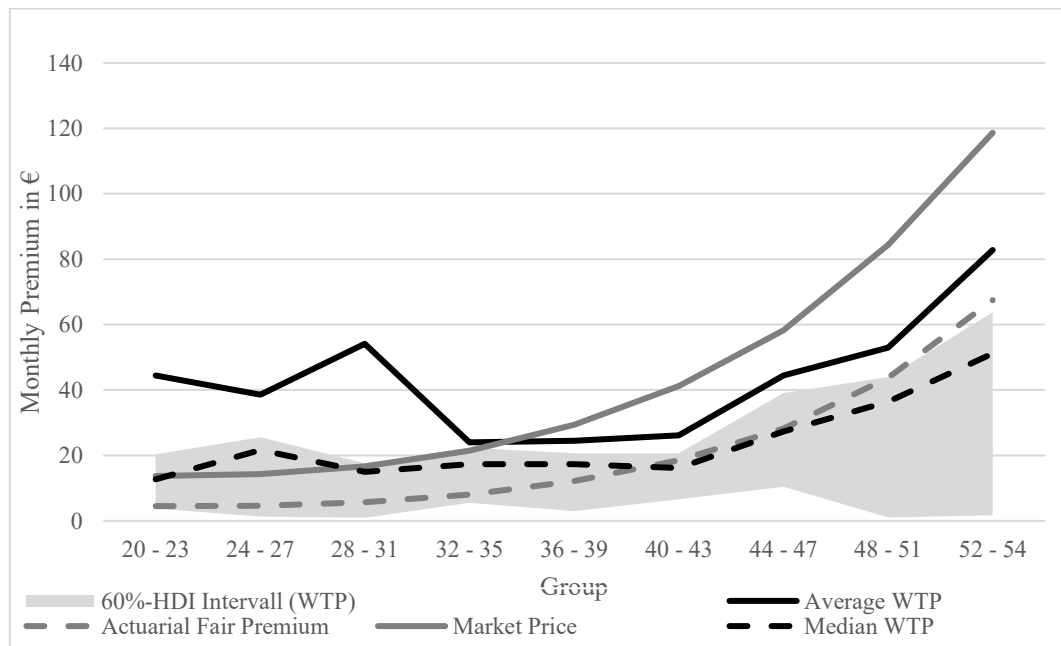


Figure 6a: Market prices, actuarial fair premium and WTP “Premium” product for non-smokers.

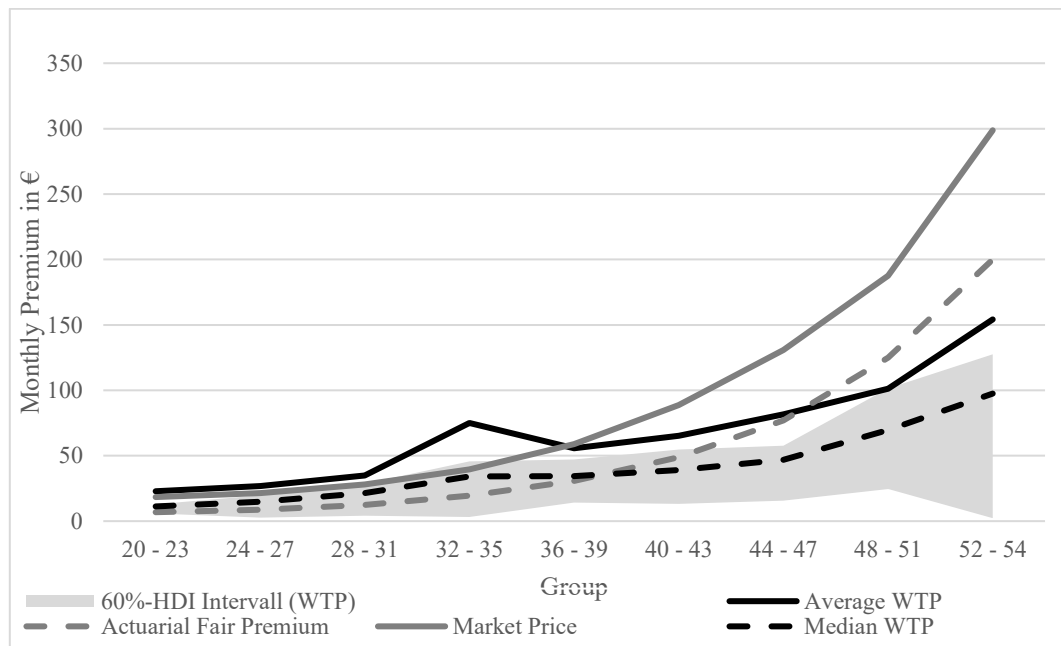


Figure 6b: Market prices, actuarial fair premium and WTP “Premium” product for non-smokers.

Note: Market prices, actuarial fair premium, and willingness to pay (WTP) for the “Premium” product. The market prices are derived from the online platform Verivox. Product costs are based on the actuarially fair premium. Median, average WTP as well as the 60%-highest density interval (HDI) are calculated using the empirical data set of Braun et al. (2016).

4.3 Premium product

The average WTP of potential non-smoking policyholders of the premium product has a reduced U-shape (cf. Figure 6a). For young potential policyholders, the average WTP

is twice the market price. Nevertheless, the market price for this group is very close to the median WTP. Starting in the middle age groups, the market price is significantly higher than all WTP variables and the actuarially fair premium exceeds the median WTP starting in the 44–47 age group and the 60%-HDI in the 52–54 age group.

Looking at the costs, price, and WTP for the premium product for smokers, similar patterns compared to the non-smokers are observed (cf. Figure 6b). For the young age groups, the average WTP is close to the market price, and beginning in the 36–39 age group the market price lies above all WTP figures. That is, the market price already starts more than 40% above the upper limit of the 60%-HDI and remains above this line for all but two groups. The actuarially fair premium, on the other hand, starts at the lower limit of the 60%-HDI. For the middle-aged groups, the actuarially fair premium crosses the median WTP and also the upper limit of the 60%-HDI. Finally, the actuarially fair premium is 56% above this line for the oldest group.

A comparison of the profit margins of all three product categories (i.e., defined as market price minus actuarially fair premium above market price), excluding administrative costs, reveals structural differences. Across all age groups, the average profit margin for the budget product is only 3.45%, while it is 44.0% for the classic product and 51.9% for the premium product.

5. Discussion

Figures 4–6 underline that the WTP, measured by its expected value or the median, varies largely between different products and age groups. Young policyholders in particular have high average WTPs compared with the market price and the actuarially fair price. This finding is in line with the results of Braun et al. (2016) and Hansen et al. (2016), who conclude that the observed average WTP in the market is often disconnected from the market price. At first glance, the large gaps between actuarial prices and mean WTP would potentially allow for active revenue management. While the mean WTP often takes a U-shaped form, market prices follow a parallel, strictly monotonous growth with no swings in the direction of the mean WTP. This suggests that German TLI providers do not or cannot base their pricing strategy on the policyholders' WTP. The parallel movement between actuarially fair premiums and market prices seems to be independent of whether the mean WTP is smaller or larger than the market price. In general, setting the price to the average or median WTP is not

per se a profit-maximizing strategy. However, the parallel evolution of the actuarial price and the market price indicates that the insurance segment in focus is primarily focusing on product costs. There are several possible reasons why the WTP seems not to have a major impact on pricing in the German term life insurance market: (1) insurers may not have proper and stable information about the policyholders' WTP; (2) strict regulations, and in particular the requirement of equal treatment, prevent insurers from taking WTP into account in their pricing; (3) the TLI market in Germany is highly competitive and thus profit loadings are rather low. Certainly, also combinations of (1) – (3) are possible. In addition, other aspects may play a role: Term life insurance contracts fulfill important social assignments and hence, customers may not accept the use of the WTP to the same extent as one can see it in other areas. Hence, to avoid reputational losses, insurance companies could detain to make extensive use of the policyholders' WTP. In what follows, we want to discuss the raised aspects (1) – (3) in more detail.

5.1 Unknown willingness to pay

Outside the insurance industry, companies usually conduct market surveys before the launch of new products or services (Anderson et al., 1992). Despite some new contract features, term life insurance is a traditional insurance product with a long history. Thus, it is not known to us whether or to what extent insurers also conduct conjoint analyses or similar customer surveys in the German term life insurance market.

5.2 Strong regulation in Germany

The German insurance industry has traditionally been characterized by a highly regulated environment, with three acts, in particular, requiring compliance. First, according to Article 20 of the General Equal Treatment Act (Allgemeines Gleichbehandlungsgesetz, AGG), no policyholder may be treated differently on the grounds of religion, age, disability, sexual identity, or gender. Differences in premiums or benefits on these grounds must be justified by recognized principles of risk-adequate ratemaking, in particular by an actuarially determined risk assessment using statistical data. Second, Article 153 of the Insurance Contract Act (Versicherungsvertragsgesetz, VVG) regulates the surplus sharing of life insurance companies and thus affects the product performance from the point of view of a TLI provider. The explicit profit sharing is regulated in the Minimal Payback Directive (MindZV). That is, Articles 3 to 8 of the MindZV stipulate that TLI companies must return at least 90% of their

investment returns and underwriting surpluses as well as at least 50% of other surpluses. Third, the Law on the Supervision of Insurance Undertakings (VAG) also has explicit implications for the pricing strategies of insurers: The so-called “Principle of Equal Treatment” in Article 138 (2) VAG requires that premiums and benefits must be calculated according to the same principles for policyholders with the same prerequisites. This article in particular challenges insurers to take into account the individual WTP potential of policyholders when setting premiums.

Given this regulation prohibiting the direct use of WTP, insurers would need, on the one hand, to identify other objective metrics for individuals that not only correlate highly with WTP but also have an actuarially demonstrated impact on the risk the individual poses to the insurer. On the other hand, the insurer could use the WTP of policyholders when additional services are involved that are not part of the pure risk-covering insurance contract. However, Article 138 (2) VAG presents a strong reason why insurers do not consider the WTP of potential policyholders. Since similar groups of insureds must receive the same terms and conditions, pure WTP is not accepted as a means of differentiating between subgroups. In addition, the effect of the Minimal Payback Directive (§§ 3 to 8 MindZV) is that even if insurers were to consider WTP and earn additional returns, they would have to repay a significant profit share to their policyholders. In conclusion, we believe that VAG and MindZV limit the potential profit margin b^{10} (as part of the overall premium loading p^{11}).

5.3 High competition in the German term life insurance market

The assessment of the German TLI market has revealed several indications that the market structure resembles a polypoly. In 2019, 85 life insurance companies in Germany were offering this rather homogeneous product (Bundesanstalt für Finanzdienstleistungsaufsicht, 2020). Search and comparison costs are low, as all details as well as contract conclusions can be done via online channels and online brokerage websites. According to economic theory, a perfect polypoly would result in all companies offering exactly the same price equal to marginal costs. Actuarial fair premiums are a good estimate of marginal costs, and, at least for the budget product, the product costs are very close to the market price (hence, the profit loading b is close to

¹⁰ As explained in the Introduction, b represents the profit loading.

¹¹ As explained in the Introduction, p represents the sum of all loadings (the loading for risk-bearing, the profit loading and the insurer's administration costs, and additional frictional costs such as taxes).

zero). This is a clear indicator of strong competition. For the other products, the premium loading p is larger. It is reasonable to assume that positive profit margins are possible outside of the budget products since the costs of bearing risk and the general transaction and frictional costs should not differ for the product types considered.

However, there are still some major price differences between companies that cannot be attributed to the product category. Although we cannot conclusively assess the reason for not directly focusing on the WTP, two main conclusions emerge from the analysis and discussion. First, the WTP for the budget product does not affect an insurer's pricing, because competition in this market segment appears to be too high. For this reason, market prices are even more favorable to the insured than the General Equal Treatment Act could do alone (i.e., the profit loading is approximately zero). In this regard, the deregulation of the insurance market in the European Union, which started in 1994, could be called a success from the policyholders' viewpoint. Second, looking at the classic and the premium product, we find that the profit loading is set differently for the three stereotypical products. Nevertheless, the market prices here are higher than the average WTP and the 60%-HDI of the WTP, especially for the middle age groups. Presumably, this results in rather few classic and premium contracts. Also, the strictly monotonous growth of the market price suggests that the General Equal Treatment Act is still fulfilled for these products. The fact that there is less competition in this segment would theoretically allow for price discrimination using the WTP. Since this would violate the General Equality Treatment Act, it appears that this law actively prevents insurers from engaging in price discrimination and ultimately reduces insurer profits in this segment. Hence, it seems more of a general political question whether it is efficient to regulate the pricing of fairly advanced TLI products when insurers already meet the socio-political need for a fairly priced TLI product (the budget product) for all. However, should policymakers want TLI prices to be set close to the actuarially fair premium, even for the advanced products, our results show that the law as it currently works cannot achieve this goal per se.

From the insurer's point of view, it seems advantageous to offer services beyond pure risk coverage, as it is the case, for example, with the classic and premium products. Although these services are sold with the term life policy, technically they are not part of the pure insured risk, and thus they make it possible to circumvent the Principle of Equal Treatment. The prices for these additional services can be determined without any restriction and calculated on the basis of the WTP. Choice-based conjoint analysis shows

that policyholders have a higher WTP for the more advanced products with additional services and are therefore willing to pay more for certain benefits. To offer the latter as effectively as possible, the WTP for each service should be considered separately. In addition, a high degree of product customization may increase skimmed WTP for the insurer. That is, policyholders could choose more options separately rather than buying predefined packages whose benefits they only partially need. At the same time, policyholders receive insurance contracts with the most optimal additional services according to their individual preferences.

6. Conclusion

Price discrimination is a popular concept for increasing corporate profits. In parallel with the ongoing digitization of many industries, the scope and impact of price discrimination are increasing as more and more information about customers becomes available and is collected. The ability to use these data adequately will be one of the biggest competitive advantages in the future. The WTP of specific customer groups is one of the most valuable pieces of information that companies can obtain.

This article investigates whether this information is used by German term life insurers in their pricing strategies. We find no evidence that TLI providers consider their policyholders' WTP. The failure to take WTP into account could be because insurers are not aware of policyholders' WTP, because the regulations that prevail specifically in the life insurance industry are too strict, or because the competitive pressure among insurers is too high. While this study cannot make a conclusive statement about the decisive reason, it is noteworthy that, due to the competitive market structure in the low-price segment, competition already leads to a cost-covering price. Thus, the General Equal Treatment Act is superfluous in this context, and the 1994 deregulation has achieved its goal of improving the position of all insured persons in this market. The markets for classic and premium products are less competitive, as prices are on average up to 51% higher than the actuarially fair price. In this segment, the General Equal Treatment Act works similar to a profit regulation for the insurance industry and thus prevents the use of the on average high WTP of, for example, young policyholders. However, insurers might consider offering individualized, additional benefits around and beyond pure risk coverage to skim the WTP of policyholders, since the Principle of Equal Treatment does not apply to these separate contract components.

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Essay III: Consumers' Perceptions and Purchasing Behavior of Sustainable Insurance Products

Abstract

Insurers are currently starting to transform their business practices and add sustainable attributes to their insurance products. However, little is known about consumer reactions to such sustainable attributes in insurance contracts. In three experiments, of which the main study was incentive-compatible, we investigated how sustainable attributes impact consumers' purchasing decisions and explored the mediating roles of trust, perceived quality, brand equity, and perceived consumer effectiveness on purchase intentions. Our results provide converging evidence for a strong preference for sustainable insurance products. Surprisingly, this preference exists even at higher price levels. This can be explained by consumers' improved perceptions of the insurance company in terms of brand equity and perceived quality, as well as perceived consumer effectiveness, which act as mediators between the sustainable attribute and purchase intention. The mediation of perceived consumer effectiveness is moderated by the price and for low price levels, the mediating effect turns negative.

Keywords

Sustainability; Insurance companies; Purchasing behavior

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1. Introduction

Insurance companies are particularly affected by the impacts of climate change as they insure against and consequently have to pay for loss events caused by increasingly frequent natural catastrophes. Whether floods, storms, fires, or droughts – climate change increases the frequency and severity of these loss events and thus the number and amount of claims for which insurers must compensate. Furthermore, climate change also makes losses more difficult to predict. This illustrates that the insurance industry, like few other industries, has both the means and the immediate intrinsic motivation to address climate change and promote the transition towards a sustainable future. Insurance companies are gradually starting to look for their role in the shift towards sustainable economic and environmental development. To achieve change, the insurance industry has more levers than many other industries: First, as the world's largest group of investors, they can adapt their asset allocation to meet sustainable criteria. Second, insurers can implement sustainable guidelines in their underwriting to stop insuring companies that do not comply with certain sustainable criteria. Third, insurers can design insurance contracts in such a way that these encourage policyholders to adopt sustainable behavior, thereby accelerating sustainable development in other aspects of their lives and businesses. Fourth, like other industries, insurers themselves can make a sustainable impact by being sustainable in their own organization, operations, and sales.

Because sustainable business practices entail immediate costs for an insurance company, but the positive effects of sustainable change are only experienced by insurers in the long term, these costs must be passed on to consumers. Therefore, one central prerequisite for insurance companies to engage in sustainable business practices is for consumers to be willing to buy sustainable insurance products. They must be able to distinguish between sustainable and non-sustainable insurance contracts, prefer the latter, and be willing to bear the additional costs; that is, they must have a greater willingness to pay. Prior research on the effects of sustainability on consumers' perceptions and purchasing behavior has mainly focused on tangible products. Services have rarely been the subject of such studies, and insurance products never. Research has shown that offering sustainable products positively impacts a company's brand equity, consumers' trust in the company, and the perceived quality of the company's products. To date, however, no scientific investigation has proved these effects in the financial services sector. Especially in service industries, with low levels of direct emissions,

consumers might perceive companies' sustainability claims as greenwashing and therefore negative; consumers may be unaware of the considerable positive impacts insurers can have. Crucially, the potential positive sustainable impact of an industry cannot be solely determined by the industry's current negative impact.

We contribute to the literature by being one of the first to examine sustainable consumer-purchasing behavior in the insurance industry. Further, by considering trust, perceived quality, brand equity, and perceived consumer effectiveness, we are assessing several of the most relevant attributes for managers, which will help to better understand consumers' attitudes towards sustainability in the field of insurance. The current work presents three studies that examine these research questions. In the first study, we investigate and compare consumers' attitudes towards sustainable products across various industries. In the second study, we simulate authentic insurance purchasing decisions using a forced-choice experiment. In our last study, we replace the forced choice with a scale-based measure of preference to test the robustness of our findings with a different experimental design. The goal of the latter two studies is to investigate whether consumers' purchase intentions for sustainable insurance products change and whether these preferences are robust in case of price increases. Most importantly, the last study aims to establish which perceptual outcomes of sustainable insurance products drive the effect on consumer preferences. Here, aside from the direct effect of a sustainable attribute on the purchase intention, we aim to discover whether trust, perceived quality, brand equity, and perceived consumer effectiveness mediate the effect of the sustainable attribute on the purchase intention. We focus in particular on the analysis of perceived consumer effectiveness, as the sustainable impact of the insurance industry might be underestimated by the public – this could be one reason why sustainable insurance products are purchased rather less often in practice. In insurance, the impact of a sustainable product might not be directly apparent to consumers because the industry involves few direct emissions and has few known negative environmental consequences. In addition, consumers may not be aware of the potential positive impact of a product in the insurance context. Therefore, it is relevant to investigate how consumers evaluate the perceived consumer effectiveness of insurance contracts and what influence this variable has on their purchase intention of sustainable products.

Based on the results, we infer guidelines for insurance managers on how to deal with the issue of “sustainable insurance products” and the consequences their decisions have on consumer perceptions and purchasing decisions.

2. Literature review and hypotheses

With the increasing hype surrounding the topic of sustainability, scholars in multiple fields have conducted a considerable amount of research on this matter. Several aspects have been explored, ranging from lay theories and consumer traits to numerous contextual factors. Bangsa and Schlegelmilch (2020) collect and analyze journal articles that investigate the relationship between sustainability and consumer decision-making. They categorize these works first according to the dependent variable and then the investigated industry. Their results revealed that consumer choices or preferences and willingness to pay are the top two investigated variables in this matter. In terms of industries, the existing studies focus on food, clothing, and other tangibles. Services in general, but especially financial services products, are hardly represented. Yet the analysis of individual industries is extremely relevant because consumer behavior can differ diametrically between products (cf. Van Doorn and Verhoef, 2011), company actions (cf. Wang et al., 2017), and other contextual factors (cf. Newman et al., 2014).

One key article on sustainable consumer behavior comes from Van Doorn and Verhoef (2011), who investigate consumers' willingness to pay for vice and virtue foods. The authors find that for virtue food products, an organic claim leads to increased WTP, while for vice food products, an organic claim can lead to a decreased WTP. Furthermore, whether consumers choose to buy sustainable product alternatives and behave sustainably or not is dependent on the company's own (visible) sustainable actions and the consumer's general perception of the company (Wang et al., 2017). Also, the introduction of green products can lead to diametrically opposite consumer reactions, depending on how the new product and its green attributes are presented. Intended green product innovations lead consumers to think that the company has shifted resources away from perceived quality. Thus, if a company advertises that it has specifically developed a new product with the intention to make it greener, consumers' purchase intention may be reduced (Newman et al., 2014). These examples show that sustainable purchasing behavior depends on contextual factors, highlighting the importance of studying the effects of sustainability in the unique context of the insurance industry.

The literature on sustainable financial services can be divided into two strands. First, there is a large array of literature focusing on consumer behavior towards sustainable investment products. These studies examine the preferences and attitudes that determine investment behavior (e.g., Gutsche and Ziegler, 2019; Brunen and Laubach, 2022). Secondly, a large stream of papers investigates how corporate sustainable behavior affects the external image of a business (cf. Lymperopoulos et al., 2012; Pérez and Del Bosque, 2015). However, none of these works have focused on the purchasing behavior of sustainable insurance products. Therefore, building on the findings of prior studies in other industries, we formulate the following hypotheses on how offering sustainable insurance impacts the purchasing behavior of consumers:

Purchase Intention

Prior research has shown that offering sustainable products can lead to contradictory reactions and purchase intentions of consumers (Van Doorn and Verhoef, 2011). In most general settings, however, the introduction of a sustainable attribute leads to an increase in purchase intentions (cf. Sen and Bhattacharya, 2001). According to the line of reasoning proposed by Haws et al. (2014), various drivers, such as social responsibility and the desire to make an impact, cause consumers to choose sustainable over conventional products. Therefore, we hypothesize that a sustainable insurance product leads to increased purchase intention of consumers.

H₁: *A sustainable insurance product leads to increased purchase intention of consumers.*

We define sustainability as the insurer conducting “highly sustainable business practices” without further specifying the concrete sustainable attributes or impact. In this way, we avoid possible different preferences for different sustainable attributes affecting the purchase intention and thus the consumers' behavior.

Trust

Trust is the confidence in the reliability and integrity of another party and is linked to fairness, honesty, and responsibility (Morgan and Hunt, 1994). According to Courbage and Nicolas (2021), trust is the basis on which consumers purchase insurance; the insurer promises to pay the consumer an indemnity in case of a future loss event. The researchers found that general trust in insurance is mainly driven by past experiences with insurers and personality traits. Research from other industries shows that trust is a

significant mediating factor in increasing the purchase intention of sustainable products (Neumann et al., 2021). Moreover, Kang and Hustvedt (2014) conclude that socially responsible actions on the part of companies increase consumers' trust in companies. Trust, in turn, leads to increased purchase intentions and a greater willingness to spread positive word-of-mouth. On the one hand, in the context of insurance, consumers may suspect that sustainable efforts will divert firms' financial resources and attention away from the core of the product, the coverage of claims (cf. Newman et al., 2014). In consequence, they may fear the insurer will be less likely to keep their promise to pay an indemnity in the future. On the other hand, internal sustainable governance rules could increase the insurer's transparency and therefore its trustworthiness and likeliness to pay future indemnities. Furthermore, an insurance company's sustainable environmental commitment will lead to a less volatile general environment in the long term, instead providing a more stable and predictable environment in which to conduct its business. In the long term, this increases the financial security of the insurance company, and consumers can be more confident that their future claims will be settled. Therefore, we expect that trust positively mediates the purchase intention of a sustainable insurance product.

H_{2a} and H_{2b}: Trust acts as a mediating factor that increases the purchase intention of a sustainable insurance product.

Perceived Quality

The literature has shown that sustainable products can be perceived as less effective, compared to the conventional product, and hence of worse quality (cf. Van Doorn and Verhoef, 2011; Luchs et al., 2010; Lin and Chang, 2012; Newman et al., 2014). Intended green product enhancements lead consumers to think that the company has diverted resources away from the product's quality. If consumers think that a new version of a product was created for the purpose of being green, consumers will therefore reduce their purchase intentions as they believe that the product will be of lower quality (Newman et al., 2014). These findings, however, are based on the study of tangible products, where sustainable attributes might conflict with other product attributes and hence reduce the efficiency and quality. In contrast, insurance products represent an intangible service. In this context, sustainability can be seen as a product extension that does not necessarily influence the other product attributes. In addition, the quality of customer service is a key factor in the consumer's assessment of an insurance company. The interaction between the consumer and the insurer should not be negatively affected

by sustainable attributes. From an actuarial point of view, the quality of an insurance policy is mainly described by the insurance company's default risk. Due to numerous regulatory requirements, and the continuous review thereof, a sustainable attribute can never cause the default risk to fall below the legal requirements. Should the sustainable attribute incur costs that could threaten solvency, these costs would need to be reflected in the price and passed on to the consumer. Therefore, we assume that in the insurance context, this relationship behaves differently; a sustainable attribute will increase the perceived quality in the eyes of the consumer, and in turn increase purchase intention. The recent literature also increasingly concludes that sustainable products have a positive impact on purchase intention (Tezer and Bodur, 2020).

H_{3a} and H_{3b}: Perceived quality acts as a mediating factor that increases the purchase intention of a sustainable insurance product.

Brand Equity

In the marketing context, brand equity describes “the strength of consumers' attachment to a brand” (Wood, 2000, p. 662). Previous studies often discover that being green improves the brand perception of consumers. Du et al. (2007) find that consumers of brands that make corporate responsibility efforts believe that these brands also deliver other functional benefits. Additionally, it has been shown that the introduction of green products improves consumers' attitudes toward a brand (Olsen et al., 2014). Therefore, we predict that a sustainable attribute will increase brand equity, and brand equity, in turn, will increase purchasing intention.

H_{4a} and H_{4b}: Brand equity acts as a mediating factor that increases the purchase intention of a sustainable insurance product.

Perceived Consumer Effectiveness (PCE)

The fourth variable we investigate is the perceived consumer effectiveness of the insurance product. In this context, perceived consumer effectiveness measures the degree to which consumers believe that their purchasing decision has an impact on solving environmental, social, and governmental problems (cf. Berger and Corbin, 1992). Webster (1975) is among the first to investigate this concept in the context of sustainable behavior. He finds a strong positive correlation with recycling behavior. More recently, Roberts (1996) and Vermeir and Verbeke (2008) confirm this positive relationship. While Berger and Corbin (1992) find that PCE mediates the relationship

between sustainable postures and the resulting behavior, Antonetti and Maklan (2014) prove the positive mediating role of perceived consumer effectiveness between a consumer's feelings and purchasing intentions. Hence, we hypothesize that a sustainable attribute will increase the perceived consumer effectiveness of the underlying insurance product. Consequently, we also expect that a higher perceived impact of a product will lead to an increase in consumers' purchase interest.

H_{5a} and H_{5b}: Perceived consumer effectiveness acts as a mediating factor that increases the purchase intention of a sustainable insurance product.

Price

In addition, we expect that the product's price will impact the effects within the conceptual model created so far. Firstly, it will impact the direct effect of the sustainable attribute on the purchase intention – an increase in the price of the sustainable product will reduce its attractiveness. Hence, the positive effect of the sustainable attribute on the purchase intention decreases as the price increases.

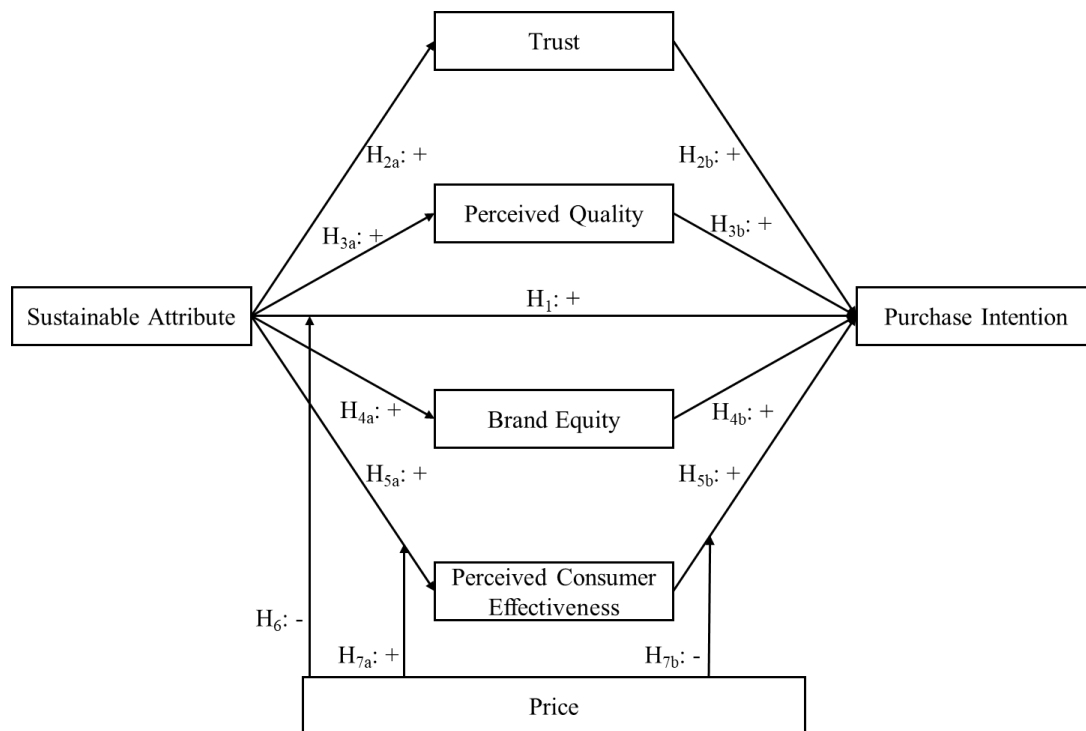
H₆: The relationship between the sustainable attribute and the purchase intention for a sustainable insurance product is negatively moderated by the price of the product.

Secondly, we expect the price to impact the power of the mediating role of the PCE. A sustainable insurance product might be perceived as making a greater impact, the higher its price compared to the market price of a non-sustainable insurance. The higher the markup, the more financial resources an insurance company can devote to the sustainable cause. When prices increase, the sustainable attribute might therefore have a stronger effect on PCE, consumers might think a more expensive insurance will have a greater sustainable impact. In contrast, the relationship between PCE and purchase intention might be negatively moderated by price, as consumers might see a trade-off between price and PCE. Nevertheless, we expect the total moderating effect of price on the mediation of PCE to be positive. Consequently, we formulate the following hypothesis.

H_{7a} and H_{7b}: The mediating role of PCE between the sustainable attribute and the purchase intention is moderated by the price. The effect size of the mediation increases with a rising price.

Figure 7 depicts the derived hypotheses in a conceptual model.

Figure 7: Conceptual model



Note: This figure displays the derived hypotheses in a conceptional model.

3. Experimental Studies

3.1 Study 1

Study 1 compared consumers' attitudes toward sustainable products in the insurance industry and sustainable products in other industries. Specifically, we compared the insurance industry to the banking, automobile, food, clothing, and energy industries.

We asked the participants how they would divide USD 100 among all six industries when aiming to make a sustainable impact (within-subject design). We suspected that, on average, participants would allocate less to insurance than to other industries when making this decision because they are less aware of the possible sustainable impact of insurance. Subsequently, participants were randomly assigned to one of the above-mentioned industries (from here on, we used a between-subjects design) and asked to indicate the industry's expected impact on improving environmental, social, and governance issues when purchasing a product from that industry (perceived environmental, societal, and governmental impact – the perceived consumer

effectiveness is the equally-weighted average of the three variables; all scales are listed in Appendix C). Then, we showed the participants a purported rating from an independent ESG impact rating agency, which stated that a specific company in their industry had achieved an above-average impact score for the industry (9 out of 10, where 9 indicated “strongly promoting the transition to a sustainable future” and 7 was the average rating in each industry). In each industry condition, we used an identical company logo and told the participants that this company belonged to the industry that corresponded to the participant's condition. In this way, we ensured that the logos and names of the companies did not influence the participants' answers. Based on this information, they were asked about their willingness to pay more for products from companies exhibiting an above-average ESG Impact Score than from companies with lower ESG Impact Scores. We expected that raising this awareness and providing an independent rating would increase participants' willingness to pay more for insurance, up to a level comparable with other industries.

A total of 424 participants (50% females; $M_{Age} = 25.78$; $SD_{Age} = 7.19$) were recruited using Prolific. After asking them how they would spend USD 100 to have a maximum sustainable impact, they were randomly assigned to either the insurance industry condition ($n = 69$), banking ($n = 70$), automobile ($n = 72$), food ($n = 70$), clothing ($n = 71$), or energy ($n = 72$) industries for all subsequent questions about the specific industries. We tested the reliability of the scales employed throughout this paper using Cronbach's Alpha. The results are reported in Appendix D, all Cronbach's Alphas are in a considerable range (all α 's > 0.75 , except for “sustainable friendliness” ($\alpha = 0.6291$) which is still an acceptable result).

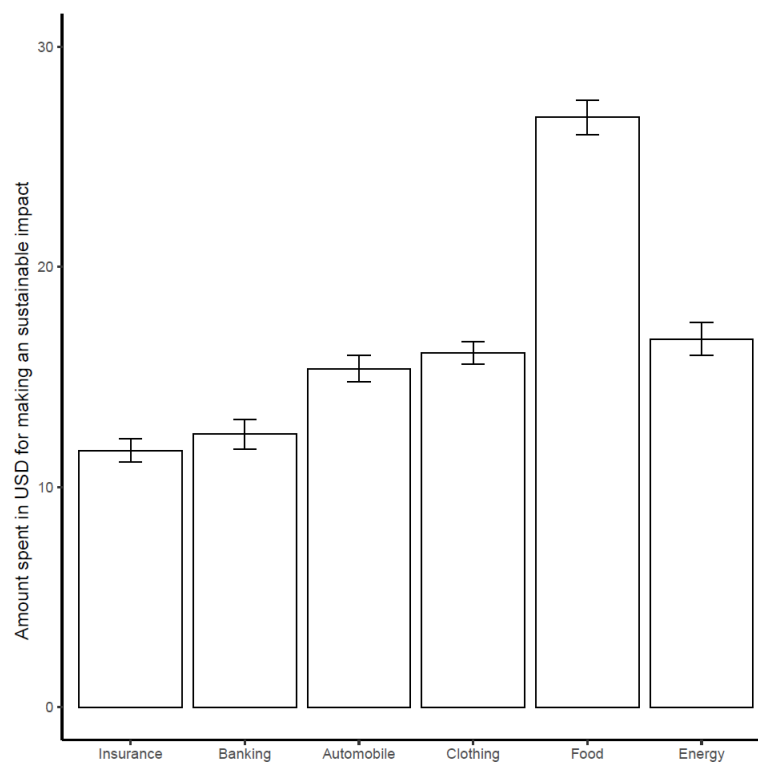
3.1.1 Results and discussion

As shown in Figure 8, participants were willing to spend significantly less of their USD 100 on insurance and banking products than on automobile, food, clothing, and energy products when aiming to make a sustainable impact. A one-way repeated measures ANOVA revealed a significant main effect of industry on willingness to spend money on sustainable causes in a certain industry ($F_{(5, 2538)} = 71.35$, $p < 0.05$). Paired t-tests reveal a significantly lower willingness to spend on insurance products ($M = 11.7$) compared to automobiles ($M = 15.3$, $t(423) = -4.29$, $p < 0.05$), clothing ($M = 16.0$, $t(423) = -5.50$, $p < 0.05$), food ($M = 26.7$, $t(423) = -15.00$, $p < 0.05$), or energy ($M = 16.7$, $t(423) = -4.94$, $p < 0.05$). As expected, participants believed their money had a greater

environmental impact when spent on sustainable goods from industries other than the insurance industry (compare with Figure 8).

When deciding about their spending in this task, the participants might have intuitively focused on the direct, often-reported, negatively connotated emissions of an industry, like CO₂. As service industries by nature do not have such high emissions, the sustainable impact they can have might be underestimated. Following this first task, participants were assigned to an industry so that the ratings of each industry were independent of each other. We first analyzed the PCE within the insurance industry using t-tests. Secondly, we analyzed the effect of the assigned industry on the perceived environmental impact with a Tukey post-hoc test of ANOVAs. The first analysis revealed that the mean is not significantly higher than the mid-point of the PCE scale of 3.5 ($M = 3.60$, $t(69) = 0.69$, $p = 0.49$), which represents neutral perceived consumer effectiveness. For all other industries, participants perceived that the purchase of products could have a positive sustainable impact, even in the banking industry (compare with Figure 9).

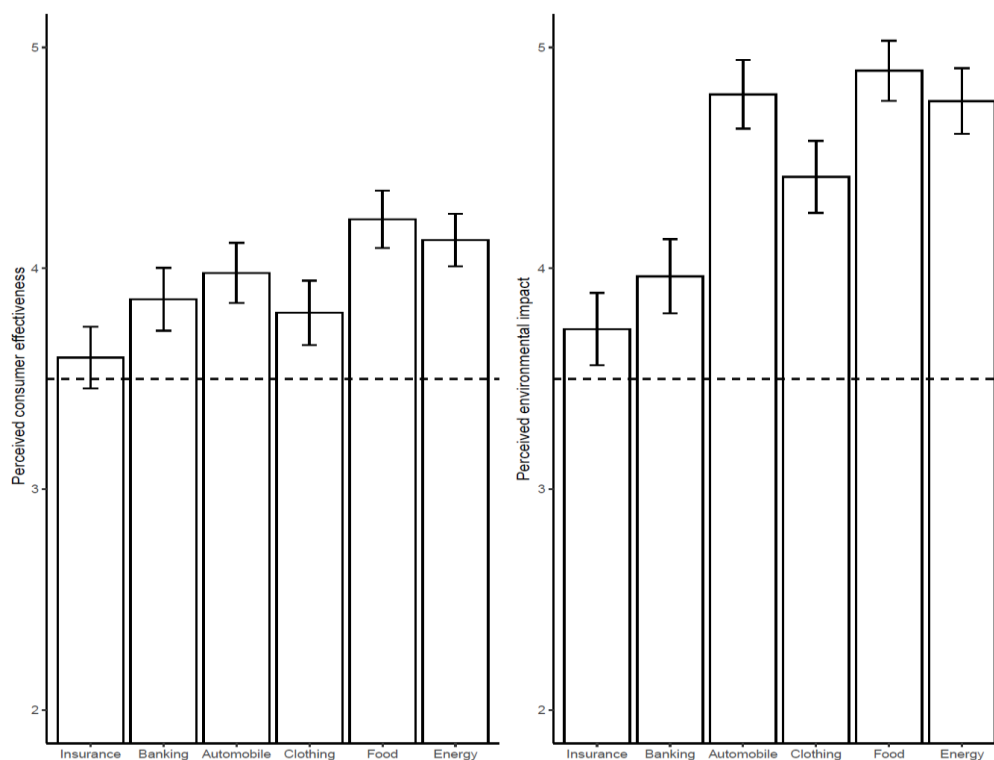
Figure 8: Spending to make a sustainable impact



Note: This figure displays the distribution of the “amount spent to make a sustainable impact” across the six industries.

Moreover, the Tukey post-hoc test of the ANOVAs revealed that the perceived environmental impact of insurance was significantly lower than that of all other industries ($F_{(5, 418)} = 8.99$, $p < .001$) apart from banking ($CI_{\text{Insurance vs. Banking}} [-0.43, 0.84]$, $p\text{-adjusted} = 0.94$; $CI_{\text{Insurance vs. Automobile}} [0.37, 1.63]$, $p\text{-adjusted} = 0.0001$; $CI_{\text{Insurance vs. Clothing}} [0.02, 1.29]$, $p\text{-adjusted} = 0.04$; $CI_{\text{Insurance vs. Food}} [0.50, 1.77]$, $p\text{-adjusted} = 0.00001$; $CI_{\text{Insurance vs. Energy}} [0.36, 1.63]$, $p\text{-adjusted} = 0.0001$), see Figure 9. This demonstrates, as expected, that consumers think they can have a significantly greater environmental impact through purchases in other, carbon-intensive, industries. Another finding of note was that participants perceived the environmental impact ($M = 3.73$, $SD = 1.37$) of insurances to be exactly equal to the social impact ($M = 3.73$, $SD = 1.30$), while the governmental impact was perceived as lower ($M = 3.33$, $SD = 1.26$).

Figure 9: Perceived consumer effectiveness and perceived environmental impact



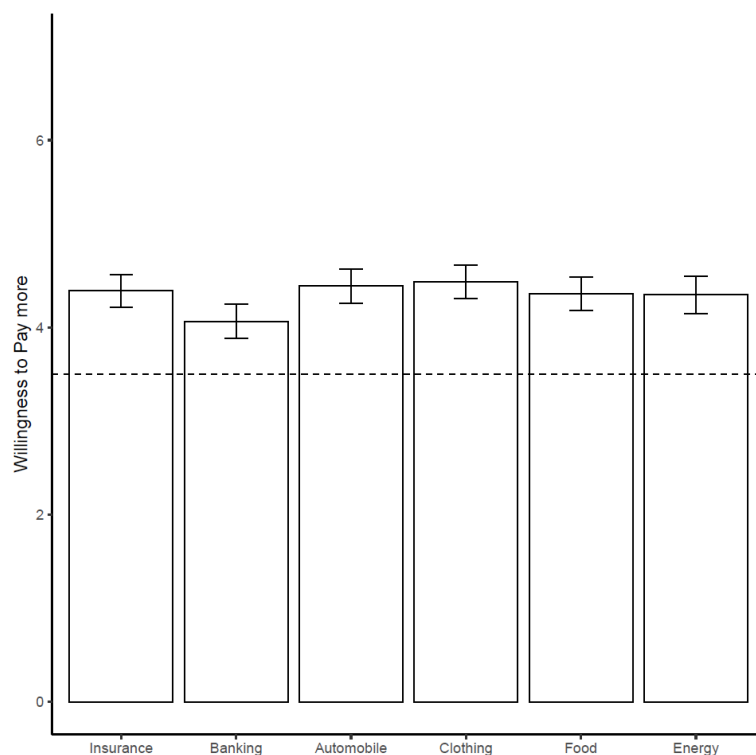
Note: This figure displays the perceived consumer effectiveness and perceived environmental impact through purchases in the respective industries: distribution across the six industries. The dotted line indicates the mid-point of the scale (3.5).

The previous finding provides evidence that the participants did not believe that they could make a positive sustainable impact by buying insurance products. However, the result of the next test showed that this can be changed. After making participants aware that a certain insurance provider could have a reliable and strong sustainable impact, they perceived this company's products to be sustainably friendly ($M = 5.67$, $t(68) =$

19.13, $p < .001$) on a scale from 1 to 7 and perceived the sustainability claim to be truthful ($M = 3.41$, $t(68) = 6.40$, $p < .001$) on a scale from 1 to 5. Further, as revealed by a single sample t-test, participants' willingness to pay more for an insurance contract with a company with a high ESG impact was significantly above the mid-point of the measurement scale from 1 to 7 ($M = 4.39$, $t(68) = 2.23$, $p = .029$). Their willingness to pay extra was very similar to the willingness to pay extra in all other investigated industries (see Figure 10), when participants were independently shown that a specific company had an above-industry-average ESG impact ($F_{(5, 418)} = 0.66$, $p > 0.65$).

All in all, the results show that consumers who want to make a positive sustainable impact do not intuitively consider doing so in the insurance industry, but when they are made aware of the impact insurers can have, consumers consider insurance a sustainable option, trust the sustainability claim, and are willing to pay more for sustainable insurance products.

Figure 10: Willingness to pay more



Note: This figure displays the consumers' willingness to pay more after being shown a company exhibiting an above-average ESG impact. The dotted line indicates the mid-point of the scale (3.5), the point at which the participants would be indifferent between willing to pay more and unwilling to pay more.

3.2 Study 2

Study 2 examined whether consumers will choose a sustainable over a non-sustainable insurance product and whether the preference for a sustainable product depends on the product's price. Therefore, we randomly assigned participants to a 2 (sustainable attribute: present versus absent) by 2 (price: equal versus higher) between-subjects design in which we asked them to choose between two insurance products. To create an authentic insurance purchasing scenario and achieve high external validity, we designed two insurance brands and one rental insurance product, which was identical for each brand. The two products were displayed in such a way that the view for the participants mimicked popular insurance product comparison websites, such as insurance.com in the US, or check24.de in Germany (see Appendix A). In each condition, the two specifically created insurance brands, "Stanley & Co." and "William Corporation," offered one insurance product each. While for the William Corporation product, all attributes and the price remained constant, the product offered by Stanley & Co. varied in terms of price and the presence/absence of a sustainable attribute. The price difference in the higher price condition was 15%; this figure was chosen based on the observed average price difference between sustainable and non-sustainable insurance products in the insurance market. Before the actual forced-choice task, participants were given two choice tasks similar to the one of interest. In each of these fake tasks, participants were asked to choose between two insurance products that differed only in terms of their cancellation period or price. Through this fake choice, participants were encouraged to focus on the product attributes during the experiment, and the probability of hypothesis-guessing should be minimized. The actual choice task of the experiment followed. Participants were randomly assigned to one of the four choice tasks. Each participant was presented with one rental insurance product from Stanley & Co. and one product from William Corporation in random order. Then the participants were asked: "Imagine you need to purchase rental insurance. Which of the following contracts would you choose?" 683 participants (50% female; $M_{\text{Age}} = 25.56$ years; $SD_{\text{Age}} = 7.25$) completed the study via Prolific in exchange for financial compensation.

3.2.1 Stimulus design

We designed the two insurance products such that participants were indifferent between them, apart from the manipulations of the sustainable attributes and price. Specifically, we created the logos and the names of the two insurance providers such that they did not cause any unintended preferences. To verify that consumers did not prefer one logo, we showed both logos to 80 participants via Prolific and asked them: "Imagine you need

to buy renters insurance. Given only the logo, which insurance brand would you most likely choose?" One logo was selected 33 times and the other 45 times, with two invalid responses. The chi-squared test against a uniform distribution could not reject the null hypothesis that the logos were selected equally often ($X^2(1, N = 78) = 1.8462, p > 0.05$). We concluded that the logos did not significantly influence the purchase decision; hence, the effects observed in the subsequent experiment were not influenced by the logos of the two brands.

3.2.2 Manipulation check

Furthermore, we conducted a manipulation check to ensure that participants noticed the difference between the displayed insurance products in terms of sustainability and price. 280 participants were randomly assigned to one of the four groups of the 2x2 matrix previously described. Each participant was given exactly one pair of insurance products to choose between and was forced to decide which product they would purchase. In this task, products and insurance brands identical to those in Study 2 were displayed. Immediately after the choice task, the participants were asked whether they had perceived the differences and similarities in terms of price and sustainability. Each participant was asked the following questions: "How do you rate <company name> with regards to sustainability?" (1–7 Likert scale, with 1 indicating "not sustainable" and 7 "very sustainable.") "How do you rate <company name> with regards to pricing?" (1–7 Likert scale, with 1 indicating "not expensive" and 7 "very expensive.") The results are reported in Appendix B. Where there were differences between the products, the t-test also showed significant differences between the providers in the averages of the variables concerned for all groups. In the case of equal product attributes, the t-test could not detect any significant differences between the two suppliers' variables for all four groups. Therefore, we conclude that participants noticed the differences and similarities in terms of price and sustainable attribute, and the manipulation operated as intended.

3.2.3 Results and discussion

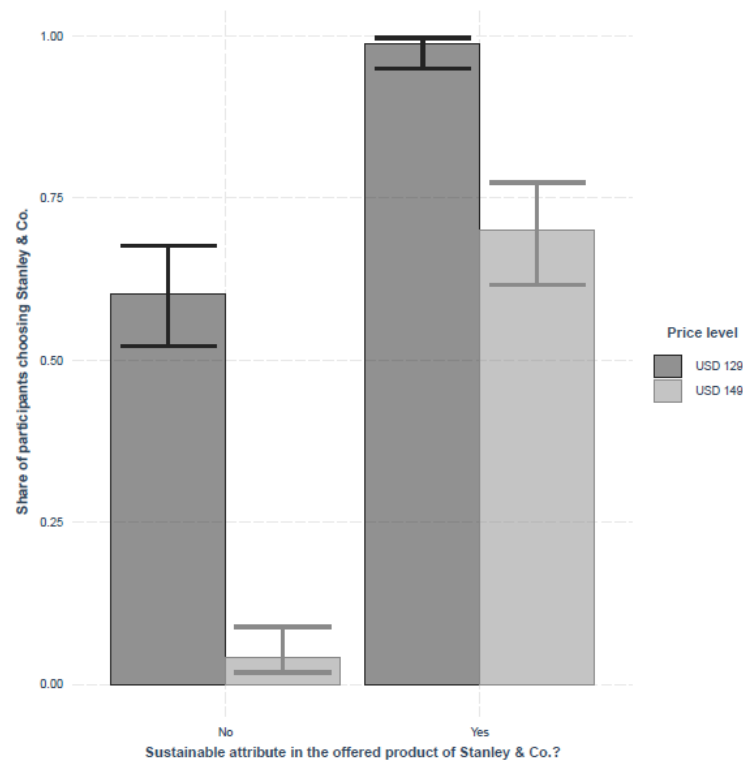
We analyzed the responses to this forced-choice experiment using logistic regressions to quantify this relationship in more depth and disentangle the effects of price and sustainable attribute on the purchasing decision. The results of Study 2 show that introducing the sustainable attribute led to a significantly increased probability of purchase ($\beta_{\text{Sustainability}} = 3.56, z(683) = 5.90, p < 0.05$), while a price increase led to a reduced probability of purchase of the product ($\beta_{\text{Price}} = -3.34, z(683) = -8.87, p < 0.05$).

The results revealed no significant interaction between price and the presence of the sustainable attribute ($\beta_{\text{Price} \times \text{Sustainability}} = 0.24$, $z(683) = 0.71$, $p = 0.74$).

As displayed in Figure 11, in the condition with equal prices, the Stanley & Co. product was purchased significantly more often when Stanley & Co. offered the sustainable attribute ($M = 98.24\%$, $SD = 0.13$). Unexpectedly, in the condition where both products were exactly equal (equal price and absence of sustainable attribute), more participants chose the Stanley & Co. product ($M = 61.4\%$, $SD = 0.49$). However, when comparing this to the previous condition, the sustainable attribute still led to a significant increase in the purchase of the Stanley & Co. product ($t(340) = 9.53$, $p < 0.05$). In the condition where Stanley & Co. offered a more expensive product without the sustainable attribute, the number of purchases decreased strongly ($M = 5.33\%$, $SD = 0.23$). Particularly notable is the large percentage of participants who purchased the sustainable product when it exhibited a higher price than the alternative ($M = 71.51\%$, $SD = 0.45$).

All in all, these results are a first, strong indication that consumers care about the sustainable business practices of their insurers and are predominantly willing to purchase sustainable insurance products – even at a higher price. Nevertheless, this study did not offer any incentive for the participants to behave as they would in real life. Therefore, in Study 3, we continued to investigate the purchasing behavior of sustainable insurance products with an incentive mechanism.

Figure 11: Share of consumers choosing Stanley & Co.



Note: This figure displays the share of consumers choosing Stanley & Co.'s insurance product as a function of price and sustainability.

3.3 Study 3

Study 3 had three objectives. First, we wanted to test the robustness of consumers' preferences for sustainable insurance products using another experimental design. Second, we desired to better understand why the preference for sustainable products was unaffected by price increases. Third, we intended to investigate the drivers of sustainable product preferences by assessing how sustainable attributes impact consumer outcomes on a perceptual dimension. In this study, therefore, participants were asked to indicate their purchase intention on a scale from 1 to 9 for the displayed insurance products, in contrast to the forced-choice design employed in Study 2. We continued to utilize the same insurance products as in Study 2 in a between-subject design. To conduct a more in-depth analysis of the influence of price, we added another, even higher, price level to account for the potentially high costs associated with sustainable measures. We extended the previous 2x2 setting to a 2x3 setting by adding a new price level of USD 169, resulting in six conditions (sustainable and non-sustainable products for each of the three price levels). These six different products were provided by Stanley & Co. and were each displayed in combination with the William Corporation's insurance product,

which offered the same but non-sustainable insurance coverage for USD 129 in all six conditions.

To provide the participants with a reference point, they were first given the following information: "The product of William Corporation reflects the current market standard for your risk structure and residential property. That is, the price reflects the current market average of USD 129 per year, and the provider does not demonstrate highly sustainable business practices." We then asked participants about their purchase intention for each product. For this purpose, we used the scale proposed by Chandran and Morwitz (2005) and executed the question following Newman et al. (2014): "How likely are you to buy the product of <company name>?" (1–9 Likert scale, with 1 indicating "Definitely would not buy the insurance product" and 9 "Definitely would buy the insurance product.") Moreover, we designed the experiment to be incentive compatible. After ascertaining their purchase intention, we asked the participants about their trust towards the insurer, the perceived quality of the insurance product, the perceived consumer effectiveness they could achieve by buying sustainable insurance, and the brand equity of Stanley & Co..

3.3.1 Attention check

In the following analysis, only the participants who passed two attention checks were considered. At the end of the experiment, before recording the demographic variables, participants had to answer the following questions: 1. "Is the following statement right or wrong: Stanley & Co. engages in highly sustainable business practices." 2. "Which statement is correct? The price of the insurance product offered by Stanley & Co. (1) reflects the average market price or (2) is higher than the average market price."

3.3.2 Incentive mechanism

We created incentive compatibility by raffling USD 100 vouchers for certain insurances among the participants. The insurance company for which this voucher was valid depended on the insurance product in the experiment for which the participant expressed a greater purchase intention. We further informed the participants that choosing a more expensive insurance product in the experiment might result in the voucher only being valid for a range of products, the prices of which might exceed USD 100. In this case, the raffle winner would need to pay the additional amount themselves. In this way, we aimed to achieve a high level of attention during the experiment and for participants to reveal their true purchase intention, taking the prices into account. We surveyed a total

of 1,050 U.S. participants (50% female; $M_{\text{Age}} = 37.58$ years; $SD_{\text{Age}} = 24.01$), resulting in 175 participants assigned to each of the six conditions. Before starting the analysis, we examined whether there were any differences in the distribution of the five demographic variables queried across the six groups. The comparison of the mean values did not reveal any significant differences among the individual groups.

3.3.3 Results and discussion of the direct effect

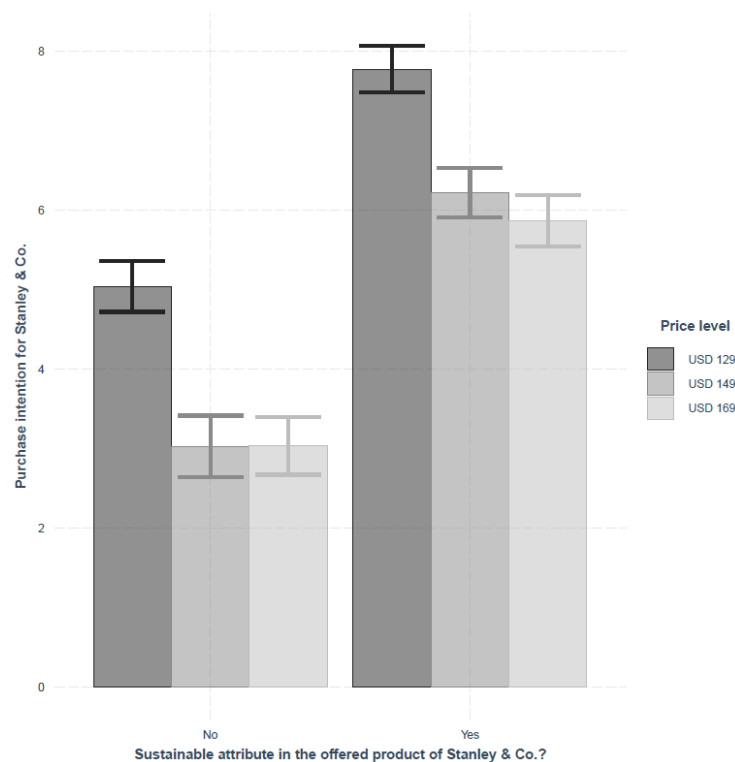
As illustrated in Figure 12, the sustainable products (5.87 – 7.78) consistently displayed a higher purchase intention than the non-sustainable insurance products (3.03 – 5.04; compare with Figure 12). In detail, the purchase intention for the USD 129 product was 5.04 ($SD = 1.71$) without a sustainable attribute and 7.78 ($SD = 1.46$) with a sustainable attribute. At a price level of USD 149, the purchase intention was 3.03 ($SD = 2.00$) without and 6.22 ($SD = 2.26$) with a sustainable attribute. In the highest price segment, USD 169, the purchase intention was 3.04 ($SD = 2.06$) for insurance without sustainable attributes and 5.87 ($SD = 2.30$) for insurance with sustainable attributes. It is important to note that the purchase intention was measured between 1, which indicated “definitely would not buy the insurance product,” and 9 “definitely would buy the insurance product.” Therefore, a purchase intention below the middle of the scale (4.5) can be interpreted as a negative purchase intention. Furthermore, the results show a clear reduction in purchase intention with rising prices, especially with the first price jump from USD 129 to USD 149.

A two-way ANOVA revealed a significant main effect of the sustainable attribute on consumer purchase intention ($F_{(1, 831)} = 350.7, p < .001$). Also, the Bonferroni post-hoc tests revealed that the purchase intention differed significantly between any sustainable product and any non-sustainable product (all p values $< .01$). When controlling for price, the positive impact of the sustainable attribute on the purchase intention remained significant ($F_{(1, 831)} = 410.6, p < .001$), and the price significantly decreased the purchase intention ($F_{(1, 831)} = 143.5, p < .001$). However, the interaction term between the sustainable attribute and price was insignificant ($F_{(1, 831)} = 0.2, p > .05$). These results remained robust when controlling for gender, age, income, education, and children as control variables. As a further robustness check, we individually used these demographic control variables as mediators (interaction terms) between the sustainable attribute and purchase intention. Because the interaction terms for income ($F_{(1, 831)} = 2.3, p > .05$), children ($F_{(1, 831)} = 0.4, p > .05$), and education ($F_{(1, 831)} = 0.3, p$

> .05) were not significant, our results were robust with respect to these variables. However, the interaction terms for gender ($F_{(1, 831)} = 8.9, p < .01$) and age ($F_{(1, 831)} = 10.9, p < .01$) yielded significant results. This means that the strength of the relationship between the sustainable attribute and purchase intention varies depending on gender and age.

These results again demonstrate the strong relevance of sustainability in insurance consumers' purchasing decisions. Also striking is the observation that the shift from USD 149 to USD 169 did not lead to a significantly reduced purchase intention on the part of the participants.

Figure 12: Purchase intention for Stanley & Co.



Note: This figure displays the average purchase intention for Stanley & Co. for each investigated condition.

3.3.4 Results and discussion of the conceptional model

Next, we analyzed the mediating effects proposed in Figure 7 using structural equation modeling. We used the PROCESS macro for R version 4.0.1 (Model 15, Hayes, 2021) to test the direct, indirect, and mediating effects of trust, perceived quality, brand equity, and perceived consumer effectiveness on participants' purchase intention for sustainable insurance products. We controlled for gender, age, income, education, and children. The results are presented in Table 4. In line with our first hypothesis, the results clearly show

that the sustainable attribute led to a strong, direct increase in purchase intention (H_1). The power of this effect was dependent on and decreased with a price rise ($t = -1.959$, $p = 0.0505$). The conditional direct effect varied between 2.027 (95% CI = 1.592 to 2.462) for the base price of USD 129 and 1.365 (95% CI = 0.906 to 1.824) for the highest offered price of USD 169 (H_6). This shows that the incentive mechanism was effective and that a higher price led to a reduction of the purchase intention, as expected.

These first results revealed that sustainability increased purchase intentions for insurance products. As expected, higher prices led to a reduction in purchase intention and there was a certain trade-off between the sustainable attribute and a higher price. Nevertheless, even for the highest price level, the direct effect of the sustainable attribute on the purchase intention was still significantly positive. This exposed that participants were willing to purchase sustainable insurance products even at prices significantly higher than the market price.

The analysis of the indirect effects exhibited the following results. Assessing the second set of hypotheses (H_{2a} and H_{2b}), trust correlated strongly with sustainability, but not with purchase intention. Hence, the effect of trust as a mediator between sustainability and purchase intention was close to zero and not significant (95% CI = -0.158 to 0.270). A different picture emerged from the analysis of perceived quality (H_{3a} and H_{3b}); the indirect effect of sustainability on purchase intention via perceived quality was positive and significant (95% CI = 0.022 to 0.459). Both the a-path and the b-path showed positive effects. The same applied to brand equity (H_{4a} and H_{4b}), which acted as a positive mediator between the two variables (95% CI = 0.503 to 1.077). Again, both the a- and b-paths showed positive effects, as hypothesized.

In addition to the main effect on purchase intention, consumer perception's possible effects on other variables must also be investigated, particularly as studies have shown that sustainable products have sometimes led to adverse consumer reactions. Specifically, the result that sustainability increased rather than reduced the product's quality perception, as it did in certain other examples, is very relevant. These findings provide further evidence that the introduction of sustainable insurance product attributes is worthwhile for insurance companies.

Table 4: Results of the analysis of the mediating effects

Effects	Effect (SE)	t-Value	CI (95%)
A-Paths			
Sustainable attribute → Trust	0.874 (0.063) ^{***}	13.922	0.751 to 0.998
Sustainable attribute → Perceived quality	1.158 (0.076) ^{***}	15.156	1.008 to 1.308
Sustainable attribute → Brand equity	1.490 (0.077) ^{***}	19.330	1.338 to 1.641
Sustainable attribute → Perceived consumer effectiveness	0.781 (0.088) ^{***}	3.233	0.992 to 4.057
Sustainable attribute x Price → Perceived consumer effectiveness	-0.009 (0.005) [*]	-1.764	-0.020 to 0.001
B-Paths			
Trust → Purchase intention	0.069 (0.107)	0.645	-0.141 to 0.278
Perceived quality → Purchase intention	0.201 (0.089) ^{**}	2.251	0.026 to 0.376
Brand equity → Purchase intention	0.530 (0.089) ^{***}	5.986	0.356 to 0.704
Perceived consumer effectiveness → Purchase intention	-2.364 (0.458) ^{***}	-5.160	-3.263 to -1.465
Price → Purchase intention	-0.087 (0.009) ^{***}	-9.312	-0.105 to -0.068
Sustainable attribute → Purchase intention	4.162 (1.260) ^{***}	3.302	1.688 to 6.636
Sustainable attribute x Price → Purchase intention	-0.017 (0.009) [*]	-1.959	-0.033 to 0.000
Perceived consumer effectiveness x Price → Purchase intention	0.017 (0.003) ^{***}	5.414	0.011 to 0.023
Conditional Direct Paths			
Sustainable attribute → Purchase intention			
if Price USD 129	2.027 (0.222) ^{***}	9.144	1.592 to 2.462
if Price USD 149	1.696 (0.153) ^{***}	11.102	1.396 to 1.996
if Price USD 169	1.365 (0.234) ^{***}	5.836	0.906 to 1.824
Indirect Paths			
Sustainable attribute → Trust → Purchase intention	0.060 (0.109)	-	-0.158 to 0.270
Sustainable attribute → Perceived quality → Purchase intention	0.233 (0.110)	-	0.022 to 0.459
Sustainable attribute → Brand equity → Purchase intention	0.790 (0.147)	-	0.503 to 1.077
Sustainable attribute → Perceived consumer effectiveness → Purchase intention			
if Price USD 129	-0.299 (0.105)	-	-0.509 to -0.101
if Price USD 149	0.122 (0.071)	-	-0.019 to 0.264
if Price USD 169	0.419 (0.108)	-	0.228 to 0.649

Note: SE = standard error; CI = 95% confidence intervals.

* $p < .10$; ** $p < .05$; *** $p < .01$.

Focusing on the PCE, the analysis is more complex. First, the indirect effect of PCE on the purchase intention varied strongly depending on the price and even alternated the sign. For the highest price level, PCE acted as a positive mediator between the sustainable attribute and purchase intention with an effect size of 0.419 (95% CI = 0.228 to 0.649), whereas for the lowest price level, PCE acted as a negative mediator at -0.299 (95% CI = -0.509 to -0.101). At the medium price level of USD 149, the effect was not significant at 0.122 (95% CI = -0.019 to 0.264). Secondly, the results of the analysis of the distinct effects were not as definite. Although the sustainable attribute significantly increased PCE (H_{5a}), an increase in PCE led to a significant decrease in purchase intention (H_{5b}). Participants who were more convinced of the positive impact of insurance purchases exhibited a lower purchase intention, which, from a logical point of view, would be difficult to explain. Analyzing the moderation of the direct effect of the sustainable attribute on PCE revealed no significant outcome (H_{7a}). Contrary to expectations, however, the direct effect of PCE on purchase intention was significantly positively moderated by price (H_{7b}). As described in hypotheses 7a and 7b, PCE appeared to mediate the relationship between sustainability and purchase intention and was moderated by price. For higher prices, the mediation became more positive. This could be related to the fact that consumers perceive the sustainable impact of an insurance product to be higher when the price is higher, while they suspect little impact or even greenwashing in the case of lower prices. However, the analysis cannot prove the individual effects underlying this hypothesis.

The analysis of the conceptual model has shown that a sustainable attribute within an insurance contract can increase trust in the insurer, perceived quality, brand equity, and PCE to a large degree. Besides the positive direct effect of the sustainable attribute on the purchase intention, these effects are additional positive and beneficial side effects for an insurer. Perceived quality, brand equity, and perceived consumer effectiveness are significant mediators between sustainability and purchase intention, trust is not. An increase in the price results in only a slight reduction in purchasing intention. Pricing in line with average market prices can even have negative consequences because this leads to PCE becoming a negative mediator.

4. Discussion

4.1 Managerial implications

The results of the three studies uniformly show that insurance consumers prefer sustainable insurance products. Sustainable insurance products are perceived as offering superior quality have a greater perceived consumer effectiveness, and sustainability improves brand equity. These effects led a large proportion of the participants to continue to opt for sustainable insurance policies even when prices were higher or much higher compared to the average market price. Consumers seem to focus more on the environmental and social impact of a product than on the impact in governmental areas. Furthermore, it is relevant for managers' decision-making that insurance consumers initially have difficulty imagining how insurance can have a sustainable impact and that sustainable insurance products, therefore, have rather a low priority in consumers' purchasing behavior. Consumers must first be made aware of the numerous possibilities and the size of the potential impact to increase their willingness to buy sustainable insurance. Nevertheless, care must be taken to ensure that consumers are not flooded with information.

The analysis of the conceptional model showed that the offering of sustainable product attributes has several positive effects on consumers' perceptions, which in turn increase consumers' purchasing intention even more. Managers should pay particular attention to the pricing of a sustainable product, as PCE's impact on the purchasing intention can vary in dependence on the price. On the one hand, a lower price level increases the direct purchasing intention. On the other hand, if the price is rather low in relation to the market price, this can impair the credibility of the sustainable impact and reduce the purchase intention. These diametral effects need to be considered when bringing a sustainable insurance product to the market.

4.2 Limitations

The study of insurance product purchase behavior is generally subject to the weakness that these experiments cannot commit participants to actually purchase an insurance product. Unlike in the case of everyday products, consumers do not regularly engage in the selection of insurance policies. Therefore, it is difficult to condition consumers to reveal their actual purchase behavior or willingness to pay. In Study 3, we used a design that replicates a real insurance purchase situation better than any other insurance-related

study we know of. Of course, this is only representative of an online purchase experience. We cannot say if consumers would behave differently in a conversation with an insurance sales agent. However, as the proportion of insurance contracts sold online is rising sharply worldwide, this is a very relevant investigation. Another point of criticism may be the pricing of our sustainable insurance products. Although these prices were based on the market level, there are few comparable products, and the actual additional costs depend heavily on the specific sustainable attribute. Companies that offer sustainable product attributes must pay close attention to their additional costs and check whether consumers' purchase intention is still sufficient at their specific higher prices. Furthermore, the results of this research could vary with the underlying insurance product. Here we have investigated renter's insurance. For other property and casualty insurance products, or even life insurance, consumers might behave differently.

4.3 Further research opportunities

In general, too little research has been conducted on the behavior of insurance consumers. Insurance companies need insights into their consumers to offer suitable insurance policies and know how best to approach consumers – especially concerning sustainable insurance products. We see three specific areas where there is a need for further research. The first question, a very relevant one, is whether consumers who generally behave sustainably present a different risk profile. If the consumers who generally behave sustainably have fewer claims, insurance companies might reward them by offering premium reductions or other bonuses. The second area of research would be consumers' willingness to pay for individual specific sustainable attributes within insurance contracts. This could help insurers determine how to best structure their specific contracts and in which areas consumers support sustainable behavior on the part of insurance companies. The third area where further research is required is how to effectively make consumers to close the intention-behavior gap between their stated and actual choices.

5. Conclusion

Certain studies have shown that going green could backfire, and consumers might reduce their willingness to pay for a product, perceive it as less effective, turn their back on a company or lose trust (cf. Newman et al., 2014; Van Doorn and Verhoef, 2011).

Therefore, it is important to review the launching and marketing activities around sustainable insurance products in light of consumers' possible reactions. This paper has shown, first, that consumers value sustainable insurance contracts and, when educated about the positive impact, consumers are willing to pay more for these products than for conventional insurances. This study clearly provides evidence for the demand for sustainable insurance products. Consumers believe specifically that sustainable insurances may have a strong environmental or societal impact, rather than a governmental one when being made aware of insurers' possible impacts. The fact that insurers currently focus on their environmental impact seems to be very effective in communicating with consumers. Moreover, this is in line with their own incentives to foster a sustainable environment. The observation that consumers are willing to pay higher prices can be justified by consumer reactions. Insurers that operate according to sustainable principles increase their product's quality, their brand equity, and the perceived consumer effectiveness. These variables can increase the sustainable products' purchasing intention even further, partially depending on the product's price.

All in all, the results of this study demonstrate that the topic of "sustainable products" is a promising topic for the insurance industry as well. In addition to supporting the intrinsic interests of insurers, this study shows that consumers also prefer sustainable insurance solutions. The fact that they are also willing to pay more for sustainable insurance products lays the groundwork for insurers to become leaders in the shift towards a sustainable economy through the products they offer.

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Appendix A: Examples of presented products including stimuli in Study 2 and 3

Imagine you need to purchase rental insurance.

Please consider the following products of the insurance companys "William Corporation" and "Stanley & Co.":

The product of William Corporation reflects the current market standard for your risk structure and residential property. That is, the price reflects the current market average of USD 129 per year and the provider does not demonstrate highly sustainable business practices.

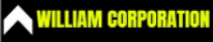
	COVERAGE	\$ 100 000 \$ 120 000 \$ 350	✓ High level of service satisfaction ✓ Flood and earthquake damages ✗ Highly sustainable business practices ✓ Short cancellation period: 1 Month
\$129 per Year	• Personal property • Personal liability • Deductible • Including partner		

	COVERAGE	\$ 100 000 \$ 120 000 \$ 350	✓ High level of service satisfaction ✓ Flood and earthquake damages ✓ Highly sustainable business practices ✓ Short cancellation period: 1 Month
\$129 per Year	• Personal property • Personal liability • Deductible • Including partner		

Imagine you need to purchase rental insurance.

Please consider the following products of the insurance companys "William Corporation" and "Stanley & Co.":

The product of William Corporation reflects the current market standard for your risk structure and residential property. That is, the price reflects the current market average of USD 129 per year and the provider does not demonstrate highly sustainable business practices.

	COVERAGE	\$ 100 000 \$ 120 000 \$ 350	✓ High level of service satisfaction ✓ Flood and earthquake damages ✗ Highly sustainable business practices ✓ Short cancellation period: 1 Month
\$129 per Year	• Personal property • Personal liability • Deductible • Including partner		

	COVERAGE	\$ 100 000 \$ 120 000 \$ 350	✓ High level of service satisfaction ✓ Flood and earthquake damages ✓ Highly sustainable business practices ✓ Short cancellation period: 1 Month
\$149 per Year	• Personal property • Personal liability • Deductible • Including partner		

Appendix B: Statistical results of the manipulation check in Study 1

	Difference or Identity	N	Mean Wil- liam Corpo- ration	Mean Stanley & Co.	Two Sample t-test
Group 1	William Corporation and Stanley & Co. have the same price.	70	4.157143	4.185714	t = -0.14 p-value = 0.88
	William Corporation and Stanley & Co. have no sustainable business practices.	70	3.357143	3.371429	t = -0.04 p-value = 0.96
Group 2	William Corporation and Stanley & Co. have the same price.	69	4.101449	4.057971	t = 0.18 p-value = 0.85
	Only Stanley & Co. has sustainable business practices.	69	3.478261	5.434783	t = -5.94 p-value = 2.205e-08
Group 3	Stanley & Co. offers a higher price.	71	3.647887	4.802817	t = -5.05 p-value = 1.324e-06
	William Corporation and Stanley & Co. have no sustainable business practices.	71	4.154930	3.887324	t = 0.96 p-value = 0.33
Group 4	Stanley & Co. offers a higher price.	72	4.027778	4.444444	t = -1.96 p-value = 0.05
	Only Stanley & Co. has sustainable business practices.	72	3.694444	5.444444	t = -6.11 p-value = 8.975e-09

Appendix C: Overview of employed scales in Study 1 to Study 3

Item	Question	Scale	Characteristics	Source	Used in
Spend USD 100	Imagine that each year you want to spend USD 100 extra for making a sustainable impact. How would you distribute the money between the different industries?	Maximum of USD 100	Insurance Banking Automobile Clothing Food Energy	Own scale	Study 1
Perceived environmental impact	Buying an insurance product is significant enough in affecting environmental problems.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree	Antonetti and Maklan (2014)	Study 1 & 3
Perceived environmental impact	Environmental issues are affected by my insurance purchase choices.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived environmental impact	Environmental issues, such as ecological degradation, are partly a consequence of my own insurance purchase decisions.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		

Perceived societal impact	Through my personal choice of insurance products, I can contribute to the solution of social issues.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree	Antonetti and Maklan (2014)	Study 1 & 3
Perceived societal impact	Buying an insurance product is significant enough in affecting social problems.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived societal impact	Social issues are affected by my insurance purchase choices.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived societal impact	Social issues, such as inequality, are partly a consequence of my own insurance purchase decisions.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived governmental impact	Through my personal choice of insurance products, I can contribute to the solution of governance issues.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree	Antonetti and Maklan (2014)	Study 1 & 3
Perceived governmental impact	Buying an insurance product, is significant enough in affecting governance problems.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived governmental impact	Governance issues are affected by my insurance purchase choices.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived governmental impact	Governance issues, such as bribery, are partly a consequence of my own insurance purchase decisions.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
WTP more	I am willing to pay a higher price at Stanley & Co. than at its competitors with lower ESG Impact scores.	Likert 7-Point	1 = not at all likely; 7 = extremely likely	Zeithaml et al. (1996); Habel et al. (2016)	Study 1
WTP more	I would like to keep buying at Stanley & Co., even if other companies with lower ESG Impact scores were cheaper.	Likert 7-Point	1 = not at all likely; 7 = extremely likely		
WTP more	For the advantages I have as a customer of Stanley & Co., I would be willing to pay a higher price.	Likert 7-Point	1 = not at all likely; 7 = extremely likely		
Sustainably friendliness	Insurance products of Stanley & Co. deserve to be labeled "sustainably friendly".	Likert 7-Point	1 = strongly disagree; 7 = strongly agree	Gershoff and Frels (2015)	Study 1
Sustainably friendliness	Purchasing an insurance product of Stanley & Co. is a good sustainable choice.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Sustainably friendliness	A person who cares about sustainability would be likely to buy insurance products of Stanley & Co..	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		

Sustainably friendliness	How sustainable are the insurance products of Stanley & Co.?	Likert 7-Point	1 = not sustainable at all; 7 = very sustainable		
Truthfulness of claim	The company description appears to be truthful.	Likert 5-Point	1 = strongly disagree; 5 = strongly agree	Feldman et al. (2006)	Study 1
Truthfulness of claim	The information contained in the company description is credible.	Likert 5-Point	1 = strongly disagree; 5 = strongly agree		
Truthfulness of claim	I think the information contained in the company description is believable.	Likert 5-Point	1 = strongly disagree; 5 = strongly agree		
Truthfulness of claim	Some of the claims made in the company description are exaggerated.	Likert 5-Point	1 = strongly disagree; 5 = strongly agree		
Purchase Intention	How likely are you to buy the product above?	Likert 9-Point	1 = definitely would not buy the insurance product; 9 = definitely would buy the insurance product	Chandran and Morwitz (2005); Newman et al. (2014)	Study 3
Trust in Stanley & Co.	Stanley & Co. as your insurance provider...			Hui et al. (2004)	Study 3
Trust in Stanley & Co.	...cannot be trusted at times.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...is perfectly honest and truthful.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...can be trusted completely.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...can be counted on to do what is right.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...is always faithful.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...is a company that I have great confidence in.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Trust in Stanley & Co.	...has high integrity.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		

Perceived Quality	The insurance product of Stanley & Co. is...			Gleim et al. (2013)	Study 3
Perceived Quality	...excellent quality.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived Quality	...high quality.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived Quality	...superior quality.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Perceived Quality	...the best.	Likert 7-Point	1 = strongly disagree; 7 = strongly agree		
Brand Equity	How loyal are you to this company?	Likert 7-Point	1 = not at all loyal; 7 = very loyal	Voorhees et al. (2006)	Study 3
Brand Equity	What kind of attitude did you have about this company?	Likert 7-Point	1 = negative attitude; 7 = positive attitude		
Brand Equity	What kind of image did the company have?	Likert 7-Point	1 = negative image; 7 = positive image		
Brand Equity	How would you rate the quality delivered by this company?	Likert 7-Point	1 = low quality; 7 = high quality		
Brand Equity	Would you have been willing to pay more for services from this company than for other companies' services?	Likert 7-Point	1 = definitely not; 7 = definitely		

Appendix D: Cronbach's Alphas for all applicable scales employed

	<u>Study 1</u>	<u>Study 3</u>
WTP more	0.9331	
Sustainably friendliness	0.6291	
Truthfulness of claim	0.9013	
Perceived consumer effectiveness	0.8057	0.8953
Perceived environmental impact	0.8451	0.8962
Perceived social impact	0.8018	0.9019
Perceived governmental impact	0.7703	0.8879
Trust		0.8475
Product Quality		0.9500
Brand Equity		0.8560

Essay IV: What matters more – being a Green Company or offering Green Products?

Abstract

Sustainability research in marketing is growing rapidly. Recently, there has been an increasing focus on sustainable attributes and their effect on purchasing behavior. This paper investigates whether it makes a difference to consumers' purchasing behavior if a sustainable attribute is embedded at the product level or the level of the offering company. In three incentive-compatible, within-subject studies with varying sustainable attributes, the impact of a product- versus company-level sustainable attributes on forced-choice purchase intention, willingness to pay more, and perceived greenness are assessed, using sustainable insurance products. The results indicate that consumers have a clear preference for insurance products with a sustainable attribute at the product level. These products are rated with a higher purchase intention and willingness to pay more and are perceived as greener. However, when explicitly stating that the sustainable impact of both products is equal, measured in saved kg of CO₂, the significant difference disappears.

Keywords

Sustainable attributes; Insurance companies; Purchasing behavior

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1. Introduction

Are consumers looking for sustainable companies or sustainable products? Consumers are becoming more and more sensitive to climate change and are gradually adapting their purchasing behavior (cf. Whelan and Kronthal-Sacco, 2019). This shift is also evident in the extremely high growth rates of sustainable product segments (Umweltbundesamt, 2021). Many companies have noticed these changes in consumer preferences and are adapting both their behavior and the products they offer. The public pressure to transition towards a sustainable economy initially affected mainly emission-intensive industries; however, this pressure is now becoming increasingly apparent in less emission-intensive industries, like the service sector. The topic of sustainability is thus also moving higher up the strategic agendas of insurance companies. Insurance companies have numerous instruments through which they can contribute to a sustainable environment; moreover, they have a strong intrinsic motivation to do so. On the one hand, they can promote sustainability through investment policies, restrictive underwriting, their internal organization and processes, and encouraging their consumers to adopt sustainable behaviors through certain contractual conditions. On the other hand, environmental events caused by climate change, which are becoming more frequent and less predictable, represent an essential risk for insurance companies (e.g., Swiss Re Institute, 2022).

Insurance companies were quick to start turning their operations green, making their buildings energy-efficient, going paperless, or compensating for emissions. However, their focus was predominantly on their own company or on company-wide actions, such as supporting the renaturation of forests (AXA Insurance, 2021a) or peatlands (Zurich Insurance, 2021) or investing in sustainable energy production (AXA Insurance, 2021b). Only recently has a slow greening of insurance products in the P&C business become apparent, in the form of policies that include attributes promoting the sustainable transformation. For example, insurers are now offering policies that encourage the purchase of energy-efficient replacement products in the event of a claim. They do this either through a bonus payment or by paying directly for a replacement product of the current highest energy class, regardless of the class of the replaced product (BesserGruen, 2022; Pangaea Life, 2021). Other providers offer a premium waiver if repair is preferred to replacement in the event of damage and pay a premium if the reparation is carried out locally with sustainable materials or techniques (Barmenia Versicherungen, 2021; Greensurance, 2022). Yet other insurance companies offer

special policies for cars with alternative energy sources and automatically insure charging cards and cables for electric cars (Admiral Direkt, 2021). Furthermore, some insurers offer the possibility to compensate for the CO₂ emissions of insured cars within their policy-administration portal (Helvetia Insurance, 2022).

Sustainable insurances are predicted to grow in terms of recognition and premiums (Gesamtverband der Deutschen Versicherungswirtschaft e.V., 2021). While only 4% of participants in a study by the German Insurance Association stated that they currently have a sustainable insurance policy, 46% could imagine purchasing sustainable insurance in the future. The figure is particularly high (51%) among the 16–29 age group (Gesamtverband der Deutschen Versicherungswirtschaft e.V., 2021). The current low prevalence can be explained by the low level of awareness that sustainable insurance products exist. In the future, however, the situation could change quickly. The Europe-wide advisory guidelines will force brokers, especially in the life insurance business, to ask consumers about their preferences with regard to sustainability during the advisory process (Commission Delegated Regulation (EU) 2021/1257 of April 21, 2021 amending Delegated Regulations (EU) 2017/2358 and (EU) 2017/2359, “Insurance Distribution Directive”). In addition, the extended disclosure guidelines will lead to improved comparability and a stronger focus on sustainability in the insurance business as a whole (Regulation (EU) 2020/852 of the European Parliament and of the Council of June 18, 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, “EU-Taxonomy”).

Insurance companies have started to include sustainability claims in their advertisements and communications to consumers. These sustainability claims usually refer to the sustainable impact of the insurer itself and seldom to the direct sustainable impact of the actual product. In other industries, companies place a much stronger emphasis on the direct positive impact a consumer can make with the actual product (cf. Gershoff and Frels, 2015, p. 98). This begs the question of which marketing/communication strategy is the most effective and is more likely to persuade potential P&C consumers to make a purchase decision. To put it differently: What matters more to P&C insurance consumers, being a green company or offering green products?

The previous marketing literature has already investigated many aspects of purchasing decisions regarding sustainable products. Willingness to pay (Van Doorn and Verhoef, 2011), price fairness (Habel et al., 2016), various product preferences (Olson, 2013), the

perceived impact of the ESG attribute (Roberts, 1996; Vermeir and Verbeke, 2008), and even when a sustainable attribute makes the product appear "greenest" have been investigated (Gershoff and Frels, 2015). However, whether it makes a difference if a company advertises the sustainable impact of a company or the sustainable impact of a product, and how large the difference might be, has, to the best of my knowledge, not yet been investigated – whether within the insurance industry or any other industry. The only hint at this question in the scientific literature may have come from Gershoff and Frels (2015), who conclude that the more central a green attribute is to the core function of a product, the greener it is considered to be. Therefore, one might assume that the more central a sustainable attribute is to the core function of an insurance contract, the greener this insurance policy is perceived to be. As Jahnert et al. (2022) show, sustainable attributes within insurance contracts lead to increased purchase intentions. Supposing that consumers perceive sustainable attributes at the product level as more central than sustainable attributes at the company level, the former should lead to a higher perceived greenness than the latter and thus increase the purchase intention to a greater extent.

2. Literature review and hypothesis development

2.1 Sustainable products and purchasing behavior

Sustainable products and consumer purchasing behavior have been the subject of extensive scientific research in the field of marketing. Particularly in the United States and Europe, the number of such scientific studies is still rising sharply (Bangsa and Schlegelmilch, 2020). The marketing research on sustainability can be broadly divided into two clusters: research with a focus on consumer or contextual factors and studies that focus on marketing or purchase factors.

Consumer or contextual factors

The research on consumer factors assesses consumer-internal aspects of this matter, while the field of contextual factors assesses factors surrounding the consumer and other influencing factors that are indirectly related to the consumer.

Regarding consumer factors, scholars have investigated whether socio-demographic variables such as age, gender, or education influence sustainable behavior or serve as predictors of such behavior (Mohr and Schlich, 2016). Others have assessed the effect of income on sustainable purchasing decisions (Luo et al., 2017) and have clustered

consumer groups for food products based on socio-demographic variables (De Graaf et al., 2016). Most research in this area concludes that younger people, women, and people with a higher level of education tend to have a higher willingness to pay (WTP) and higher purchase intentions for sustainable products. However, income alone tends to be a weak predictor of sustainable consumption (Luo et al., 2017). Research on mindset and personality also falls into this area: for example, several scholars have investigated the environmental consciousness of consumers (Haws et al., 2014; Lin and Chang, 2012; Ghvanidze et al., 2017; D'Amico et al., 2016). Giesler and Veresiu (2014) examined moral traits, such as a personal sense of responsibility, and how to increase them to encourage sustainable behavior. Antonetti and Maklan (2014) investigated how guilt and pride affect the perceived consumer effectiveness of sustainable consumption. A further example is Peloza et al. (2013), who examined how self-accountability and guilt can induce consumers to increase their preferences for sustainable products.

Studies with a focus on contextual factors, examine the impact of different consumer-external contexts. These include, for example, social constructs the consumers belong to or the basic social order consumers are used to. Renowned examples are Van der Wal et al. (2018), who assessed sustainable behavior under uncertainty, and Ahn et al. (2016), who investigated how social pressure impacts the adoption of sustainable household technologies. Other topics that have previously been examined include the social influence of herd behavior and social learning on an individual's sustainable consumption (Salazar et al., 2013) and structural differences between consumers coming from different countries (Chen et al., 2018).

Marketing or purchase factors

The cluster of research on marketing and purchase factors is by far the most extensively investigated one. Within this cluster, a long series of studies has focused on various areas of marketing as well as factors directly influencing the purchasing process.

A key question in this field is how to best communicate the sustainable impact of a product to consumers and how to persuade consumers to buy a sustainable product. Usrey et al. (2020) investigated the differences between implicitly and explicitly stating that a product is green. They discover that for products that are less commonly green, implicit communication styles lead to a better product evaluation than explicit communication styles. Furthermore, Amatulli et al. (2017) find that emphasizing the negative consequences of non-sustainable choices lead to higher purchasing intentions

than promoting the positive consequences of a sustainable product choice. A similar study was carried out by White et al. (2011), who investigated recycling behavior. In situations where the consequences of consumers' behavior are concrete and not abstract for the consumer, messages about the negative consequences of non-sustainable behavior increase recycling behavior more than messages about the positive consequences of sustainable behavior. In abstract situations, however, an emphasis on positive consequences has a stronger effect than an emphasis on negative consequences. Aside from the way of communicating, the role of the offering company has also been at the center of investigations. For example, Newman et al. (2014) studied how a firm's intentions can influence product perception when a product is brought to the market. Wang et al. (2017) assessed the impact of a hotel's visible sustainable measures on the sustainable behavior of its guests. They conclude that the hotel's sustainable measures, such as the provision of bamboo instead of plastic toothbrushes, lead to reduced consumption of energy and water in the hotel rooms by the travelers.

Moreover, the sustainable purchasing behavior of different types of products has been compared. According to Van Doorn and Verhoef (2011), adding a green claim to vice food products can result in lower quality perceptions of the respective product, thereby decreasing the willingness to pay. Similarly, Maehle et al. (2015) explored consumer preferences for hedonic versus utilitarian food products. Using a choice-based conjoint analysis, they examined whether preferences for price, taste, environmental friendliness, and healthfulness varied between hedonic and utilitarian products. There is also one major stream of literature that has investigated the impact of specific product attributes on purchasing decisions, as the current study does. The work of Habel et al. (2016), who investigated the impact of sustainable attributes on perceived price fairness, can be classified in this stream, as well as that of Olson (2013), who examined tradeoffs between green and other product attributes in the car and television market. Similar studies have investigated sustainable product choices across different food segments (cf. Girgenti et al., 2016; Loose and Remaud, 2013) and the market for fertilizers (Dahlin et al., 2016). Apart from the general research into the impact of specific product attributes on sustainable purchase decisions, scholars have also emphasized the necessity of investigating the consequences of various sustainable attributes in detail.

Sustainable attributes

Recently, sustainable product attributes have gained increasing attention in scientific research. Studies on sustainable attributes can be divided according to the three main questions they aim to answer.

First, which sustainable attributes lead to the desired or greatest consumer reactions? In this context, researchers have investigated whether environmental, social, or governmental attributes have different effects (Hustvedt and Bernard, 2008; Herbes et al., 2018), as well as whether the beneficiary of a sustainable attribute has an impact on consumer behavior (Tully and Winer, 2014). Other studies have investigated whether a short-term versus long-term sustainability impact of an attribute leads to different outcomes (Van der Wal et al., 2018; Hardisty and Weber, 2009). It should be noted that studies occasionally conclude that sustainable attributes have a negative impact on consumers' purchasing behavior (e.g., Luchs et al., 2010). The second question is how a sustainable attribute can be communicated most effectively. In particular, the framing of sustainable attributes in (new) product launches have been investigated here (cf. Edinger-Schons et al., 2018; Olsen et al., 2014). Third, how do sustainable attributes have to relate to a product for this product to be perceived as most sustainable? Rokka and Uusitalo (2008) assessed the effect of pure green packaging on purchasing preferences, while Gershoff and Frels (2015) explored this question on a higher level. Both investigated whether it makes a difference how centrally the sustainable attribute is anchored to the core function of a product. They show that in the case of mattresses, waffle irons, and computers consumers perceive products as significantly greener if they consider the green attribute to be closer attached to the core function of the product.

Fundamentally, all the examined sustainable attributes can be divided into two groups at a higher meta-level: sustainable attributes that are linked to the product itself and sustainable attributes that are linked to the offering company. As examples of sustainable attributes at the company level, Neumann et al. (2021) and Habel et al. (2016) investigated corporate social responsibility attributes, and Wang et al. (2017) investigated firm-wide water-saving measures. Examples of the study of product-level sustainable attributes include Van Doorn and Verhoef (2011), who investigated organic claims, and Gershoff and Frels (2015), who assessed sustainable product components of computers, mattresses, and waffle makers. Furthermore, Newman et al. (2014) assessed sustainable product enhancements of dish soap and drain cleaner that were supposed to be better for the environment than the former products. Taken together, these studies

lead to the research question of whether a sustainable attribute at the company level or one at the product level matters more to consumers in terms of their purchase intention, willingness to pay more, and perception of greenness. To the best of my knowledge, no prior research has examined this question so far. However, if one type of sustainable attribute were to be preferred, this would have far-reaching consequences for marketing, product development, and the communication of sustainable products, and it would give managers an indication of how they should allocate a company's resources. If a company wants to act sustainably, it must first answer the question of via which attribute, at the product or company level, sustainability should be achieved. If attaching the sustainable attribute to the product or company level were to make a significant difference, this would give companies a clear guideline on an abstract level.

2.2 Hypotheses

A review of the literature does not reveal any studies comparing sustainable attributes at the product level to sustainable attributes at the company level. The only study that might provide insight into this issue is Gershoff and Frels (2015). If a product is perceived as more sustainable when the sustainable attribute is more central to the function of the product, one could argue that sustainable attributes at the product level are perceived as more central to the function of a product than attributes at the company level. Consequently, sustainable attributes at the product level should lead to higher perceived sustainability. As Jahnert et al. (2022) show, consumers have positive preferences and purchase intentions for sustainable insurance products. Therefore, insurance products with sustainable attributes at the product level should lead to higher purchase intentions and willingness to pay more than sustainable attributes at the product level. Furthermore, a concrete sustainable product entails higher levels of enjoyment when the product is consumed (Tezer and Bodur, 2020). Also, considering sustainable attributes at the company level, consumers might think that the company will support sustainable initiatives anyway and that their purchasing decision will make no difference to the sustainable impact. Therefore, we hypothesize that consumers will prefer products with sustainable attributes at the product level over the company level in terms of purchase intention and willingness to pay more.

H₁: Consumers display a higher purchase intention for insurance products with sustainable attributes at the product level than for products with sustainable attributes at the company level.

H₂: Consumers display a higher willingness to pay more for insurance products with sustainable attributes at the product level than for products with sustainable attributes at the company level.

Additionally, we hypothesize that consumers will perceive insurance products with sustainable attributes at the product level as greener than insurance products with sustainable attributes at the company level.

H₃: Consumers perceive insurance products with sustainable attributes at the product level as greener than insurance products with sustainable attributes at the company level.

3. Experimental studies

3.1 Overview of studies and stimulus design

The hypotheses were tested in three experimental studies. The following sections report the methodology and results of each. The studies differ in terms of the specific, employed sustainable attribute. All studies were conducted with a built-in incentive mechanism to attract attention and incentivize participants to reveal their true preferences. At the very beginning of the survey, participants were told that they could win a voucher worth USD 50 for an insurance policy. The winner could choose an insurance policy of his or her choice. The instruction stated that the only condition is that the insurance provider and product matched as closely as possible the provider and product preferred in the choice task. If the winner in this survey chose a provider with outstanding contract features, the insurance product purchased must also contain these outstanding contract features.

The procedure and the insurance products were identical in all three studies, only the product descriptions concerning the sustainable attribute changed. First, the participants were shown two renters' insurance products, presented as if they were in an online comparison portal. Renters insurance has been chosen because a high share of people has such insurance and insurance companies can easily attach sustainable attributes to this product. The participants were instructed to take their time and compare the products. Except for the sustainable attribute, the two products were identical. Afterward, the participants were asked which product they would choose. In the case of Study 2 and 3, further consumer preferences were subsequently elicited (all scales including sources are shown in Appendix A, the corresponding Cronbach's Alphas are

reported in Table 5). Both products had previously been used by Jahnert et al. (2022), who showed that the logos of the two hypothetical insurance companies did not significantly influence participants' decisions. Since the products were identical, apart from the brand logo and the sustainable attribute, the outcomes can be attributed purely to the different sustainable attributes.

3.2 Study 1

The first study aimed to discover whether insurance consumers have different preferences for sustainable attributes at the product versus the company level. For this purpose, participants were shown two renters insurance products (see Appendix B) in random order. In addition to the presence of a sustainable attribute on the product sheet, an information box appeared next to this attribute explaining it in more detail. The sustainable attribute at the product level was presented with the attribute “Product with positive sustainable impact”. The information box contained the following information: “With the repair-option, you can either opt for an environmentally-friendly repair or get the most energy-efficient (A++) product as a replacement.” The attribute at the company level was described as “Insurer with highly sustainable business practices.” The corresponding information box said the company supports the reforestation of U.S. forests.

When the products were displayed, the participants were asked: “Imagine you need to purchase rental insurance. Which of the following contracts would you choose?” At this point, the continue button was only released after 45 seconds, so the participants were required to take their time to compare the products. After the participants were forced to choose one product they would rather purchase, the purchase intention was asked for each product individually on a Likert scale of 1 – 9, with 1 indicating “definitely would not buy the insurance product” and 9 being “definitely would buy the insurance product”. 127 U.S. participants were surveyed via Prolific in exchange for monetary compensation, of which 120 provided complete responses (58 females, 60 males, 2 others; $M_{\text{Age}} = 37.58$, $SD_{\text{Age}} = 12.79$).

Results

The results of this study were analyzed in two steps: first, the forced-choice decisions, and second the purchase intention responses. We tested the former with a chi-square goodness of fit test. If the participants had no preference for sustainable attributes at the product level compared to the company level, the responses should be uniformly

distributed. Therefore, we used the chi-square goodness of fit test to test whether the observed distribution was consistent with a uniform distribution of the choices for both products. The answers were as follows: 85 participants chose the product with the sustainable attribute at the product level, while only 35 participants chose the product with the sustainable attribute at the company level. According to the chi-square test, this result differs significantly from a uniform distribution of responses ($X^2(1, N = 120) = 20.833, p < 0.01$).

This result was the first indication that the participants preferred insurance with sustainable attributes at the product level over products with sustainable attributes at the company level (H_1). However, the preference could be marginal and only significant because participants had to decide on one or the other. Therefore, the purchasing intention was analyzed to provide further insights into the research question. The participants' purchasing intention was first analyzed using the Wilcoxon rank sum test and then with an ANOVA. The average purchasing intention for the product with the sustainable attribute at the product level was greater at 6.36, while it was 5.64 for the sustainable attribute at the company level. The Wilcoxon rank sum test confirmed the hypothesis that the purchase intention for the two products differed significantly ($z = -3.89, p < 0.01$; see Table 5). Also, the ANOVA confirmed that the purchase intention correlated significantly with the positioning of the products' sustainable attribute ($F_{(1, 238)} = 11.69, p < .001$; see Table 6) and consumers preferred the product with an sustainable attribute on product level. Even when controlling for the demographic variables gender, age, children (dummy: yes or no), income, and education ($F_{(1, 233)} = 11.69, p < 0.01$), this result remained constant.

Discussion

This first study has clearly supported hypothesis 1 and shown that consumers prefer sustainable attributes at the product level over those at the company level. However, in this specific case, the attribute at the product level could offer the consumer a direct monetary benefit. In case of damage, he or she would receive an extremely energy-saving replacement, potentially of higher value than the replaced product. Therefore, the participants might have preferred the sustainable attribute at the product level for this benefit alone. In Study 2, the sustainable attribute at the product level was substituted by one that would not bring any monetary benefit to the consumer.

3.3 Study 2

The procedure followed by the second study was identical to the first. The only difference was an adjustment to the information box of the insurance with the sustainable attribute at the product level was adjusted. In this study, the consumer did not receive a better or more energy-efficient product. In case of damage, he or she could either opt for a repair or would receive a similar, but sustainability-friendly product; however, it did not elaborate on what “sustainability friendly” meant exactly. Therefore, neither sustainable attribute could potentially have a more beneficial consequence for the consumer. Both products offered the consumer exactly the same benefits, and the sustainable attributes solely affected the environment. The information box of the product with sustainability at the product level now stated: “With the repair-option, you can either opt for an environmentally-friendly repair or receive an equal sustainability friendly replacement” (see Appendix C). Furthermore, after ascertaining the purchase intention, information was gathered on two additional variables to better understand consumer perceptions. Specifically, these were intended to compare the effect a sustainable product attribute and a sustainable company attribute had on the consumer’s willingness to pay more and the perceived greenness of the product. 132 U.S. participants were surveyed via Prolific in exchange for monetary compensation, of which 124 provided complete responses (58 females, 63 males, 3 others; $M_{\text{Age}} = 41.17$, $SD_{\text{Age}} = 14.77$).

Results

Similar to Study 1, the forced-choice was examined first, after which the differences in the additional variables were analyzed using the Wilcoxon rank sum test and ANOVAs. Despite the similarity between the sustainable attributes, the participants' forced choices differed strongly. While 83 participants preferred the insurance product with a sustainable attribute at the product level, only 41 chose the insurance product with a sustainable attribute at the company level. As in Study 1, the distribution thus differed significantly from a uniform 50% to 50% distribution according to the chi-square test ($X^2(1, N = 124) = 14.23, p < 0.01$).

The purchase intentions (H_1) also differed significantly between the two products ($z = -2.88, p < 0.01$; see Table 5) according to the Wilcoxon rank sum test, and the product with the sustainable attribute at the product level captured a higher purchase intention (5.95 versus 5.25). The ANOVA analysis supported this result both without

demographic controls ($F_{(1, 246)} = 9.10, p < 0.01$) and with demographic controls ($F_{(1, 241)} = 8.96, p < 0.01$; see Table 6).

The examination of the willingness to pay more (H_2) revealed another observation highly relevant to insurance companies. Participants were willing to pay significantly more for the product with the sustainable attribute at the product level than for the products with the sustainable attribute at the company level. While the average willingness to pay more for the product with sustainable attribute at the product level was 3.38, the average willingness to pay more for the product with sustainable attribute at the company level was only 2.98. The Wilcoxon rank sum test confirmed the significance of the difference between the two results ($z = -2.00, p < 0.05$). The corresponding ANOVAs came to the same conclusion (without controls: $F_{(1, 246)} = 3.89, p < 0.05$; with controls: $F_{(1, 241)} = 3.95, p < 0.05$).

The analysis of the perceived greenness of the two products was as follows (H_3): The insurance product with a sustainable attribute at the product level was seen as greener than the product with the sustainable attribute at the company level (4.77 versus 4.32). This difference was also significant according to the Wilcoxon rank sum test ($z = -2.73, p < 0.01$). The ANOVA of the correlation between the attribute level and greenness similarly revealed the significant difference of these results (without controls: $F_{(1, 246)} = 8.23, p < 0.01$; with controls: $F_{(1, 241)} = 8.27, p < 0.01$).

Discussion

Remarkably, not only the purchase intention but also the willingness to pay more and the perceived greenness of two otherwise equal products differed significantly based only on the level of the sustainable attribute. This shows that the level at which a sustainable attribute is located triggers different perceptions among consumers. The study repeatedly showed that sustainable attributes at the product level are more effective in attracting consumers, increasing their willingness to pay, and convincing them about the product's greenness. Conceivably, however, the differences might have been caused by consumers thinking that the sustainable attributes at the product level had a higher impact on the environment than the attributes at the company level. In Study 3, therefore, the product description was modified to explicitly state the environmental impact in terms of the amount of CO₂ saved.

3.4 Study 3

As Jahnert et al. (2022) have shown, the perceived consumer effectiveness (PCE) of a sustainable product attribute is a significant variable that mediates the purchase intentions for sustainable insurance products. The construct of perceived consumer effectiveness measures the perceived impact of a purchase in terms of environmental, social, and governmental sustainability. As the sustainable attributes in the employed insurance products focused on the environmental impact, the subconstruct “perceived environmental effectiveness” was used in the analysis. To maximize the comparability of the impact of the two sustainable attributes, each information box contained, in addition to the previous information, the statement: “Compared to the standard product, this policy prevents on average the emission of 550 kg of CO₂” (see Appendix D). This showed the participants that the environmental impact of both products was identical. Hence, in this study, the observed distinctive effect of the product versus corporate level sustainable attribute was controlled for the perceived environmental impact.

Pre-Study

Before conducting Study 3, we tested whether the environmental impact of two products with an identical amount of saved CO₂ would be perceived as different. Therefore, in a pre-study, we surveyed participants about the perceived environmental impact of the two insurance products used in Study 3. We ran this pre-study via Prolific with 120 U.S. participants who received monetary compensation. While the perceived environmental impact of the insurance with a sustainable attribute at the product level was rated 4.13, the perceived impact of the insurance with a sustainable attribute at the company level was rated 4.11. The Wilcoxon rank sum test could not find a significant difference between the two groups ($z = -0.03$, $p = 0.98$). Consequently, it can be assumed that the potential differences in purchase intention, willingness to pay more, and greenness in the results of Study 3 were caused by the varying sustainable attribute and not by a difference in the perceived environmental impact.

Results

For Study 3, 130 participants were recruited, of whom 120 provided complete answers (59 females, 59 males, 2 others; $M_{\text{Age}} = 39.48$, $SD_{\text{Age}} = 13.57$). In this setup, a different set of results emerged than in Studies 1 and 2. First, in the forced-choice setting, the choices were exactly uniformly distributed. Each product was selected by 60 participants ($\chi^2(1, N = 120) = 0$, $p = 1.00$). Secondly, the Wilcoxon rank sum test did no longer find a significant difference in the purchase intention between the two

products. While the insurance product with a sustainable attribute at the product level had a purchasing intention of 5.58, the product with the attribute at the company level had a purchasing intention of 5.45 ($z = -0.36$, $p = 0.72$). Similarly, the ANOVAs no longer showed significant correlations (without controls: $F_{(1, 238)} = 0.26$, $p = 0.61$; with controls: $F_{(1, 233)} = 0.27$, $p = 0.60$; see Table 6). Also, the willingness to pay more (attribute at product level: 3.24 versus at company level: 3.22; $z = -0.15$, $p = 0.88$) and greenness (attribute on product level: 4.74 versus on company level: 4.55; $z = -1.18$, $p = 0.24$) no longer showed any significant differences according to the Wilcoxon rank sum test. The results of the ANOVAs underlined these findings; no significant differences were found, either for the willingness to pay more (without controls: $F_{(1, 238)} = 0.01$, $p = 0.91$; with controls: $F_{(1, 233)} = 0.01$, $p = 0.91$) or for perceived greenness (without controls: $F_{(1, 238)} = 1.41$, $p = 0.24$; with controls: $F_{(1, 233)} = 1.42$, $p = 0.24$).

Discussion

The results of this third study have shown that when insurance consumers can quantifiably compare the impact of sustainable attributes, the previously clear preference for sustainable attributes at the product level disappears. When the impact of both products is identical, insurance consumers' preference for sustainability at the product level dissolves, and both products are rated almost identically in terms of purchase intention, willingness to pay more, and greenness. This result could be explained by the paper of Jahnert et al. (2022), who showed that the perceived impact is a significant factor influencing the purchasing intention of sustainable insurance products. As the pre-test made clear, the perceived environmental impact of the two products in Study 3 was extremely similar. This demonstrates that for otherwise equal insurance products, the impact of a sustainable attribute is more important to consumers than where this attribute is placed. However, it is questionable whether the setting applied in Study 3 can occur in practice. It is very challenging to estimate the true CO₂ savings of a sustainable attribute in advance, as this depends on the actual damage, repairability, and consumer behavior – at least for sustainable attributes at the product level. As long as insurers do not quantify the sustainable impact and absolute comparability is not yet established, this series of studies has demonstrated that insurance consumers prefer sustainable attributes at the product level.

Table 5: Descriptive statistics and results of the Wilcoxon rank sum test

	Study 1		Study 2		Pre-Study		Study 3	
	Product level	Company level	Product level	Company level	Product level	Company level	Product level	Company level
Purchase Intention	mean (sd)	6.36 (1.57)	5.64 (1.67)	5.95 (1.72)	5.25 (1.93)		5.58 (1.84)	5.45 (1.98)
	mean product - mean company level	0.72***		0.70***			0.13	
	test statistic	z = -3.89, p < 0.01		z = -2.88, p < 0.01			z = -0.36, p > 0.05	
WTP more	mean (sd)		3.38 (1.65)	2.98 (1.57)			3.24 (1.52)	3.22 (1.59)
	mean product - mean company level		0.40**				0.02	
	test statistic		z = -2.00, p < 0.05				z = -0.15, p > 0.05	
	Cronbach's Alpha		0.94				0.91	
Greenness	mean (sd)		4.77 (1.17)	4.32 (1.34)			4.74 (1.25)	4.55 (1.31)
	mean product - mean company level		0.45				0.19	
	test statistic		z = -2.73, p < 0.01				z = -1.18, p > 0.05	
	Cronbach's Alpha		0.92				0.92	
Perceived Environmental Impact	mean (sd)				4.13 (1.45)	4.11 (1.40)		
	mean product - mean company level				0.02			
	test statistic				z = -0.03, p > 0.05			
	Cronbach's Alpha				0.86			
N		120	120	124	120	120	120	120

Note: This table reports the means, standard deviations, test statistics of the Wilcoxon rank sum test, and Cronbach's Alphas for the three studies and the pre-study to Study 3. *p < 0.10; **p < 0.05; ***p < 0.01.

4. Discussion

The research presented in this paper has shown that the position at which a sustainable attribute is anchored can influence consumer decisions. Studies 1 and 2 clearly showed that consumers prefer insurance products with sustainable attributes at the product level, in terms of purchasing intention and willingness to pay more, and they rate these products as greener than identical products where the sustainable attribute is attached to the company level. Study 3 showed the limit of this effect. When the impact of both sustainable attributes is quantified and identical, the preference for the product with the sustainable attribute at the product level disappears. However, it must be noted that this type of quantification has not yet been carried out in practice; challenges of measurability and regulatory hurdles make these promises difficult. If stated savings cannot be proven, it might result in fines or loss of reputation, because such a situation would be perceived as greenwashing. Since insurance companies seem not to have collected many reliable data on this connection yet, it would be difficult for them to quantify the sustainable impact of an individual attribute. The settings in Studies 1 and 2 thus bear a greater similarity to current insurance purchase decisions than the setting in Study 3. Therefore, sustainable attributes at the product level seem to be more favorable to insurance companies than attributes at the company level, and, under current market circumstances, hypotheses 1 to 3 can be accepted.

Table 6: Results of the ANOVAs for the three studies

	Study 1			Study 2			Study 3		
	Purchase Intention			Purchase Intention			Purchase Intention		
	w/o controls	with controls	Greenness	w/o controls	with controls	Greenness	w/o controls	with controls	Greenness
Sustainability Attribute on Product Level									
Mean Sq	30.82***	30.82***	12.99***	10.08**	10.08**	12.99***	0.94	0.94	2.30
F	11.69	11.69	8.23	3.85	3.95	8.27	0.26	0.27	1.42
df	(1, 238)	(1, 233)	(1, 246)	(1, 246)	(1, 241)	(1, 241)	(1, 238)	(1, 233)	(1, 233)
Gender									
Mean Sq	1.40	0.48	7.08**	5.59	5.59	7.08**	13.78**	13.78**	4.84*
F	0.53	0.14	4.50	2.19	2.19	4.50	3.95	3.95	2.98
df	(1, 233)	(1, 241)	(1, 246)	(1, 246)	(1, 241)	(1, 246)	(1, 233)	(1, 233)	(1, 233)
Age									
Mean Sq	3.50	0.92	0.32	15.61**	15.61**	0.32	4.52	4.52	0.61
F	1.33	0.27	0.21	6.12	6.12	0.21	1.30	1.30	0.37
df	(1, 233)	(1, 241)	(1, 246)	(1, 246)	(1, 241)	(1, 246)	(1, 233)	(1, 233)	(1, 233)
Children									
Mean Sq	2.75	0.02	0.65	0.22	0.22	0.65	11.26*	11.26*	3.61
F	1.04	0.01	0.41	0.09	0.09	0.41	3.23	3.23	2.22
df	(1, 233)	(1, 241)	(1, 246)	(1, 246)	(1, 241)	(1, 246)	(1, 233)	(1, 233)	(1, 233)
Income									
Mean Sq	0.45	2.31	0.93	1.44	1.44	0.93	29.09***	29.09***	1.66
F	0.17	0.68	0.59	0.56	0.56	0.59	8.35	8.35	1.02
df	(1, 233)	(1, 241)	(1, 246)	(1, 246)	(1, 241)	(1, 246)	(1, 233)	(1, 233)	(1, 233)
Education									
Mean Sq	4.71	0.29	0.67	0.21	0.21	0.67	11.45**	11.45**	0.19
F	1.79	0.08	0.43	0.08	0.08	0.43	0.01	0.01	0.12
df	(1, 233)	(1, 241)	(1, 246)	(1, 246)	(1, 241)	(1, 246)	(1, 233)	(1, 233)	(1, 233)

Note: This table reports the results of the ANOVAs for all three studies, with and without control variables.
 * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

4.1 Limitations

A limitation of this investigation is that the costs of the sustainable attributes for the insurer were not considered. Even if one attribute type is preferable, economically, also the costs must be taken into account when deciding whether to offer a sustainable attribute. If sustainable attributes anchored at the product level are significantly more expensive for an insurance company than those anchored at the company level, the higher costs may outweigh the benefits of increased consumer preferences. In this case, it may no longer be optimal to place the sustainable attribute at the product level. Furthermore, the conducted studies were based on specific, but still highly comparable, sustainable attributes. If consumers have the choice between several sustainable insurances with different sustainable attributes that vary in type, beneficiary, or other aspects, consumers' preferences for a specific attribute may dominate their general preferences for sustainable attributes at the product level. Furthermore, there may be sustainable attributes that cannot be categorized into a product or company differentiation. Additionally, there are sustainable attributes, which are implementable at both, the product and the company level. For example, an insurer could decide to plant one tree for each contract sold to encounter the emission of CO₂, on the one hand. On the other hand, the insurer could choose to plant a certain number of trees regardless of the number of contracts sold. However, even in this situation, the results give guidance in a way, that the implementation at the contract level seems favorable.

4.2 Managerial implications

This research provides managers with a very fundamental insight into how to most efficiently design sustainable products. According to the results of this study, in the most common settings, sustainable insurance products are preferred if the sustainable attribute is located at the product level. Therefore, when companies introduce sustainable insurance products, it is beneficial to attach sustainable attributes to the product itself rather than promoting sustainable measures at the company level.

In product development, therefore, resources should be allocated toward developing actionable sustainable attributes at the product level. As mentioned in the introduction, insurers currently seem to primarily focus on and advertise sustainability at the company level. Based on the results of these studies, this matter should be rethought. New, sustainable attributes at the product level should be tested for their feasibility and acceptance by the consumer. In addition, attention should be paid to the perceived

impact of an attribute and, if possible, the impact should be quantified as accurately as possible to increase consumer demand (cf. Jahnert et al., 2022). Overall, the impact of an attribute should not only be considered from a purely financial or marketing point of view. Especially on the topic of sustainability, which is becoming more and more important to the public, the true impact on environmental, social, or governance goals should be apparent and verifiable. This should, at least in part, be an intrinsic goal for every company anyway. Otherwise, if the impact of the sustainable attribute is not clearly evident, a suspicion of greenwashing could quickly arise. Further research should investigate whether consumers generally assign a higher level of perceived consumer effectiveness to products with sustainable attributes at the product level when the sustainable impact of the attributes is not quantified.

5. Conclusion

The previous literature on sustainability focuses primarily on questions like when and why consumers decide for sustainable products in general or analyzes specific sustainable attributes. Gershoff and Frels (2015) are among the first, who examine the impact of sustainable attributes on a higher, abstract level on consumer's perceptions – whether how central the sustainable attribute is located to the core of a product impacts consumer's perceptions. We add to the literature the analysis of one additional, abstract, and highly relevant perspective on sustainable attributes. As every sustainable attribute can either be related to the product itself or to the offering company, we investigate whether consumers perceive these two different types of attributes as diverse and assess their varying effects on the purchase intention, willingness to pay, and perceived greenness. At the point a company decides to offer sustainable products, one of the first questions that need to be answered is what sustainable attribute to choose to foster sustainability and whether to implement this attribute at the product or company level. Therefore, this question is highly relevant to companies.

This study gives clear guidance that in the current insurance market, consumers have strong preferences for sustainable attributes at the product level. They disclose a greater purchase intention, willingness to pay for these products and perceive them as greener compared to insurance products with sustainable attributes at the company level. It seems that consumers assume that sustainable attributes at the product level have a greater sustainable impact than attributes at the company level. When consumers are

shown the impact of a product, preferences for a higher, sustainable impact predominate and preferences for the sustainable attribute at the product level can no longer be proven. However, in the current environment in which insurance companies operate, the specific impact is difficult to quantify and therefore not shown in the market for insurance products. Therefore, under the current circumstances, insurance companies should prefer to establish sustainable attributes at the product level, and emphasize those in their external communication.

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Appendix A: Overview of employed scales in the experiments

Item	Question	Scale	Characteristics	Source
Purchase Intention	How likely would you be to buy the product of ___?	Likert 9-Point	1 = definitely would not buy the insurance product; 9 = definitely would buy the insurance product	Chandran and Morwitz (2005); Newman et al. (2014)
WTP more	I am willing to pay a higher price at Stanley & Co. than at its competitors with lower ESG Impact scores.	Likert 7-Point	1 = not at all likely; 7= extremely likely	Zeithaml et al. (1996); Habel et al. (2016)
WTP more	I would like to keep buying at Stanley & Co., even if other companies with lower ESG Impact scores were cheaper.	Likert 7-Point	1 = not at all likely; 7= extremely likely	
WTP more	For the advantages I have as a customer of Stanley & Co. I would be willing to pay a higher price.	Likert 7-Point	1 = not at all likely; 7= extremely likely	
Greenness	Insurance products of ___ deserve to be labeled “sustainably friendly”.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	Gershoff and Frels (2015)
Greenness	Purchasing an insurance product of ___ is a good sustainable choice.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	
Greenness	A person who cares about sustainability would be likely to buy insurance products of ___.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	
Greenness	How sustainable are the insurance products of ___?	Likert 7-Point	1 = not sustainable at all; 7= very sustainable	
Perceived environmental impact	Through buying the insurance product of ___, I could contribute to the solution of environmental issues.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	Antonetti and Maklan (2014)
Perceived environmental impact	Buying the insurance product of ___, would be significant enough in affecting environmental problems.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	
Perceived environmental impact	Environmental issues could be affected by my purchases of the insurance product of ___.	Likert 7-Point	1 = strongly disagree; 7= strongly agree	

Appendix B: Overview of products in Study 1



WILLIAM CORPORATION

\$149 per Year

COVERAGE

- Personal property \$ 100 000
- Personal liability \$ 100 000
- Deductible \$ 350
- Including partner

- High level of customer satisfaction
- Flood and earthquake damages
- Insurer with highly sustainable business practices
- Short cancellation period: 1 Month

William Corporation supports the reforestation of US forests.



STANLEY & CO.

\$149 per Year

COVERAGE

- Personal property \$ 100 000
- Personal liability \$ 100 000
- Deductible \$ 350
- Including partner

- High level of customer satisfaction
- Flood and earthquake damages
- Product with positive sustainable impact
- Short cancellation period: 1 Month

With the repair-option, you can either opt for an environmentally friendly repair or get the most energy-efficient (A++) product as a replacement.

Appendix C: Overview of products in Study 2



\$149 per Year

COVERAGE

- Personal property
- Personal liability
- Deductible
- Including partner

\$ 100 000

\$ 100 000

\$ 350

✓ High level of customer satisfaction

✓ Flood and earthquake damages

✓ Insurer with highly sustainable business practices

✓ Short cancellation period: 1 Month



William Corporation supports the reforestation of US forests.



\$149 per Year

COVERAGE

- Personal property
- Personal liability
- Deductible
- Including partner

\$ 100 000

\$ 100 000

\$ 350

✓ High level of customer satisfaction

✓ Flood and earthquake damages

✓ Product with positive sustainable impact

✓ Short cancellation period: 1 Month



With the repair-option, you can either opt for an environmentally friendly repair or receive an equal sustainably friendly replacement.

Appendix D: Overview of products in Study 3

WILLIAM CORPORATION

\$149 per Year

COVERAGE

• Personal property

• Personal liability

• Deductible

• Including partner

\$ 100 000

\$ 100 000

\$ 350

✓ High level of customer satisfaction

✓ Flood and earthquake damages

✓ Insurer with highly sustainable business practices

✓ Short cancellation period: 1 Month

i

William Corporation supports the reforestation of US forests. Compared to the standard product, this policy prevents on average the emission of 550 kg of CO₂.

STANLEY & CO.

\$149 per Year

COVERAGE

• Personal property

• Personal liability

• Deductible

• Including partner

\$ 100 000

\$ 100 000

\$ 350

✓ High level of customer satisfaction

✓ Flood and earthquake damages

✓ Product with positive sustainable impact

✓ Short cancellation period: 1 Month

i

With the repair-option, you can either opt for an environmentally friendly repair or receive an equal sustainably friendly replacement. Compared to the standard product, this policy prevents on average the emission of 550 kg of CO₂.

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